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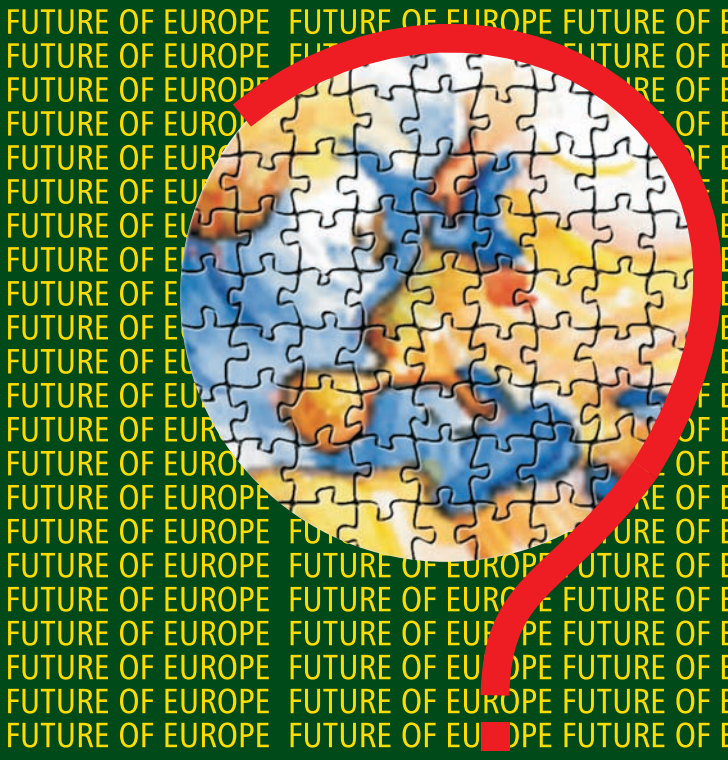
Towards a New Creative and Innovative Europe



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Towards a New Creative and Innovative Europe

Publication dedicated
to the brilliant Finnish EU Presidency 2006
and to the driving example of Finland
as a creative and innovative Country

WYŻSZA SZKOŁA BIZNESU
NATIONAL-LOUIS UNIVERSITY

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REUPUS

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Towards a New Creative and Innovative Europe

Editors:
Antoni Kukliński
Cezary Lusiński
Krzysztof Pawłowski

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PREFACE

The Recifer—Eurofutures Publication Series (Reupus) is already a contribution which may be seen in the grand debate related to the Future of Europe. It is a great honour and pleasure for me to introduce the fifth volume of Reupus—Towards a new creative and innovative Europe. This volume is a follow up of a successful and maybe charismatic conference which took place in Warsaw November 30th – December 2nd 2006.

The volume is dedicated to the brilliant Finnish EU Presidency 2006 and to the driving example of Finland as a creative and innovative Country.

Let me acknowledge in this place the generous grant of the Ministry of Science and Higher Education which created the financial background for the publication of this volume.

Krzysztof Pawłowski

Nowy Sącz

August 16th 2007

EDITORIAL INTRODUCTION

The multidimensional and transdisciplinary challenge of creativity and innovation is probably the most dramatic challenge for Europe of the XXI century. The forty papers published in the volume *Towards a new creative and innovative Europe* are presenting different visions of this challenge and different answers formulated in a broad methodological and pragmatic context. The framework of questions and answers developed in this volume is a demonstration of a set of open minded critical approaches seeing that we have a long way to go until we solve the paradox of creative and innovative Europe—if the solution of this paradox is possible at all. We have however no choice. Our intellectual and moral duty is *contra spem—sperare*.

* * *

In this spirit the Editorial Team would like to express the deep feeling of gratitude to all Authors who have prepared interesting contributions published in the volume *Towards a new creative and innovative Europe.*

Antoni Kukliński
Cezary Lusiński
Krzysztof Pawłowski

Warsaw – Nowy Sącz
August 16th 2007

Part I:

European Union—Finland and the Finnish EU Presidency

JAN STORE

RESULTS OF THE FINLAND'S EU PRESIDENCY IN INNOVATION POLICY

Broad perspective to innovation policy at the EU level as a goal

In Finland there is a strong belief in the importance of innovation for productivity, growth and for competitiveness. This is the reason why innovation policy was chosen to be one of the main priorities of Finland's EU Presidency.

Although each Member State has to set its priorities and develop solutions that fit its own circumstances, we need joint action to support innovation at the EU level. The aim was to have a broad perspective to innovation policy as well as to measures that are needed to promote innovation—not only to concentrate on financial inputs to innovation but also to look at measures which create demand. We listened to the high-level expert group lead by the former Prime Minister of Finland, Mr Esko Aho, which highlighted the need for a more demand driven innovation policy. We noticed, like he did, that the public measures in support of innovation had mostly focused on the supply side.

The ambition of the Finnish Presidency was to identify strategic priorities for the EU level measures in support of innovation: measures to create an innovation friendly business environment, measures to increase demand for innovation and measures to improve European financing, European institutions and collaboration.

A high profile

Innovation policy featured in the Competitiveness Council throughout the presidency. It was discussed by the Heads of State and Government at the informal summit in Lahti in October and the results were confirmed by the European Council in December. The Commission was strongly involved and issued a communication on a broad based innovation policy before the Lahti summit.

Thus innovation was put at the very centre of the EU's competitiveness agenda. We succeeded in raising the profile of innovation policy as an essential element of the Lisbon strategy for growth and jobs. But did we achieve the concrete deliverables that we wanted, the suggestions for practical policy improvements?

Nine strategic priorities agreed

I think it is fair to say that we did. The Heads of State and Government reached consensus on taking a strategic approach to innovation with a strong focus on a number of key actions, and the Council identified strategic priorities for the EU level measures in support of innovation.

The Council considered that innovation policy should be formulated through a set of various instruments. It defined that these aim at improving access to financing in support of innovation, at creating an innovation friendly regulatory environment and demand for innovation as well as reinforcing the activities of institutions relevant for innovation, including the links between research institutions and industry. It highlighted the role of general framework conditions for innovation, in particular for small and medium sized enterprises and thus underlined the significance of the single market, competition and a regulatory framework based on clear and consistent rules as prerequisites for a broad-based innovation strategy. Furthermore, the Council called for comprehensive, yet tailored, innovation policy measures at national level. It stated that these measures should cover, inter alia, education, research, entrepreneurship and promotion of innovation culture. The Council also invited all Member States to actively engage with the work of Community programmes in support of innovation.

The Commission was invited, in cooperation with all relevant bodies at all levels to further strengthen the coherence and synergy of its different policies. The Council noted that a common view on innovation enhances the Union's external competitiveness and helps position Union as the global leader in terms of reaping the new opportunities brought by globalisation and technological change.

Finally the Council noted that the newly adopted Community Framework for State aid for R&D and innovation should enable Member States to better target their support to innovation activities in a coherent manner.

In short, the blueprint for EU level innovation action was defined. The agreed strategic priorities consist of the following:

1. Intellectual Property Rights: The Council stressed the need for a comprehensive IPR strategy and welcomed the Commission's intention to present such a strategy. It also invited the Commission to present a Communication on patents and undertook to respond to the Commission's initiatives.

2. Creating a pro-active standard-setting policy: The Council stressed the need to enhance the European standard-setting systems and asked the Commission to work out proposals for action to be taken. It also invited the Commission and Member States to investigate how to further integrate standardisation aspects into European and national research and technological development (RTD) projects.

3. Making public procurement work for innovation: The Council looked forward to the Commission's guidance, on how the EU rules on public procurement can be used to stimulate innovation.

4. Launching Joint Technology Initiatives: The Council invited the Commission to make proposals for the setting up of Joint Technology Initiatives that have reached an appropriate stage of preparedness, and other proposals as soon as possible. The Council also urged the industry to make appropriate commitments for financing the JTI's.

5. Boosting innovation and growth in lead markets: The Council welcomed the Commission's intention to consult stakeholders on the barriers for lead markets and invited the Commission to present during 2007 an initiative on these markets. Lead markets are about creating conducive frameworks for innovation in specific areas of economy where European firms could have a globally leading role, but where potential remains currently unrealised.

6. Enhancing closer co-operation between higher education, research and business: The Council stressed the vital role of higher education and lifelong learning in supporting innovation. It supported the conclusion that universities in Europe must be reformed and modernised and agreed the priority areas for reform. The Council welcomed the Commission's proposal on the establishment of the European Institute of Technology and invited the Commission to clarify the outstanding issues. In addition the Council also invited the Commission to present the announced Communication on knowledge transfer aimed at enhancing knowledge transfer between the public and private sectors across Europe.

7. Helping innovation in regions: The Council welcomed the Commission's initiative of the European Cluster Alliance aiming at stimulating practical cooperation between regional governments and invited the Commission to prepare an analysis how to promote the trans-national dimension of clusters. The Council invited the Member States to commit themselves to the achievement of targets in line with the priorities set in the financial perspectives for promoting competitiveness and creating jobs, in particular research and innovation. The Commission was also invited to provide expert assistance on using structural funds for promoting innovation.

8. Developing a policy approach to innovation in services and to non-technological innovation: The Council invited the Commission to prepare an overall assessment on innovation in services evaluating e.g. the related needs for policy adjustments. The Commission was also invited to take into account various forms of non-technological innovation.

9. Risk capital markets: The Council invited the Commission to continue its efforts to improve businesses' access to appropriate innovation finance, inter alia, by identifying, in co-operation with the Member States, obstacles to cross-border investment by venture capital funds. The Comission was also invited to study further the conditions for early stage venture capital investment in the EU.

The European Council emphasized in particular the IPR strategy, the Communication on patents, the European Institute of Technology, the joint technology initiatives, improvement of the working methods and overall resources of European Standardisation bodies and information and communication technologies.

In addition, the innovation agenda was advanced by various other means during our Presidency. Most importantly the EU's Framework programme for research and development as well as the services directive were finally accepted. The Framework programme has a huge budget of over 54 billion euros for the years 2007–2013 and will thus improve innovation financing and research and development performance. The services directive is also an important step towards a more innovation friendly operating environment since it provides a well-functioning framework for the production and commercialisation of more innovative services. The solution enables us to focus more and more of our research and development activities to the service sector.

The groundwork has been done; promoting innovation must stay an integral part of the EU's competitiveness strategy

After such a long list one might be somewhat sceptical about result to follow. It is true that a lot of work remains to be done. But the substance and the timing have been defined. Hereafter, progress in implementing the priorities will be monitored as part of the the Lisbon Strategy. Already at the Spring European Council 8–9 March 2007 innovations come high on EU's agenda.

Referring to the words of Prime Minister Matti Vanhanen, when he presented the results of our Presidency to the European Parliament: The groundwork has now been done. Promoting innovation must be an integral part of the EU's competitiveness strategy in the future.

JORMA ROUTTI

RESEARCH AND DEVELOPMENT FOR KNOWLEDGE ECONOMY

1. Knowledge Economy and Globalization

1.1. Transition towards Knowledge Economy

Knowledge has become the **major driving force of economic and social development** all around the world. Coupled with **globalization** and accelerated by rapid distribution and transfer of knowledge by information and telecommunication technologies, this development impacts all countries and regions, public institutions and corporate world, and lives and prospects of individuals.

The knowledge economy is based on the generation and adoption of new knowledge created by scientific research and technological development, investments in education and research, adoption of best practices, and openness to social, economic, and cultural innovations. For advanced **industrialized countries** with high labor and infrastructure costs, the knowledge economy offers competitive advantages in high-technology industries and efficient service sectors. For **natural-resource-based economies** it offers improved technologies and higher-value added products with closer customer linkages, as well as a path towards sustainable development. For **developing countries** knowledge offers possibilities to short-circuit development phases, leapfrog technologies, and faster integration into the global economy by becoming more attractive to international investors.

As an example of knowledge economy components, we can mention the rapid development and adoption of **information and communication technologies (ICT).** The packing density of components in microelectronics has doubled every 18 months over several decades already—known as Moore's law- and a small pocket computer or memory stick memory now exceeds thousand-fold that of Apollo lunar module some thirty years ago. In telecommunications it took more than 100 years to build the fixed-line system. In dramatic contrast, in a couple of decades, the number of mobile telephones worldwide grew to 1.5 billion and now exceeds that of fixed-line connections. Bypassing the economic and quality of life costs of digging up metropolitan streets to install telephone cables and marring the countryside with telephone poles, wireless technologies have brought to all countries domestic and global connectivity as well as advanced digital services. These technologies afford information and knowledge access through the Internet to even the remotest and most peripheral regions.

Research and development, creativity and innovation, and higher education are key elements in transition towards knowledge economy. These developments are the subject of

intensive studies all around the world. International organizations, such as the **World Bank** and the **World Economic Forum** have linked these developments also with competitive ranking of regions and countries. The rankings show fairly high degree of volatility and thus the possibility of rapid advances or decline and the emergence of winners and losers. This makes it that much more important to study the factors of success and failure in the creation of new knowledge and its conversion to economic and social benefit.

1.2. Characteristics and Assessment of Knowledge Economy

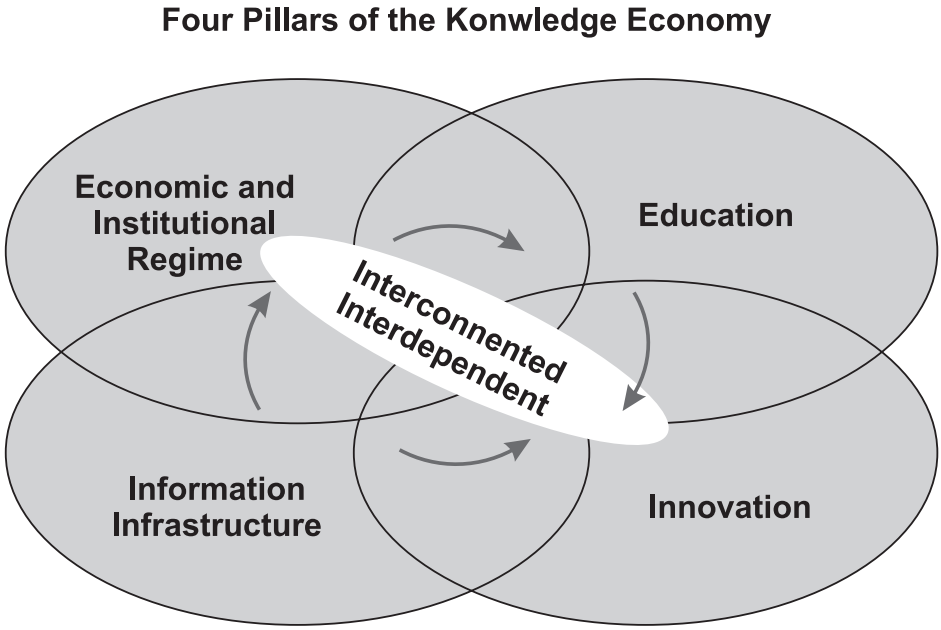
The **World Bank Knowledge Assessment Methodology KAM** is based on four pillars essential for success. These pillars are :

Economic and Institutional Regime provides incentives for the efficient creation, dissemination, and use of existing knowledge.

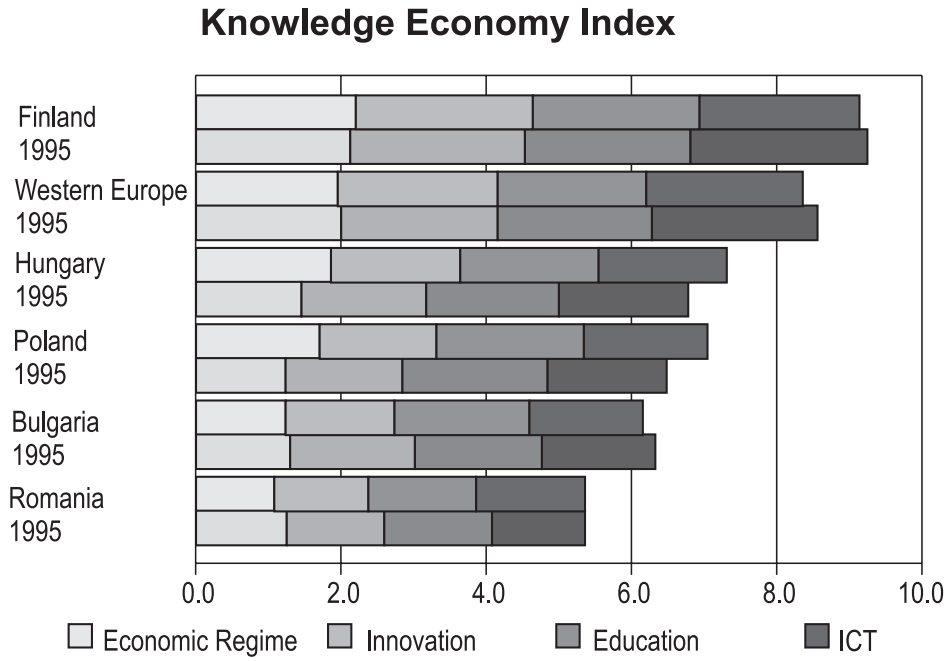
Education provides educated and skilled population that can use knowledge effectively.

Information infrastructure facilitates effective communication, disseminations, and processing of information.

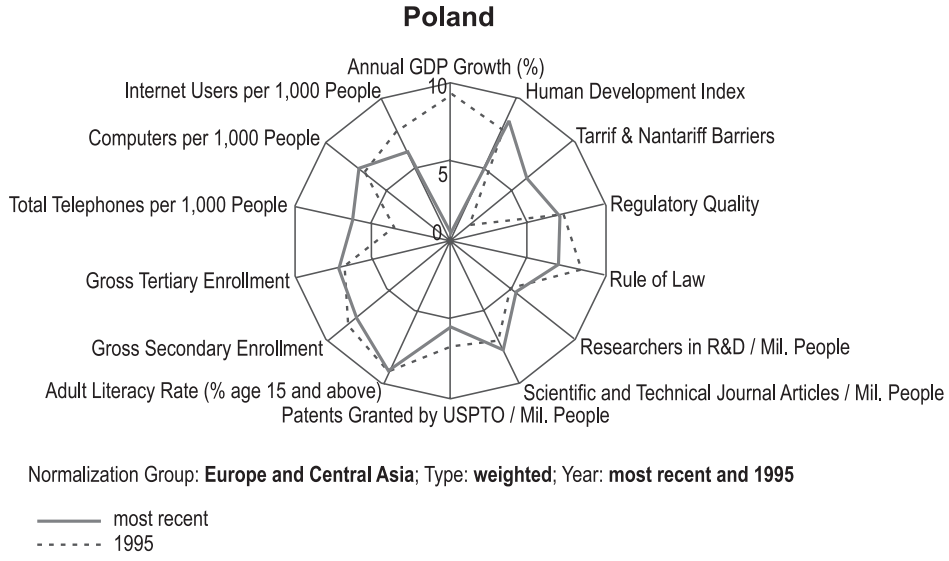
Innovation system to connecting and assimilating global knowledge, adaptation and creating of local knowledge for economic and social benefit.



The overall performance of Poland and some other recent EU member states is compared below with Western Europe average and Finland that has been amongst the top-ranked countries in recent years. The overall ranking amongst 132 countries is for Poland 38, Hungary 32, Bulgaria 41, Romania 54 while Finland and other Nordic countries have occupied the top places in recent years showing that it has been possible to combine competitiveness with advanced social welfare systems. It should be noted that the rankings over a longer period of time are quite volatile and significant changes have occurred. For instance Finland was in deep economic crisis in the early 1990's but was able to recover and reach top positions largely as a results of good education and innovation performance.



The more disaggregated KE index shown below for Poland for 1995 and the most recent data illustrates the stronger and weaker elements of KE factors.

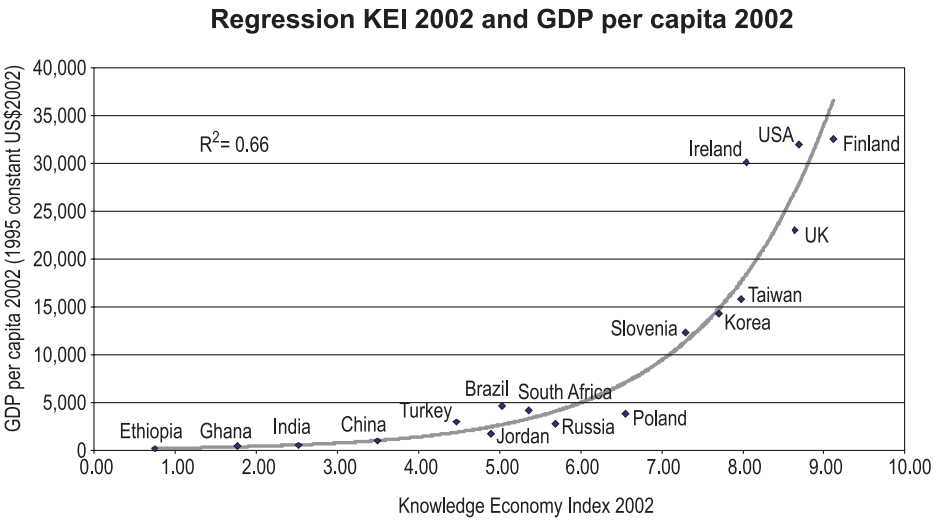


Some improvement in the overall comparative performance has been achieved in last ten years. The numerical data given below gives more detailed account of the key variables.

Variable	Poland (most recent) (Group: Europe and Central Asia)		Poland (1995) (Group: Europe and Central Asia)	
	actual	normalized	actual	normalized
Annual GDP Growth (%)	2.96	0.37	5,76	9,26
Human Development Index	0.862	8.46	0,808	7,73
Tarrif & Nantariff Barriers	2.00	6.15	4,50	1,54
Regulatory Quality	0.82	7.04	0,38	7,41
Rule of Law	0.32	7.04	0,42	8,52
Researchers in R&D / Mil. People	1581.00	5,22	1358,21	4,78
Scientific and Technical Journal Articles / Mil. People	177.23	7,78	117,49	7,04
Patents Granted by USPTO / Mil. People	0.48	5,56	0,27	6,67
Adult Literacy Rate (% age 15 and above)	100.00	9,26	99,70	9,20
Gross Secondary Enrollment	96.70	7,69	97,60	8,46
Gross Tertiary Enrollment	61.00	7,31	34,97	6,92
Total Telephones per 1,000 People	926.70	6,30	150,40	3,70
Computers per 1,000 People	192.80	7,39	28,50	7,00
Internet Users per 1,000 People	235.70	6,30	6,50	7,78

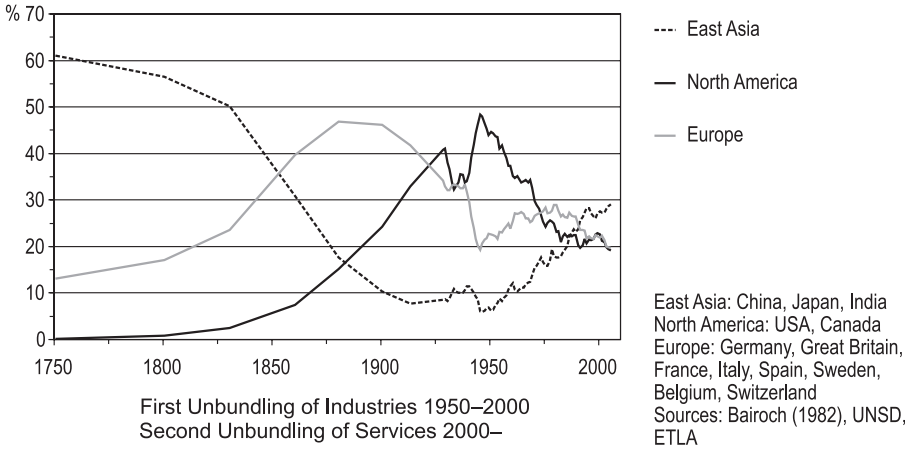
1.3. Impact of Knowledge Economy and Globalization

The combined effect of globalization and transition towards knowledge economy set new requirements to education and innovation systems. Already today the importance of KE components in the economic performance of countries is illustrated below by the strong correlation of KE-index and GDP of different countries. Poland's position is at KE index at 6.8 but on GDP axis at below expected value indicating significant possibilities for improvement that actually has already happened since 2002 shown in the figure.



The globalization is also rapidly changing the world economy and the comparative advantages of different countries. Large Asian countries that dominated the world economy until the industrial revolution in the mid 1800 are regaining their leading positions in the world economy.

Manufacturing Output by Region in 1750–2005, % of world total



Because of very competitive labor costs and huge domestics markets China is attracting direct foreign investments and growing at a rate of 8% annually whose GDP corrected with purchasing power parity is expected to exceed that of the United States as soon as 2012. But is also becoming a major player in R&D whose investments will exceed those of the European Union in the same time frame. Also India is growing fast and has become a major platform of software and service industries.

The rapid economic growth and industrialization East Asia results in a new international division of labor. Many labor intensive industries, such as textile and shoe industries, have moved away from Europe and United States to low cost manufacturing countries. This "first unbundling" has been driven by lowering international tariffs and low-cost containerized shipping and has taken place during last fifty years.

After this "first unbundling" the globalization has now entered into a phase called "the second unbundling". Rather than changing complete industries and companies it affects the tasks inside organizations. For instance accounted work done at the back office of a company can be outsourced, maybe first to a local accounting company but very soon to a low cost country like India. We have already seen much of software industries to move such countries.

The second unbundling is likely to happen much faster than the earlier first unbundling. Bits in optical cables of Internet move much faster than container ships. Transition is aided by flexibility and high level and quality of education and efficient R&D efforts to improve the competitiveness of existing industries and to create new high technology employment opportunities. International competition is largely competition of investments and the most talented people.

These developments bring opportunities and threats to small countries. Investments in East Asia have been fueled by low cost structures but also by huge domestic markets. Large markets would not attract investments to small countries but specialization and development of competitive niche areas is certainly possible.

1.4. Stages of Industrial and Economic Development

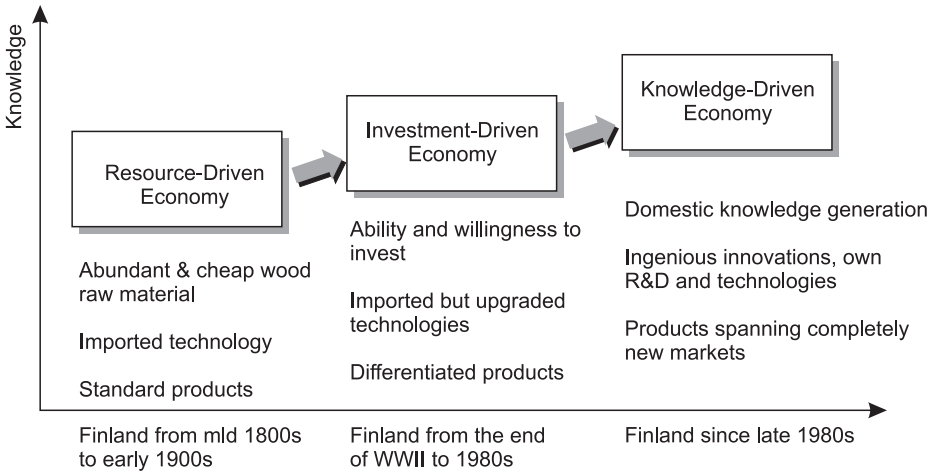
Along the lines of Michael Porter a typical path to a knowledge-based economy comprises of three stages of industrial development: the resource-driven, investment-driven, and knowledge- or innovation-driven stages.

In the factor- or resource-driven stage of an economy, the competitive advantages of growing and internationally successful industries are based almost solely on the basic factors of production. There is very little national production of investment goods. Firms rely on technologies developed elsewhere; primarily inexpensive and widely available technologies are used. The economy remains sensitive to fluctuations in the world commodity and capital markets.

In the investment-driven stage, national competitive advantage is characterized by the willingness and ability of firms to expand their operations by investing aggressively in modern and efficient production technologies and facilities. The firms tend to acquire the best technologies available. Technologies are not only applied but also improved for own purposes. Industry and economic policies are geared toward enhancing investment by channeling capital toward particular industries, providing tax incentives, and using aggressive exchange rate policies to boost exports.

In the knowledge-driven stage, there is usually a wider range of internationally competitive industries and firms, even in smaller economies. However, a substantial portion of these industries and industrial clusters draw their competitive edge from traditionally strong sectors. Many innovative firms and industries emerge in fields that have strong linkages with traditional ones. Entrepreneurship increase domestic rivalry and innovations are spurred by increased competition in the product market. Self-created and sophisticated factors of production are crucial for competitive advantage and firms compete in global markets with differentiated goods.

These stages have been analyzed in some country studies made by the World Bank. For instance, in the case of Finland shown below the three stages span a time horizon of 150 years starting with forest industries and then only lately shifting into knowledge economy. Clearly today these changes occur much faster and many natural resource based countries want to accelerate the diversification of their economies towards knowledge economy.

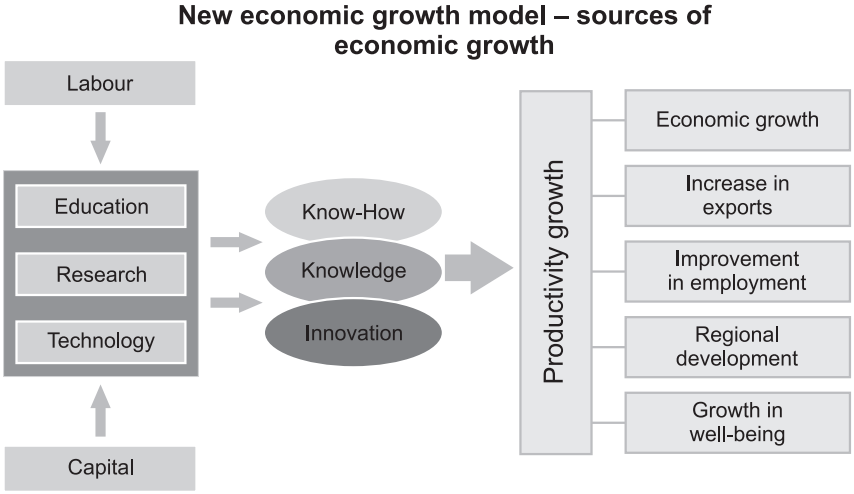


Sources: Adapted from Porter (1990) and Hernesniemi and others (1996).

Poland is currently in the investment driven stage but has significant opportunities for knowledge driven stage. For instance, industries can develop new technologies and higher value

added products. Service industries can improve productivity and benefit from attractive cost structures. And the best research results can be basis of new high tech industries, initially often with international partners.

In the knowledge economy regime the foundation is increasingly based on education, research and technology that lead to know-how, knowledge and innovation as drivers of economic development. The role of the government is to facilitate this process by investments in the foundations and encouraging competition and competitiveness.



According to the new growth model, economic growth is rooted in education, research and technology.

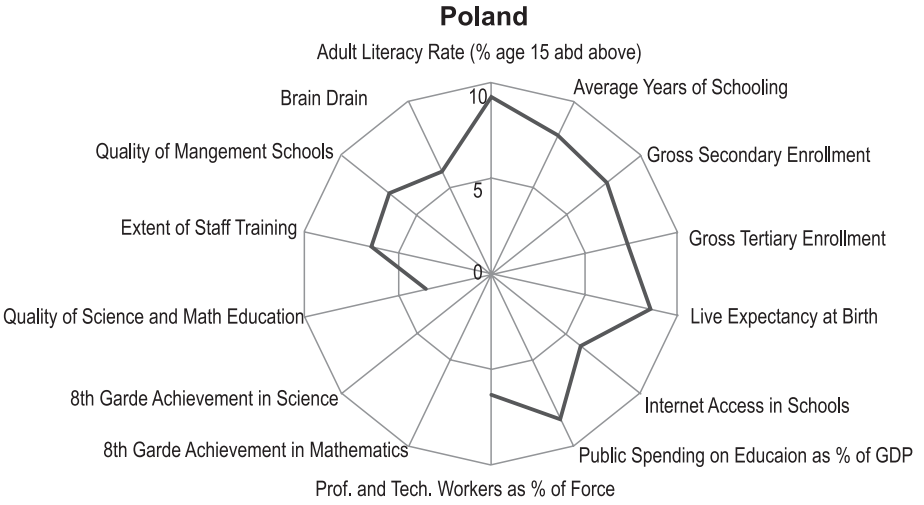
2. Eduation Systems for Knowledge Economy

Education is the key element of a knowledge-based, innovation-driven economy. It affects both the supply of innovation and the demand for it. Human capital and skilled labor are complementary to technological advances: new technologies can not be adopted in production without sufficient workforce training and education. On the other hand, the demand side also is important. Innovations may not take place due to a lack of demanding customers and consumers.

Equality by gender, region, and socioeconomic background are fundamental principles of a goof education policy. Everyone needs to receive a good basic education. Furthermore, it is the goal of the educational system that no one relies on basic education alone. Previously, equality was considered **quantitatively**, and the distribution of schools and access to them were measures of equality. Nowadays, equal **quality** of education for everyone is the goal, and individual learning results are the measure of interest.

In the knowledge economy, in which the majority of the jobs involve information gathering, processing, and production, proficiency in these basic literacy skills forms the foundation for the efficient functioning of the society. Basic education provides the basis for developing these skills. Equal opportunity to acquire education is necessary for **recruitment of the best talents** needed for knowledge economy development.

The educational system and its performance in Poland as summarized in of the World Bank KE data bank is shown below.

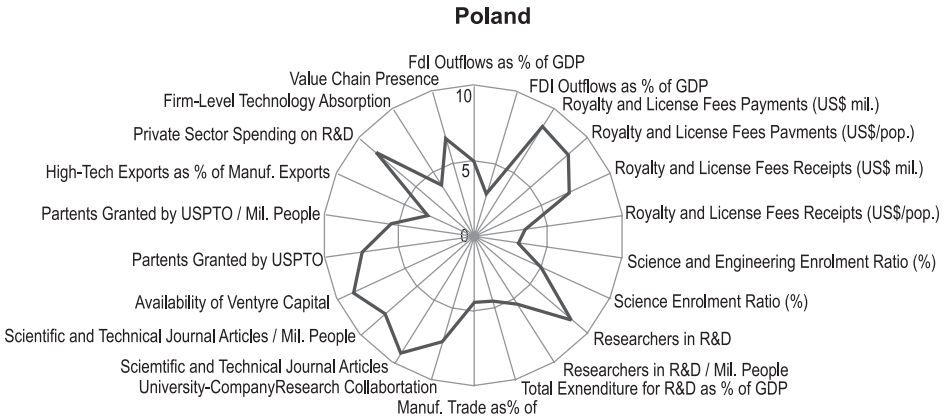


Normalization Group: **Europe and Central Asia; Year:** most recent

3. Innovation Systems for Enhanced Competitiveness

Knowledge economy is based upon creation of new knowledge by scientific research and technological development. However, access to this knowledge is only a necessary condition but not yet sufficient for the success of transforming it to economic and social benefit. Large differences are found in this ability and hence the elements of success and failure and best models of achievement are of great interest.

The overall innovation situation of Poland in the R&D and innovation area as reported in the World Bank Knowledge Assessment Methodology data base is shown below.



Normalization Group: **Europe and Central Asia;** Year: **most recent**

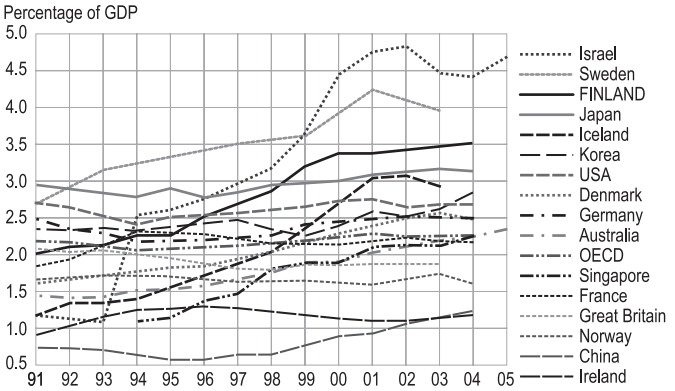
3.1. Research and Development Input and Output

Research and development investments are the basic input to knowledge economy. At an aggregate national level they are measured as the **share of GDP invested**. The OECD average is about 2.4% of GDP with USA and Japan investing about 2.8% and European Union about 1.9%.

The ambitious goals for EU countries set forth by the Lisbon Summit in 2000 call for significant increases reaching about 3% level by 2010 with two thirds coming from private sector. The R&D investments are doubling in EU budgets—the 7th Framework Program for R&D budget is 54 billion euro. Still most of the proposed increases have to take place at national level

While the numbers referred to above give average investments, large variations occur within EU countries as illustrated below. The current R&D investments in Poland at 0.6% GDP level remain much below EU average let alone the Lisbon target of 3%.

R&D investments in some countries

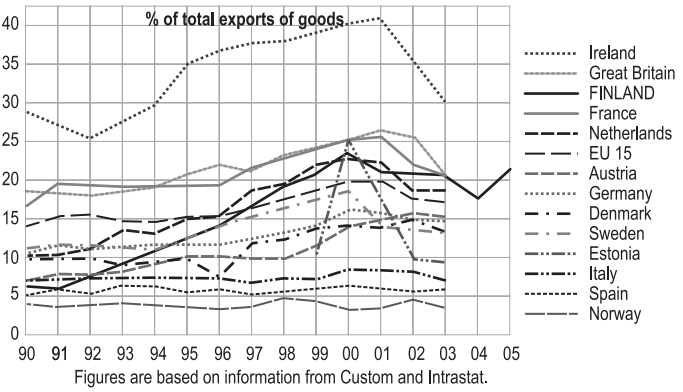


What is the **result of R&D investments and how to measure them**? Classical methods include publication and citation records, advanced degrees and international rewards, patenting activities and creation of new industries. But one would like to see the impact on the national level measured by **structural changes of the economy**.

Such a change is clearly illustrated below by the **share of high technology** part of the exports. The share expressed on percentage scale up to 30% would typically be larger for a large country when comparing countries of similar technological developments. For instance the United States has a rather closed economy where foreign trade represents a smaller share than in a small country that needs to trade also basic materials, such as food, textiles and construction materials. The US exports are to a larger extent high technology products, such as computers and software, pharmaceuticals and aircraft leading to a high percentage.

Share of hight tech exports in some EU countries

Exports of Finnish high tech products totalled
11.2 billion euros in 2005, i.e. 21.3% of total exports of goods.



Figures are based on information from Custom and Intrastat.

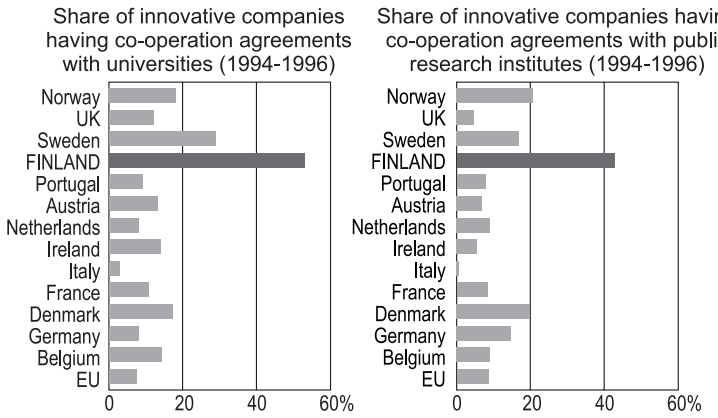
The high technology exports accounted for about 5% in Finland fifteen years ago. The exports were largely dominated by forest industries, which still play a major role in the economy, and today at the global level. However, dependence on the cyclical commodity industry was vulnerable and required frequent devaluations of the currency. Today this is not possible due to common Euro currency regime.

3.2. Traditional Versus High Tech Industries

The division of industries in low and high technology categories can be very misleading. Today **all industries need to employ high technology** contributions to maintain their competitiveness.

It is also very important to secure the **competitiveness of small and medium size companies**. More and more they also need to have export capabilities and face global competition. They need to have access to the best technology but typically can not afford to have there own research personnel and facilities. Hence they need access and collaboration with research capacities of universities and research centers. Such links are particularly strong for small and medium size companies in Finland.

Co-operation between companies and universities and research institutes



Source: Eurostat, Enterprise DG, 2nd Community Innovation Survey J05/00-06

3.3. Competitive Funding and Integrated Innovation System

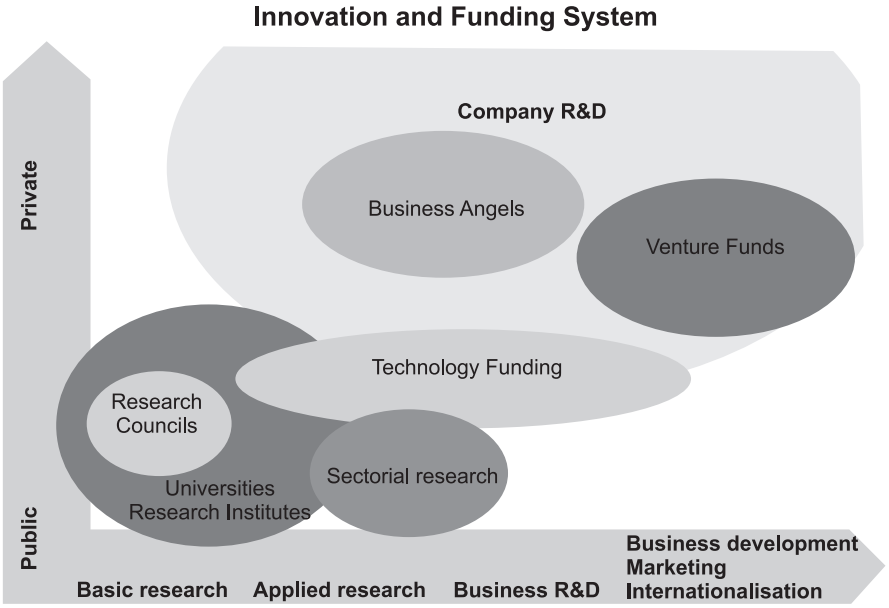
The key element of a successful R&D funding system is the independence of funding agencies and an appropriate balance between institutional competitive funding.

The **independence of funding agencies** from policy formulation organizations, such as ministries of education and research, lessens the pressures for political favoritism, allows flexible use of funding instruments and financial engineering as well as building up competent funding agencies with highly qualified personnel.

The **competitive funding** is closely related with independent funding agencies. In many countries the institutional funding still plays the leading role in innovation funding. In such a system money diffuses down the system and an individual researcher or educator has to be content with the success of his bosses in securing resources for his work. Of course, institutional funding is needed to assure the functioning of the basic educational and research institutions, but it needs to be complemented by competitive funding that offers many advantages.

First, it is easier reorient funding than institutions. Thus new fields, such as nanotechnologies can be launched much faster than trying to redirect old institutions in related fields. Secondly, competitive funding makes it possible for talented and entrepreneurial researchers to receive much larger resources and thus encourage new initiatives. Thirdly, it is easier to set up **multidisciplinary projects** and **university-industry partnerships** to assure the utility of especially applied and technological research. And fourthly, since all international funding is competitive experience on a national level is mandatory for international success, as in competitive sports.

Innovation funding systems also need to fully integrated so that no gaps are left in the support systems. Here again, funding agencies have a much better chance for success including public-private partnerships than sector-based schemes. Such an **integrated funding system** is shown below indicating the role of different organizations.



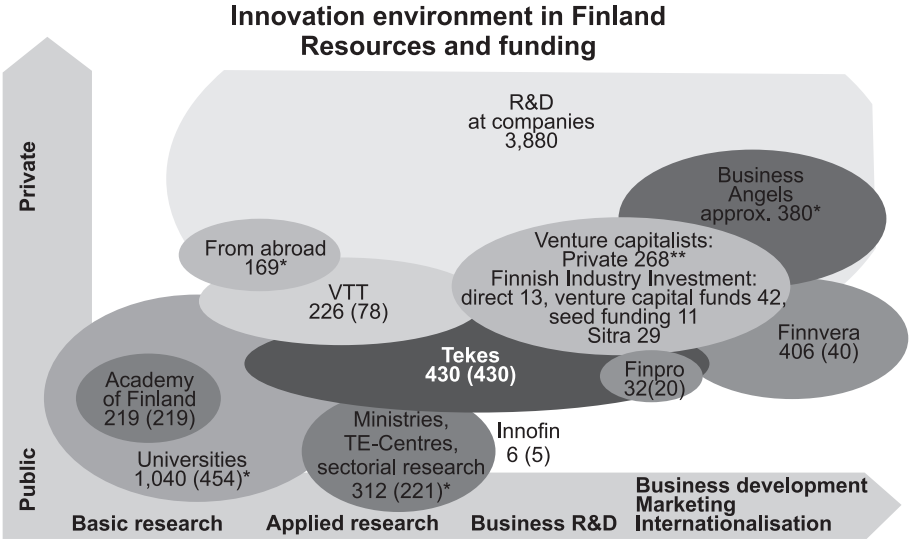
The role of the public sector is to finance the basic and applied research at universities and sector research shown in the lower left hand corner in the graph. Most developing countries only have this part of the innovation system funded. Even in this area there should be flexible and targeted research based on competitive funding. For instance in Finland universities get less than half of their research funding from the government budget and the rest comes from competitive and private funding.

Public-private partnerships are essential in the applied and business R&D. Applied research without industrial partners seldom leads to economic benefits and creation of new employment. Public-private partnerships bring essential benefit also to university research. It brings projects with clearly set goals, budgets and time tables, and offers students pathways to employment in the participating companies. Publicly financed technology funding plays thus a very important role in the innovation system. It should use flexible financing instruments, that is grants for universities and small and medium size companies, risk loans for larger companies, and strategic research programs for complete sectors of industry. Such strategic programs can pull together all players in specific areas, both on industry and university and research side. In these programs research must serve the industry who should have the steering and be in the driving seat. "Technology is the answer but what is the question" is often the best starting point.

In many countries there is a lack of industrial research funding. It is important to have research activities already in university curricula so that graduates have experience of research methods and benefits when they enter professional life. The corporate research can be enhanced also with tax benefits and other indirect methods. And public-private partnerships are excellent tools for enhancing it.

The creation of new high technology companies calls for private and institutional venture funding. Their role is very important for diversifying the economic structures. The high technology industries are characterized by narrow time windows, immediately international or even global markets and hence by large development and capital needs. Organic self financed growth is seldom possible and venture capital is needed. The public sector has important roles in venture capital, although it basically belongs to the private sector. The government can adjust the risk-reward balance by tax and amortization rules to attract domestic and international investments. The public sector can help to start venture capital industry and accelerate its growth by matching investments in venture funds. Such funding can also be asymmetrical favoring private investments, for instance by being content with return of capital and leaving profits to be shared by private investors. Typically also the investment decisions need to be left to competent managers rather than to government officials.

To illustrate the innovation system built in Finland during the last twenty years the following picture gives the current numbers. It is significant that the competitive funding plays an important role and universities and research centers are getting the majority of their funding from public and private competitive funding rather than from government budget directly. Also the public-private partnerships are enhanced with funding systems that greatly increases industry steered research at universities and research centers.



The figures represent the total extent of each organisation in million euros in 2005, those marked with star in 2004 or earlier. In parenthesis the share that is funded from the State budget. DM 36100

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The building of comprehensive innovation and funding system in Poland is still in early phases. There is good university and research center system in place but private company research investments and public-private partnerships need to be enhanced. Sharing and adoption

of best practices from other countries can shorten the way and avoid problems in building up a modern innovation system.

4. Models for Successful Development

4.1. Competitive Clusters

The chance of individual companies succeeding alone in the rapidly globalizing world is quickly disappearing. Even largest companies today for alliances and networks all over the world, often also with their competitors. We have seen this in the battle of telecom and software standards. **Competitive clusters** are emerging as a model for success. They can be located in the common areas like many high technology clusters in the world, but they can be also be localized in different regions.

The **cluster dynamics** also applies to more traditional industries combining the strengths of different players. Clusters are emerging also as a results of externalizing many activities when aiming at better efficiencies and more flexibility.

Clusters can be divided in **local clusters** operating in areas such as education, health care, construction, and on the other hand to **trading clusters** with links and exports outside their own areas. The trading clusters typically have higher productivity, much larger patent portfolios and capacity to pay higher wages.

Trading clusters are also **economic locomotives** for their regions. In areas where their share is high compared to the average the overall economic performance as indicated for instance by the wage levels is much improved. For smaller countries this means that you must have strong export industries and external balance or surplus to be able to get all the tools needed for higher productivity also in the local clusters.

4.2. Success Factors

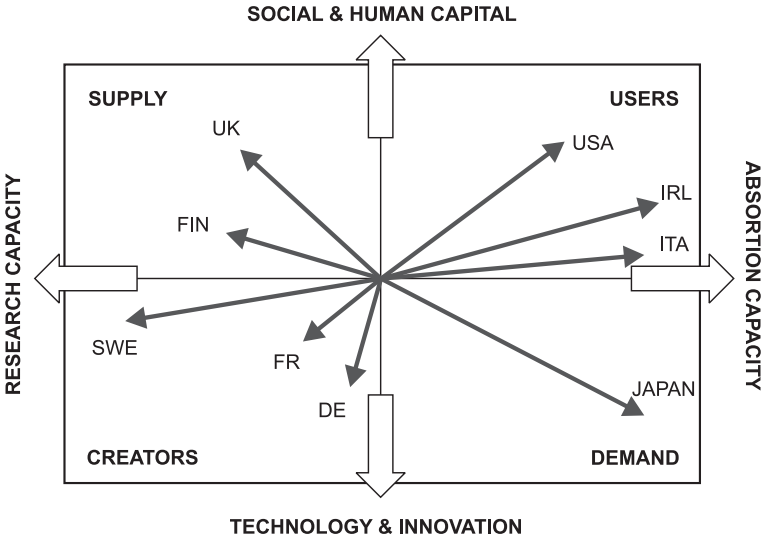
The performance and the efficiency of the innovation systems remain difficult to measure. Comparison of investments and results can provide guidance to best practices. Such studies have been conducted to measure R&D intensity and GDP growth. The results show clear correlations but also indicate **complex relationships** between the variables.

The success of creating new knowledge and converting it into economic and social benefit depends on several factors. These factors are rather similar to those used when evaluating the competitiveness of different countries or economic areas or when assessing the transition towards knowledge economies.

Studies conducted at Merit Institute group these factors in four major areas including **research capacity, social and human capital, absorption capacity and technology and innovation**. Good overall success would be assured by strengths in all these areas. However, success can be obtained, at least temporarily by different bias of the elements. Combination of two of these four major elements could be characterized by supply, users, demand and creators.

Different countries depend on **different combinations** of these elements. Finland belongs to the group of technology suppliers, while Sweden in more in the knowledge creator group. Japan is biased towards demand while Ireland high strong human capital and absorption capacity is a successful technology user, as also illustrated by their economic growth despite of relatively modest R&D investments.

During their economic development countries can and often need to develop new strengths change their bias in response to changing global competition and domestic situation. Finland for instance has managed to transform its earlier raw-material based economy towards more diversified knowledge economy.



4.3. Telecommunication and Network Economies

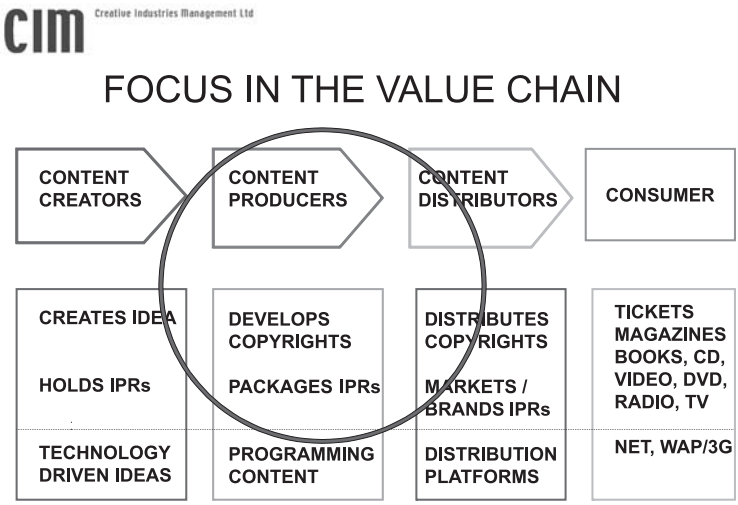
In the future we will see the convergence of different platforms and channels into wideband systems. Telecommunication has the potential of eliminating the disadvantages of peripheral locations and becoming an **equalizer of opportunities**.

Access through Internet and mobile communications helps to establish presence and collaborations on the global scale. This has accelerated the adoption of new design and operational tools for all industries as well for service sectors, including banking and financial services.

Knowledge economies are evolving towards network systems where small research studios can be in collaboration with or serve as embryos for large international corporations. They resemble biological systems with multiple interactions and specialized tasks for different subsystems. The evolution towards **network economies** is accelerated by modern telecommunications linking scientists, industrialists and policy makers all around the world.

4.4. Content Industries

The explosion of the number of new communication channels has created a great demand for new content, for instance in the mobile information society. **Creative content industries** represent the next wave of evolution after technologies. The very paradigm of value chains is changing rapidly. The monopoly of distribution companies is disappearing and the focus of investments is changing from distribution to content production. Entrepreneurial companies seeking channel-independent distribution will do increasingly content production.



The content industries require local presence and global access. Not every country can have global information and communication giants, but they all need to be active in content creation based on **local needs, languages and cultures**.

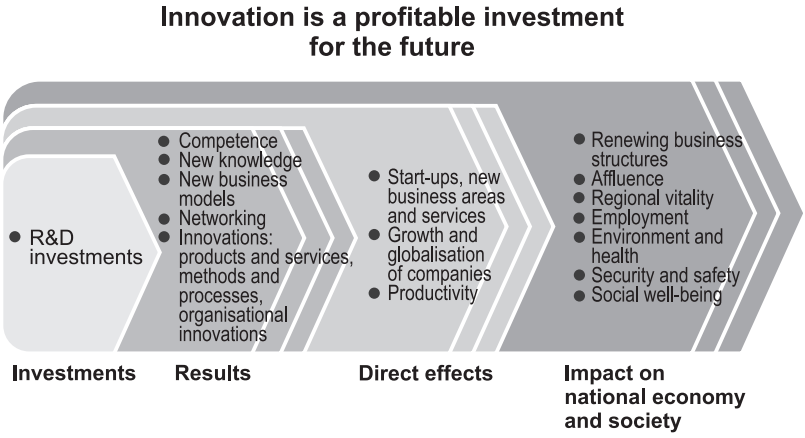
4.5. Consensus Building and National Strategies

How has such a growth been achieved and maintained when at the same time many older industrialized countries have decreased their R&D investments? How to **convince policy makers** of such investments that typically bring fruit at a much later time, if even then? And how to measure the results and effectiveness of such investments to guide them in the optimal direction? These are questions closely related to the development of knowledge economies.

An important consensus instruments enhancing the political commitments has been also a series of **economic policy and national strategy programs** organized by Sitra, the Finnish National Fund for R&D. The participants have included most new members of the Parliament and hence also ministers and political leaders, industrial, labor market, university and media leaders having an active role in the economic policy formulation. The programs have covered

fiscal policy related to budget planning and monetary policy, and structural topics related to globalization and integration, industrial sectors and agriculture, education and research policies, energy and environmental topics, etc. However, the most important part has been an exercise taking form of economic policy formulation at the national level. This illustrates the conflicting goals of economic growth and employment on one hand and the balance and low inflation targets on the other hand and the use and impact of different economic policy instruments. These courses have also supported effective **innovation policies and increasing R&D investments** for improved competitiveness and new knowledge industries.

It is also important that the innovation policy questions are placed high enough in the agenda of public and corporate decisions. In Finland the highest policy organization is the **Science and Technology Council** chaired by the Prime Minister and including Ministers of Education and Trade and Industries, and maybe most importantly also the Minister of Finance.



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http://www.isc.hsb.edu

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Tekes, National Technology Agency of Finland
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World Economic Forum
http://www.weforum.org

GERD SCHIENSTOCK

PATH DEPENDENCY AND PATH CREATION IN FINLAND

Introduction

The current debate on economic change is characterized by an obvious contradiction. Some scholars argue that the economy in the industrialized countries is undergoing a fundamental and very rapid transformation process, sometimes referred to as the third industrial revolution (Castells 2000). Terms such as information economy (Brotchie et al. 1987)[1], knowledge economy (Drucker 1969), learning economy (Lundvall and Johnson 1993) or network economy (Castells 2000) indicate, however, that there is disagreement about the core principles and dimensions of the emerging new economy. There is, on the other hand, a growing interest in the aspect of continuity in economic development. The dominant message coming from research on national business systems is that economic change is slow and gradual, if it occurs at all (Whitley 1992). Evolutionary economics, applying the concept of path dependency, also seem to support the idea of gradualism in techno-economic development.

The two lines of arguing differ insofar as one focuses on the dictating influence of global megatrends, while the other puts particular emphasis on the aspect of institutional inertia. The first approach assumes that the exogenous factors, affecting all advanced countries in the same way, are so powerful that they drastically reduce the possibility of alternative response; they trigger the same kind of techno-economic change and institutional reforms on the level of nation states (Regini 1999). The transformation process is usually linked to factors such as the globalizing markets, the ICT revolution or the dynamic process of scientific knowledge creation. The second perspective argues that nation states tend to retain patterns of institutional continuity and national distinctiveness, even under conditions of external shock to their political and economic environment (Tainio and Lilja 2003). Supporting evidence that countries often resist the influence of global megatrends comes from post-war Germany and Japan.

Finland, on the other hand, experienced a fundamental and very rapid economic transformation process during the 1990s, which can be characterized as a change from a natural resource-intensive to a knowledge-based economy, the latter relying more on the intensive exploitation of the country's "endowment" of scientists and engineers. This makes the country a rather interesting research subject where new explanatory ideas for economic change in national economies can be sought. A major implication of the Finnish case is that, instead of focusing on path dependency, research

[1] Here I prefer to use the less ambitious concept of information economy rather than that of information society.

needs to analyse processes of path creation. While Finland, as a small country, is particularly exposed to exogenous pressures of change, the transformation process cannot be understood without referring to the agents of change.

The aim of this paper is to contribute to the refraining of economic research. I first briefly discuss the traditional path dependency perspective. Then I focus on developing a conceptual framework, which allows studying processes of path creation. In the second part of the paper, I analyse the Finnish transformation process from a resource-based into a knowledge-based economy in the context of the path dependency-path creation debate. The main argument will be that until the beginning of the 1990s, when Finland experienced a deep economic crisis, economic development took place in a path dependent way, influenced mainly by the forest cluster. However, the crisis triggered a process of path creation led by the ICT cluster.

Theoretical concepts: Path dependency and path creation

The path dependency perspective

The main argument of the path dependency concept is that technical innovations and their knowledge base are closely linked with earlier technological developments. New innovations line up with earlier technological change; they have historical antecedents of progress (David 1985: 332). Consequently, today's knowledge base lays the foundation for succeeding rounds of technological development. The strength of the path dependency concept therefore is that it does not separate technological innovations from past developments but assumes some kind of continuity in the process of technological change. The concept of "increasing returns" (Arthur 1996) adds the argument that technological change is self-reinforcing; when a technology has been accepted and incorporated by a critical mass, it becomes a general standard accelerating its diffusion still more even if it is not the best possible solution. Both concepts assume some kind of channelled technological change because the options for technological development are continuously reduced.

While some scholars associate both concepts with some kind of technical determinism, others insist that technical change also has a strong social dimension (Kemp 2002). First, the idea of a channelled technological change leaves limited space for social choice. Path dependency embodies strong prescriptions about which direction of technical change should be pursued and which should be neglected, but it does not determine technical change. Second, technical change is closely linked to organizational innovations, technical and organizational change mutually influence each other, which suggests—instead of focusing on technical change only—to analyse techno-organizational paths of development, which can best be researched on the level of industrial sectors.[2] And third, there is plenty of evidence that technical change is influenced by national institutional settings. While the cumulative nature of the process of technical development narrows down the range of potential choices, national paths increase differentiation and diversification as offshoots from the main development path (Dosi 1982, OECD 1992).

A well-established techno-organizational path tends to form a synergistic combination with an economy's institutional structure. This, according to Freeman and Perez (1988), provides a sound basis for long-term economic growth. As the prevailing norms, values and policies are continuously reinforced by the positive experience and feedback from the evolutionary phase of techno-organizational and institutional development, we may add a cultural dimension to path dependency (Hämäläinen 2003). Consequently, we can argue that path dependency involves a

[2] Castells (2000), for example, suggests considering—parallel to the notion of technological paths—the existence of organizational paths.

specific group of actors, organizational formations, technical systems and their knowledge bases, as well as an institutional and cultural setting.

While path dependency is often seen as the main key to economic growth, it always carries the risk of a lock-in (Grabher 1993). The lock-in concept suggests that economic decision makers, due to resource absorption, invested interests or cognitive rigidity, are likely to stick to the existing development path and the learning mechanisms involved, although this may result in a loss of competitiveness and retarding economic growth. Especially in the current period of a techno-organizational paradigm shift countries concentrating on the exploitation of the existing development path are likely to fall behind, because they miss out to take advantage of the growth enhancing innovation potential of the emerging new paradigm. A core problem is to overcome the inertia of the institutional and cultural framework, because—while being hospitable to a particular set of technologies and organizational forms—it will not be suitable for radically new ones.

Whereas incremental techno-organizational innovations can be accommodated easily, this is not the case with fundamental changes based on a new knowledge paradigm, which by definition involves an element of destruction (Schumpeter 1939). This means that in a period of a paradigm shift, the cultural and institutional setting can no longer function as a filter between external pressures and techno-organizational responses; instead, it becomes increasingly fragile itself. We can conclude that aiming at understanding techno-organizational change in a period of a paradigm shift means that we have to give more attention to the problem of unlocking and path creation (Garud and Karnoe 2000, Schienstock 2004, Fuchs and Shapiro 2005).

The path creation perspective

The transformation of a new techno-organizational paradigm into a national growth path is a highly complex process involving external and internal factors; it cannot be explained by referring to single factors or simple models. I suggest distinguishing between the following five factors that somehow interact in the process of path creation: a window of new opportunities, associated with a new techno-organizational paradigm, the prospects of new businesses and new markets, pressures coming from external socio-economic factors, key change events, and the human will to change things.[3]

The existence of a window of new opportunities opened up by an emerging new techno-organizational paradigm is definitely a key factor that can stimulate a process of creating a new national path. However, new technical and/or organizational opportunities do not trigger major transformation processes automatically; economic actors are unlikely to engage in the creation, diffusion and utilization of fundamentally new knowledge without the prospects of new businesses. Still, as the process of path creation entails high technical and market uncertainties, in general it does not get started without external socio-economic pressures coming particularly from the ongoing globalization process. This process triggers growing innovation competition; radical, growth-enhancing innovations, however, become increasingly difficult to make along the traditional growth path depending on natural resources. Additional pressures often come from key change events, such as an economic crisis or a political turmoil.

It is quite obvious, however, that the development of a new national path cannot be explained by only referring to objective factors such as a new techno-organizational paradigm, new business opportunities, general socio-economic forces, or major change events; instead, one has to emphasize the importance of the human will in the path creation process (Bassani and Dosi 2000). The path

[3] Bassani and Dosi (2000: 62) mention the following factors: the emergence of a new technological paradigm, heterogeneity among actors, the co-evolutionary nature of many processes of socioeconomic adaptation, and the invasion of new organizational forms.

creation perspective differs from the path dependency perspective in the way in which economic actors are perceived. Rather than treating them as more or less passive observers within a stream of events, they are seen as knowledgeable agents with the capacity to reflect and act in ways other than those prescribed by social rules and taken-for-granted technical artefacts (Garud and Karnoe 2000).

The creation of a new path implies mindful deviation; it is therefore closely linked to the engagement of various groups of social pioneers. Scientists and engineers with an understanding of the characteristics of the new paradigm are among those groups that can guide social and institutional creativity in a viable direction (Perez 1997). The process of path creation also depends on the engagement of visionary policy makers who can introduce anticipatory institutional change, particularly in the science and education system. But, of cause, risk-taking entrepreneurs who trigger off a shift in common sense about the efficiency principles in an economy are necessary for the new paradigm to make its way into business reality (Perez 1997). Open economies give also external actors the opportunity to influence and shape the processes of path creation (Wicken 2005: 5). But the so-called "big man theory" (Schienstock 1975) that links the creation of a new path with specific characteristics of exceptional personalities hardly reflects the real world. Due to the complexity of the process of fundamental techno-organizational change, we have to understand path creation as a collective and even inter-organizational undertaking, in which organizational capabilities and relational aspects are more important than individual competencies and personal characteristics.

Communities of social pioneers and innovative networks can initiate path creation activities and they can be trailblazers for the creation, diffusion and application of new techno-organizational knowledge, developed within the new paradigm. But the creation and successful establishment of a new path is dependent on a successful "path dependency process" (Wicken 2005, 1). Only if the knowledge, experiences and practices, developed by these social pioneers, diffuses throughout major parts of the economy and the innovation system, can we speak about a successful process of path creation. Such a collective learning process depends upon the establishment of a new institutional infrastructure that strengthens the diffusion capacity of an economy (den Hertog and Bilderbeek 2000). Through unleashing a multitude of organizational and institutional innovations, the new institutionalized diffusion capacity can contribute to the "homing" of a growing number of economic actors into the evolving path. Without the support of the new knowledge diffusing institutions, the path creation process may lose momentum and its economic impact may become less significant.

The development of a new path does not occur as a sudden break from the old one. On the one hand, the development of a new techno-organizational paradigm and its transformation into a new path takes time and the creation of a new path in its earlier stage is often more or less unrecognized; it cannot challenge the traditional paths in any way. On the other hand, old sectors, although they are likely to shrink, reducing also the influence of traditional paths in the economy, will hardly disappear in a short period of time. Instead, they will continue to develop; but they may integrate some knowledge, technologies, organization forms and institutions from the emerging new path.

Consequently, it might be problematic to assume the existence of a coherent national development path, particularly in a period of a shift in the techno-organizational paradigm. Instead, it is probably more realistic to argue that a nation's economy includes a multitude of paths. The emerging path does not replace the old ones; it rather becomes a new 'layer' in the wider national economic and innovation system and thereby creates increased complexity and heterogeneity. The new 'layers', however, do not represent additional economic activities separated from the old 'layers', instead the new path interacts with old paths, and the interaction creates

dynamic processes that may both transform old paths and sectors, as well as shape the new path in its emergence (Wicken 2005, 2). By continuously re-bundling assets at hand and combining them with new assets from outside economic actors may create a configuration that generates growth, which combines novel industries with modernized old ones (Barthelt and Boggs 2005). Of course, such a long-term development process may also result in the disappearance of older sectors and paths.

The main achievement of the new social groups involved in the creation of a new path is that they take the techno-organizational development out of the existing path-forming structures, organize collective activities to create a new path and defend it against opposition and resistance (Garud and Karnoe 2000, 235). Consequently, path creation cannot be conceptualized as a rational decision-making process; it involves vested interests and power games. The path creation period is a period of trial-and-error experimentation and confrontation between the forces of change and those of persistence, but also between different groups of modernizers, because it is widely undetermined in which direction a new path develops. An emerging new path, therefore, has to be conceived of as a "contested terrain" (Schienstock 2004).

The conceptual framework developed in this chapter will now be applied to analyse path-dependent and path-creation processes in Finland, which took place after the Second World War. I will argue that economic development in Finland until the early 1990s can be characterized as path dependent. The Finnish economy was widely influenced by the technologies, organization forms, social institutions and cultural patterns developed in the resource-based forest cluster. However, not least due to the deep economic crisis in the early 1990s, a new knowledge-based path emerged together with a rapidly growing ICT industry, which became increasingly influential in the Finnish economy. Still, the forest economy has remained a stronghold of the Finnish economy and has actually improved its global competitiveness by integration elements of the new emerging path. There are signs that in future the two industrial clusters and the two paths will become more closely linked with each other, which will further improve the competitiveness of the Finnish economy.

The phase of path dependency in the Finnish economy

Finland's economic and social development has rested for a long time on the country's "green gold", the abundant forests, and pulp and paper have been Finland's key export goods since the late nineteenth century. However, raw-material based exports have not led to a mono-cultural exclave economy. Instead, Finnish forest firms have been able to create a dynamic growth path with a constantly widening scale of exports after the Second World War. The strength of the Finnish forest industry can be explained by the fact that a cluster has emerged step by step, including timber production, pulp and paper industry, mechanical engineering firms, several related supplier industries (incl. energy, chemicals, maintenance services) and customer industries (paper converters). Characterizing the Finnish forest cluster one can refer to the following factors: corporate specialization in the forest industry, consorted business operations, patient capital, technological modernization, incremental innovations, resource dependence on farmers as forest owners, paper workers as the labour aristocracy and an interventionist state (see also Lilja, Räsänen and Tainio 1992).[4]

Up to the beginning of the 1990s the Finnish industry was highly specialized in forest industry products, indicated among others by the large share of Finnish exports: in the 1980s, about 40

[4] Lilja, Räsänen and Tainio speak of a dependent state.

per cent of Finnish exports came from the forest industry. This specialization has resulted in a high concentration of internationally competent paper industry corporations in Finland. Some of the supplying firms to the forest industry have been able to acquire a leading position in their niche markets, one of them being the mechanical engineering company Valmet. While local competition triggered a process of continuous upgrading of products and processes, geographical proximity led to a permanent flow of knowledge and a rapid diffusion of innovation. Besides these informal linkages, forest companies have also engaged in a great number of co-operative projects and joint ventures; paper and timber producers colluded to reduce mutual competition. Only in the beginning of the 1990s have the key members of the joint sales association, which had been established already in the 1880s to conquer the Russian market, withdrawn from this institution (Lilja, Räsänen and Tainio, 1992).

The forest cluster also profited significantly from strong state intervention through huge national programmes during the post-war period. These were initiated by the Finnish government under the presidency of Urho Kekkonen, who gave high priority to the development of good economic relationships to the Soviet Union, indicated by strong export figures. Some scholars actually speak about a planned economy during that time in Finland (Alasuutari, 1996). The centralized steering of the Finnish economy through these national projects triggered mergers and acquisitions in the forest cluster, as large companies could better exploit the advantages of a quasi-planned economy, such as stable demand, low prices, long-term planning periods and a stable economic environment. At the same time, the rather stable economic environment encouraged firms to make huge investments in production technology and to integrate production to an ever greater extent to increase the efficiency of the production process.

The fact that Finnish pulp- and paper-producing companies have been managed by engineers also contributed to the application of modernization strategies concentrating on the automation of production processes and on cutting costs. On the other hand, investment in R&D was rather low; it triggered mainly incremental product innovations. In general, we can argue that companies in the forest industry concentrated more on exploiting existing technological knowledge instead of exploring new knowledge (Palmberg 2001). Consequently linkages between the science system and the economy hardly existed. By using the term "academic-traditionalist doctrine", Kivinen, Rinne and Ketonen (1993) have attempted to capture the ethos of the era, which emphasized freedom of research, university autonomy and elitist education.

Technology-oriented modernization together with a business culture in which engineers had a formative influence contributed to the establishment of highly bureaucratic business structures. Workers on the shop floor, on the other hand, enjoyed some kind of autonomy because production depended to a great extent upon practical or tacit knowledge accumulated in processes of learning-by-using and immediate problem solving rather than codified or theoretical knowledge. The fact that companies had to rely on workers' willingness to co-operate in order to guarantee an uninterrupted production process, was well recognized by the management (Lilja, Räsänen and Tainio, 1992). Due to their strong bargaining power, paper workers formed the core of a labour aristocracy in Finland (Lilja, 1992). This and a high membership enabled the unions to pressure for high wages including a share of productivity increases. Unions therefore weakened industry's ability to compete on the world market as a cheap producer. High wages, on the other hand, have accelerated the technological shift towards more efficient, capital-intensive large-scale production, causing also some cutbacks in the workforce (Kuisma, 1999). However, forest workers have stayed co-operative in a country that otherwise could generally be characterized by a high strike propensity.

The specific ownership structure of the Finnish forests also contributed to the fact that the pulp and paper industry had to focus on the high price segment of the global market. The

main owners of the forests are the farmers whose ownership rights were already secured in the beginning of the last century. Even today about 65 per cent of the Finnish forests are owned by the group of the small farmers, while only about 8 per cent are owned by large companies. The huge pulp and paper producers became dependent on tens of thousands of small farmers, who formed their own institutions to secure their strong position in price bargaining on the row material for pulp and paper production (Schienstock and Tulkki, 2001).

Investing heavily in production technology to compensate for high material and labour costs, the pulp and paper companies became more vulnerable to market fluctuations. The paper industry faced a number of cost crises, which prompted the government to devaluate the Finnish currency several times to guarantee the global competitiveness of the country's dominant industrial cluster. The Finnish government also supported the paper industry by encouraging banks' long-term involvement in the sector through taxation policy and by stimulating personal savings. As long as the forest cluster dominated the Finnish economy, the Finnish finance system could be described as an "insider system" characterized by a strong influence of national banks in companies' business strategies and practices as owners as well as lenders (Tainio 2003). Depending on "patient capital", which granted long-term credits, the national banking system widely controlled the Finnish forest companies. The system, however, also created a stable environment, which guaranteed preconditions for stable growth (Lilja, Räsänen and Tainio, 1992).

The state activities mentioned above were seen as indicating the dependency of the government on the forest cluster. In fact, the cluster was supported by strong social groups, including the farmers and their interest organization, the forest workers and their union, and the conservative political party, which together could easily convince the government to act in the interest of the forest cluster (Lilja, Räsänen and Tainio, 1992). Kuisma (1999) argues, however, that Finnish forest capitalism never fully materialized because large companies could not become the owners of the forest. This weakened their economic position and they had to some extend rely on the state that tried to mediate between the interests of the small farmers and the large paper companies. This actually indicates a rather strong position of the state in the Finnish economy up to the 1990s.

The economic crisis

There is no doubt that due to the strength of the forest cluster the Finnish economy managed to reach the league of the wealthiest countries in the world by the end of the 1980s (Klinge, 1997). Some scholars have argued, however, that the success of the Finnish economy during the period of the 1960s to the 1980s was not sustainable. Continuous technicalization of the production process and the extension of production capacity, they argue, often took place at the expense of productivity and efficiency (Tainio, Pohjola und Lilja 1997). This became visible when in autumn 1990 the Finnish economy plunged into the most severe depression in the history of independent Finland. Particularly the forest cluster was hit by the recession because of its limited global competitiveness.

Other factors naturally also contributed to the economic crisis of the beginning of the 1990s: the collapse of the Soviet Union, the overheated economy caused by continuously improving terms of trade, rocket share prices fuelled by huge foreign investments, bad macro-economic management and a general economic slowdown in the rest of the world. The worst depression in the post-war period had disastrous consequences for the Finnish economy. Between 1990 and 1993 GDP shrank by more than 10 per cent and industrial production dropped by about 15 per cent, while unemployment soared from 3.2 per cent in 1990 to 15.4 per cent in 1995 and the employment rate dropped by 13 per cent to 61.1 per cent. In addition, the share of exports on GDP, which

had already declined during the 1980s, went down to 22 per cent from its peak of 33 per cent in 1981. Due to high unemployment rates and enormous expenditures to save the banking system from collapsing, the state had to run a huge budget deficit of about 7 per cent of GDP.

A few years later, however, the picture looked quite different. Finland experienced an impressive recovery as it switched to a new growth path based on the knowledge-intensive ICT cluster. The rapidity of the industrial change can be demonstrated by the fact that the share of electronics and electrical equipment of total exports grew from one tenth to 29 per cent in 1999, outperforming the paper industry, which had for decades dominated Finnish exports. In addition, the ICT cluster showed growth rates of up to 25 per cent each year with the telecommunications industry growing by 35 per cent, while the paper industry grew by only 1.6 per cent (Alasoini 2004). Within a few years Finland became the most specialized country in telecommunications in the world. Also the employment rate improved to about 68 per cent in 2003 with the highest growth rate in the ICT cluster. Unemployment, on the other hand, dropped to about 8 per cent, which is below the European average.

Path creation: The emergence of the ICT cluster

Finland's transformation from a resource-based, capital- and energy-intensive economy into a knowledge-intensive economy led by the ICT cluster cannot be conceived of as a sudden break triggered by the economic crisis in the beginning of the 1990s. Behind the evolution of the Finnish ICT cluster there is a complex and self-re-enforcing development process. Early competition including strong foreign companies (Ericsson and Siemens) strengthened the competitiveness of the Finnish equipment producers. And demanding network operators pressured them to be state-of-the-art and to continuously improve their products. Furthermore, trans-border standardization (Nordic Mobil Telefon Standard) created the largest market in the world in Northern Europe. A national culture, open to technological progress, has also contributed to the evolution of the ICT cluster.

The IC technology was chosen as the core technology for developing an endogenous knowledge base, when in the beginning of the 1980s, after the oil shock, growth diminished and unemployment increased. Politicians, business people and trade unions agreed that Finland's competitive advantage should no longer be based on cost efficiency, but rather on knowledge intensity and technological superiority (Ormala, 1999). The transformation process, however, did not progress smoothly. Already before the economic crisis, Nokia's CEO Kari Kairamo challenged the forest cluster by launching a campaign advocating a vision that Finland should become an "information society" instead of depending on an old-fashioned "smokestack industry" (Lilja, Räsänen and Tainio 1992). However, Nokia had major economic problems with its consumer electronics acquired in Germany and Sweden, while the forest industry did well at the end of the 1980s. At that time it seemed that the forest industry had won the battle between the old and the new path. The economic crisis, however, provided fresh support to the transformation process and the IT industry soon became the leading economic sector in Finland

Again, I will refer to some factors that can characterize the emerging new path let by the Finnish ICT cluster: corporate specialization in telecommunications, the core company as a key global player and a network of SMEs, high R&D investments and close science-industry-co-operation, a market-based financial system, techno-organizational modernization, a highly educated workforce, and a focus on firm-centred innovation policy.

Changes in the business sector

Finland's transformation process towards a knowledge-based economy is often presented as an example of how companies, by reinventing themselves, can trigger a fundamental change in the business and innovation system of an economy (OECD, 2000). In fact, Nokia played a very important role in Finland's economic renewal process; the company's development into a key global player in the telecommunication industry parallels Finland's transformation into one of the leading countries in the ICT sector (Paija and Rouvinen, 2004). But only at first glance is Nokia a company that is totally different from the other large Finnish companies, as it produces consumer goods with a well-know brand name, while Finnish companies in general produce industrial goods such as paper machines or icebreakers.

But as most Finnish companies Nokia has its roots in the forest industry and it developed the same kind of bureaucratic business structures as other large Finnish companies. Based on its stronghold in the forest industry, the company diversified into other branches such as rubber, cables or TVs. During the 1970s and 1980s, Nokia developed into a conglomerate with a great number of divisions that produced nearly everything causing people to speak of Nokia as a "junk shop", in which the multitude of divisions hardly allowed for any kind of synergies. And the turnover of the cable and rubber production exceeded by fare the turnover of the electronic division. Nevertheless, during the 1980s, the company had managed to bring together the knowledge of digital telephony that existed in Finland under one roof through mergers and acquisitions. Nokia had the advantage that the knowledge accumulated by the international competitors did no longer represent an advantage in the emerging digital paradigm giving newcomers an opportunity to catch up.

Nokia's conglomeration strategy in connection with a centralized organization model and an internal power struggle had caused serious problems (Castells und Himanen, 2001). At the beginning of the 1990s, when Nokia was hit badly by the economic recession and the weakening demand for consumer electronics, the company struggled for survival, which made a fundamental restructuring necessary. The old management was replaced, and Jorma Ollila, the head of the Nokia Mobile Phone Division, was installed to lead the company out of its deep crisis together with a group of young managers. In 1992, Ollila presented a vision of Nokia 2000, which he summarized as follows: "focused, global, telecom-oriented and value-added production" (Ollila 2000, cited in Tainio and Lilja 2003).

An important part of Nokia's restructuring strategy is the transformation of the financial structure. As the forest companies, Nokia was owned by and depended on debt from the Finnish banking sector (Castells and Himanen 2002). To realize its vision of becoming a globally acting telecommunication company, Nokia had to shake off the chains of the Finnish financial system. This was possible, because in the late 1980s, capital movement controls in Finland were lifted. This made it possible for Nokia to turn to the international financial markets. The message of Nokia's new business model was received enthusiastically by American investors, and consequently, the Finnish company was listed on the New York Stock Exchange (Tainio and Lilja 2003). And in 1997, Nokia eliminated the traditional system of two kinds of shares with different voting rights with the consequence that the company, being under the influence of global capital markets—about 90 per cent of Nokia's shares are now owned by foreign investors—was forced to continuously improve its productivity and competitiveness. The de-investment of all unprofitable businesses also helped the company to finance its restructuring process. Together with the globalization strategy, Nokia also introduced the Anglo-Saxon principles of corporate governance, including stock options or shareholder value. At the same time, the new management transformed the company from a centrally governed into a network structure by flattening hierarchies and decentralizing

decision-making and establishing a network of supplier firms partly by outsourcing not only production, but also software, and even R&D (Ali-Yrkkö and Hermans 2002).

From Nokia's perspective, the 1990s can be characterized as a decade of internationalization and rapid growth. By developing into a global player Nokia became independent of the national institutions including the Finnish labour market. The company began to exploit the institutional structures of different countries, depending on the advantages they had to offer. Particularly North America and South East Asia became new main areas of production but also research. Mainly due to its very aggressive internationalization strategy, Nokia has grown by about 30 per cent each year during the 1990s, and by the end of the 1990s, the company developed into the leading producer of mobile telephones in the world. Together with its rapid growth Nokia has also increased its R&D budget significantly; about one third of the workforce is engaged in these activities, concentrating mainly on applied research and development work. And many new products are developed in close co-operation with universities and research institutes.

Being the only global player Nokia definitely represents the core of the Finnish ICT cluster. But Nokia's national network consists of companies that cover the whole value chain producing information and communication services as final output, including component producers, contract manufacturer, network operators, software and digital content producers, as well as related industries (e.g. banks). While some of these companies have managed to grow as rapidly as Nokia and achieved a leading position in their global niche markets, most of them still very much depend on Nokia's fate; they have to aim at a strong position in Nokia's global supplier network (Paija and Rouvinen 2004). The intensive networking within the ICT sector has contributed to the fact that Finland has been characterized as a "network economy" (Castells 2000). International indices show Finland at or close to the top of any list seeking to measure networking (Prihti et al. 2000). The nature of co-operation has also become deeper and more strategic during the past decade.

Institutional adaptation

Although the business sector had a leading role in the creation of a new industrial cluster (OECD, 2000), we can argue that the development of the ICT-based knowledge-economy in Finland has been a national project. For example, the Finnish education system, which is very much technology-oriented, has supported the knowledge-based high road approach by increasingly focusing on tertiary level education. Not only did the extension of universities' education capacity, but particularly the establishment of the polytechnic system, boost tertiary education also in the ICT cluster (Raivola et al., 2001). It is quite common for industrialized countries that more than 80 per cent of the 15–19-year-olds go to school, but Finland is unique in Europe in so far as the share of students among the 20–29-year-olds is about 40 per cent. While Finland's economic success in the post-war period is associated with a semiskilled workforce, nowadays about 50 per cent of all new entrants have a tertiary level education. And already about 2.5 per cent of the Finnish workforce is working in R&D jobs.

The Finnish financial system has adapted to the changing demands of the economy associated with the evolving ICT cluster, changing from an "insider system" to an "outsider system" characterized by broadly distributed ownership and a dominant influence of financial markets (Tainio 2003). Together with the rapid growth of the Finnish ICT sector, foreign capital became more interested in Finland and the Helsinki Stock Exchange. In 1993, when the full liberalization of foreign ownership of shares of Finnish companies was first introduced, the Finnish finance market became totally integrated into international capital flows, and in the mid-1990s, the Helsinki Stock Exchange became the most internationalized stock exchange in the world (Rouvinen and

Ylä-Anttila 2003: 99). Of course, the crash of the ICT industry at the end of the millennium demonstrated that the Helsinki Stock Exchange has become much more vulnerable. Together with the establishment of the "outsider system" also more venture capital became available in Finland. In the beginning, venture capital was mainly provided by state-owned agencies, but soon private capital became more involved. In the second half of the 1990s, Finland became one of the most rapidly growing venture capital markets in Europe; in less then ten years the venture capital available had grown ten times bigger (Hyytinen und Pajarinen 2002).

The Finnish government has changed its policy orientation from an investment-oriented, short-term macro-economic policy into an innovation-oriented, long-term micro-economic policy. Finland was actually the first among the OECD countries to adopt the concept of "national systems of innovation" as the basis of its policy, stressing the importance of a systemic transformation process (Ormala 1999). The application of the system approach in Finnish innovation policy has been supportive in the transforming process as it stressed the importance of knowledge and know-how emphasizing education and research. Finland with a share of about 3.5 per cent of R&D expenditures of GDP and a 70 per cent share of the industrial sector of R&D expenditures has taken a leading position among the OECD countries, being second only to Sweden. The country has already achieved the criteria suggested by the Barcelona European Council in 2000, which were established to give Europe a leading position in the emerging knowledge economy.

The application of "national system of innovation" as a model of economic development, stressing the interrelationship between various actors involved in innovation processes, demanded a closer link between the science system and the economy to enable intensive knowledge flows, which also triggered major restructuring processes within the science system. While public investment in research and development increased continuously even during the economic crisis, the state insisted in a more visible contribution of the science system to economic growth and social welfare. Hand in hand with this development, finance was shifted increasingly from basic to applied research. On the university level, a new steering paradigm was established which is characterized as a combination of self-regulation and performance-based control. In addition, targetization of research and competitive funding increased and the universities were urged to acquire more external funding through improving co-operation with businesses (Nieminen 2005).

Many of the national technology programmes, which were started in the early 1980s and were co-ordinated by the newly founded Technology Development Centre (Tekes), had a focus in the ICT sector. But while in 1982 the share of ICT of the whole national technology programmes was about 62 per cent, it shrank to 29 per cent in 1991, a trend which indicated that the cluster could stand on its own. Nevertheless, R&D funding by Tekes has helped Nokia to develop some of its most important innovations like the GSM technology (Ali-Yrkkö and Hermans 2004).

When Tekes started its national technology programmes, it put great emphasis on co-operation between SMEs and large companies and between the industrial and the scientific sector. Following Porter's argument that clusters are the key determinants of national competitive advantage because they create an environment of pressure and challenge which forces companies to innovate (2002), Finland adopted a cluster-based approach to national innovation policy (Prihti et al, 2000). The argument that industrial clusters can produce extensive spillovers of technology, know-how and productivity was also brought forward to legitimate the cluster-based approach (Luukkainen 2001, 273). In addition, Finnish innovation policy focused on further developing its economic strongholds instead of saving its declining industries. The intention of the Centre of Excellence programme, for example, is to concentrate basic research in universities in specific fields (ICT and more recently biotechnology) to boost knowledge creation and knowledge diffusion in new growth areas. And the development-oriented Centre of Expertise Programme aims at creating strong knowledge-based regional clusters.

More recently, Finnish innovation policy has reacted to new challenges (Lemola, 2004). For example, internationalization and global networking have become key aspects in Finnish technology programmes conducted by Tekes and the Academy of Finland. It has also been acknowledged that Finnish innovation policy has focused too much on technical innovations, while widely ignoring social and organizational innovations that enable the efficient generation, diffusion and use of new knowledge. The National Workplace Development Programme, co-ordinated by the Ministry of Labour and established in the mid-1990s, aims at stimulating innovation and productivity by supporting organizational change and human development (Arnkil et al. 2003). Organizational renewal within the policy sector has also been discussed under the heading of organizational and social innovations (Science and Technology Policy Council 2003). And the establishment of policy networks involving policy-making bodies and other economic actors as well as the installation of social discourses as co-ordination mechanism represents a new policy approach in Finland (Schienstock and Hämäläinen 2001).

Path dependency in path creation

Above I have argued that during the 1990s the Finnish economy has changed from a period of path dependent development to a period of path creation. The first period has been dominated by the resource-based forest cluster, while the development of a new knowledge-based growth path is closely linked to the ICT cluster. But, as has been argued earlier, while a new path and old paths can exist side by side for some time, we can also expect some interaction and convergence. Particularly old paths are likely to introduce new elements from the emerging new one, which can also be demonstrated in the Finnish case. Of course, being central in the development of the traditional resource-based path, one cannot expect the Finnish forest sector corporations to take on a leading role in the process of creating a new path. Some scholars have actually expressed the fear that due to the rigidity of the forest companies the Finnish economy is likely to become divided into two sectors with different speed of development (Castells and Himanen 2002). Tainio and Lilja argue, however, that the forest firms, belonging to the "second wave" (2003: 82), have contributed significantly to the stabilization of the new path.

For example, the forest companies have pushed the internationalization process of the Finnish economy; due to various mergers that took place in the 1990s, including also a Swedish company, they have become global players. As is the case with Nokia, Finnish forest firms have invested heavily in other parts of the world and particularly in South East Asia. These globalization strategies have made them widely independent from the Finnish institutional framework. For example, through global sourcing they have reduced the influence of the small forest owners significantly. And by listening at the New York Stock Exchange they have restrained the influence of the Finnish banking system. Finnish forest firms no longer depend on "patient capital"; they are now controlled by international investors and lenders, who provide rather "impatient capital". Together with their internationalization strategies Finnish forest firms have also introduced Anglo-Saxon principles of corporate governance.

On the other hand, low productivity and innovation figures seem to indicate problems with introducing new organization forms, management practices and modern ICT applications (Alasoini 2004). There are, however, changes under way that may improve such efficiency indicators significantly. First, Finnish forest firms concentrate more and more on offering high value-added services instead of sticking to production only. Second, they widely outsource production abroad and focus on knowledge intensive business services such as finance, marketing and R&D in their homeland. This has a significant influence on the structure of the workforce; while the number

of knowledge workers is increasing, the number of traditional production worker is decreasing, reducing also the traditionally strong influence of the forest worker union. One can expect that due to these changes the traditional consensus-based industrial relationships will come to an end, which is indicated by the fact that paper workers went on strike recently, ending the "exceptionalism" of the forest cluster.

But the forest sector will be confronted with a number of additional challenges, which may contribute to the "homing" of the sector into the new path. For example, the forest sector is likely to rely more on biotechnological knowledge to improve the quality of the raw material and methods of production, which will increase innovativeness, but also demand more R&D investment. And the introduction of e-printing will revolutionize production processes in the media sector in such a way that the production of electronic media and print media will widely be merged, breaking also down the borders between the forest cluster and the ICT cluster.

Table 1 below demonstrates, that the business and innovation systems, associated with the two periods, differ quite significantly. But there is also a clear tendency of convergence as the traditional path, dominated by the forest cluster, integrates major elements of the new knowledge-based path, a process, which can be characterised as "homing" of the forest cluster in the new emerging path.

Conclusion

Whether a new path has been successfully established can only be assessed afterwards. The creation of a new knowledge-based path in Finland led by the ICT cluster is no exception. The path creation process is still ongoing and we can speak of Finland only as a knowledge-based economy in the making. The country has taken advantage of the emerging new techno-organizational paradigm earlier than most other industrialized countries. This is partly due to the fact that an unsustainable resource-based growth path threatened to put Finland into a lock-in situation with long-lasting economic stagnation. The creation of the largest telecommunication market in the world in Northern Europe, on the other hand, gave Nordic companies a major Competitive advantage in the globalising economy. Furthermore, Finland as a small open economy is particularly exposed to global economic competition pressures and has to react quickly. And the deep economic crisis in the beginning of the 1990s accelerated the already ongoing path creation process. We cannot argue, however, that the Finnish success story can be explained by referring to objective factors only. Instead, the transformation of the Finnish economy must be understood as a national programme of survival involving various actors from industry, science and politics.

Although we cannot be sure that the new path will become a success in the long run, the Finnish case nevertheless demonstrates that in a national economy the breakthrough of a new path can take place in a rather short period of time. But is the path creation process economically sustainable?[5] To answer this question we have to look for factors that can cause the process to fail. Dominance by one large company is definitely a high risk factor. Although during the last years the ICT cluster has broadened its basis, as new rapidly growing companies have emerged, the dependency on Nokia, the flagship of the cluster is still very high. There are some doubts whether the cluster can keep on track if Nokia happens to fail or leaves the country. So far Nokia has chosen the "voice option" complaining about the various aspects of the Finnish institutional system including taxation, but the company has also threatened to choose the "exit option", if

[5] Here we cannot discuss whether the new path is socially and ecologically sustainable.

Table 1

Key characteristics of the old and the new growth model

	phase of path dependent economic development	**phase of creation of a new path**	
	domination of the forest cluster(resource-based)	*development of the ICT Clusters (knowledge-based*	*adaptation of the forest cluster (knowledge-based)*
concentration of expertise	wood growing, har-vesting and processing, engineering, chemicals	electronics (telecommunication)	biotechnology (liquefied wood) and electronics (e-printing)
output	material goods (wood, pulp, paper)	material (mobile phone, networks) and imma-terial goods (software, content)	increasing importance of im-material goods (services)
firm structure	greater number of me-dium-sized companies	one global player and net-work of SMEs	few global players
competition	geographical proximity: com-petition and know-ledge flows, collusion to reduce external compe-tition	global competition, strategic alliances	global competition
sourcing	national suppliers (small farmers)	global sourcing	global sourcing
supplying external markets	export	global production	global production
production system	bureaucratic, tech-nology-based production system	ICT-based internal and ex-ternal networks, focus on high-value added functions	increased techno-organiza-tional flexi-bility, focus on high-value added functions
management philosophy	social partnership	American management prin-cipals: shareholder value	American management prin-cipals: shareholder value
core group of employees	skilled and semi-skilled workers	highly educated engineers (knowledge-workers)	highly educated engineers (knowledge workers
type of innovation	primarily process innova-tions, incremental product innovations	radical product-, process and service innovations	increased radical product and service innovations
research and development	little R&D investment in core companies, higher R&D investment in supplier firms (che-micals, engineering)	high R&D investments, in-novation networks (R&D outsourcing)	increased R&D invest-ments in core companies
state influence	interventionist state, cen-tralised steering (large na-tional programmes)	supportive state, long-term, firm-centred innovation en-abling policy, policy networks	
finance system	national banks as ma-jor shareholders, long-term credits, "patient capital" (in-sider system), little venture capital	foreign ownership, global credit and capital market "impa-tient capital" (outsider system), growing (private) venture capital	
science-industry relationships	science as independent so-cial system, little co-operation	science as part of the innovation system, close co-operation between science and industry	
education system	secondary institutional edu-cation	tertiary education, technology-oriented polytechnics	
culture	trust in the efficiency of centralised planning	trust in the efficiency of markets and competition	

things will not change. Whether the large forest companies will keep their headquarters in Finland is also not once and for all decided.

Major problems may also occur, because in the Finnish ICT cluster equipment producers have by far the strongest position. But together with the introduction of the third generation mobile phones, software and content production are becoming much more important than equipment production. In these fields no Finnish company has yet emerged that could compare to Nokia. Furthermore, while the establishment of a new ICT cluster can be seen as the driving force for the creation of the new development path, economic success in the knowledge-based economy in the long run depends on the diffusion and use of these new technologies in traditional sectors. The "homing" of the whole industry in the new techno-organizational paradigm is decisive for the stability of the new path. While Finnish banks are most advanced in the use of modern ICT, the traditional industries are still lagging behind.

And third, although Nokia is the leading mobile-phone producer and has a strong position in the production of digital networks, the turbulent situation in the ICT sector and the dramatic technological development together with continuous industrial restructuring can easily undermine even the position of a front-runner in telecommunications equipment production. Due to the merger of telecommunications and computers, Nokia may soon be confronted with very strong competitors that have not been on the scene so far. The outcome of this struggle may very well affect the economic sustainability of Finland's new knowledge-based path (Rouvinen and Ylä-Anttila 2003).

One may even raise the question whether, with the view on Finland, it makes sense to speak about a national development path at all. Core indicators, such as employment or turnover, show that by far the greatest part of Nokia's businesses is carried out abroad. Due to an aggressive globalization process, Nokia's business strategies are far less influenced by the Finnish institutional setting including the labour market, legal regulations, the financial system, education or research as it was the case during the beginning of the 1990s; instead, the company is searching for the best environmental conditions world-wide. The same holds true for the large Finnish paper producers. And Finnish banks have become a part of a Nordic financial system. On the other hand, Helsinki represents the core of the new path, while other regions become some kind of a sub-region of this core, and peripheral regional economies are much less affected by the new development. The Finnish case seems to confirm the argument that the national level becomes less influential in the creation of a new path, losing ground against the international as well as the regional level.

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Part II:

Creativity—Innovation —European Research Policy

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BEYOND THE LISBON EUROPEAN COUNCIL —TOWARDS A 'NEW DEAL' FOR AN EFFECTIVE EUROPEAN RESEARCH POLICY*

European research is entering into a new stage. The 7^{th} Framework Programme, which will run from 2007 to 2013, is more ambitious in scale and scope than any past Framework Programme.[1] Furthermore, the time seems ripe to pursue a 'New Deal' for an effective European research policy beyond the Framework Programme.

Before explaining what such a 'New Deal' could consist of, the objective of this paper is first of all to explain what has made this new stage in the development of European research possible. Past Framework Programmes have always been designed against the background of Europe being faced with a substantial number of important—both long-standing and emerging—challenges of an economic, social, and environmental nature. The awareness has always been there that S&T could play a significant role in meeting these challenges but is prevented from doing so because of important European S&T weaknesses. So what has changed?

This paper will argue that, around the turn of the century, several factors gave rise to a more acute awareness among European policy-makers of Europe's societal and S&T challenges, and to the formulation of the Lisbon Agenda. The Lisbon European Council of March 2000 and its aftermath created a new European research policy context, within which it was possible to pursue a Framework Programme much more ambitious in scale and scope than any past Framework Programme. At Lisbon, European policy-makers recognised unambiguously that to overcome its societal challenges, Europe would have to turn itself into a knowledge-based society. At the same time, it was acknowledged that putting knowledge at the centre would require more and better investment in the knowledge triangle of research, education, and innovation. The objective to invest more in research culminated in the 3 percent objective, while the objective to invest better in research centred on the concept of the European Research Area. Little progress was made towards the achievement of these objectives after 2000. Policy makers agreed that this was mainly due to weaknesses in the governance of the Lisbon strategy. Therefore, at their Summit in 2005, the European leaders set in motion a reform of the Open Method of Coordination, and a general revaluation of the role of the Union in the achievement of the Lisbon objectives. This new policy

* The views expressed are purely those of the writers and may not in any circumstances be regarded as stating an official position of the European Commission.

[1] We thank the other colleagues of Unit A5 of the Commission's DG Research for their input.

context had important implications for the preparation of the 7th Framework Programme. In particular, the recognition of the relative effectiveness of action through the Union spilled over into the debate on Community funding programmes up for renewal, and opened the way for an ambitious new Framework Programme and for a 'New Deal' for an effective European research policy.

The structure of this paper is as follows. Section 1 explains how a new policy context emerged. Section 2 briefly explains the implications of this new policy context for the next Framework Programme. And Section 3 explains how the new policy context may give rise to a 'New Deal' for an effective European research policy.

1 The New Policy Context

1.1 Taking Stock of Europe's Challenges

By the late 1990s, and for reasons discussed below, various societal challenges were felt more acutely by European policy-makers. It was therefore not without reason that the Presidency Conclusions of the European Council held in Lisbon in March 2000 began with taking stock of the Union's strengths and weaknesses. As the Council coincided with the peak of the internet boom, the document could note with some confidence that "*the Union is experiencing its best macro-economic outlook for a generation*", and that "*growth and job creation have resumed*".[2] Yet it also observed a number of important weaknesses, mainly with regard to employment, the development of key economic sectors, and human capital formation: "*More than 15 million Europeans are still out of work. The employment rate is too low and is characterised by insufficient participation in the labour market by women and older workers. Long-term structural unemployment and marked regional unemployment imbalances remain endemic in parts of the Union. The services sector is underdeveloped, particularly in the areas of telecommunications and the internet. There is a widening skills gap, especially in information technology where increasing numbers of jobs remain unfilled*".[3]

Almost as soon as the Lisbon European Council came to an end, in that same year 2000, the new economy boom collapsed. The economic situation worsened rapidly, and the need for faster economic growth in the EU was felt more urgently. The July 2003 'Sapir Report', for instance, identified growth as Europe's number one priority. Sapir and his team had undertaken a longer-term analysis of Europe's growth performance, and had found a steady decline of the average growth rate decade after decade.[4] The April 2004 'Strauss-Kahn Report' largely echoed the analysis of the 'Sapir report', and identified five internal challenges to the European model (economic change, social change, the demographic challenge, environmental change, and democratic distrust), as well as two external ones (globalisation, new post-9/11 strategic reality).[5] Compared to previous reports, the November 2004 'Kok Report' did not come up with any new analysis or new recommendations, but it infused the debate with a sense of urgency. The independent assessment carried out within the context of the mid-term review of the Lisbon Strategy by a high-level group under the chairmanship of Wim Kok regretted the lack of progress made,

[2] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[3] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[4] *An Agenda for a Growing Europe. Making the EU Economic System Deliver*, Report of an Independent High-Level Study Group Established on the Initiative of the President of the European Commission, July 2003.

[5] *Construire l'Europe Politique. 50 Propositions pour l'Europe de Demain*, Dominique Strauss-Kahn. Président de la Table Ronde "Un Projet Durable pour l'Europe de Demain" Établie à l'Initiative du Président de la Commission Européenne, Rapporteur Olivier Ferrand, Avril 2004.

but positioned the Lisbon Strategy as "*even more urgent today*", since "*the growth gap with North America and Asia has widened, while Europe must meet the combined challenges of low population growth and ageing*".[6]

1.2 Recognising the Need for Europe to Turn itself into a Knowledge-based Society

The authors of the Lisbon Conclusions and of later high-profile policy reports shared the basic understanding that Europe to overcome its challenges would have to turn itself as soon as possible into a knowledge-based society. That is why at Lisbon the Union set itself a new strategic goal to be accomplished by 2010, namely "*to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*".[7] The 'Sapir Report' concluded in the same sense by ascribing the long-term decline of the European economic growth rate to Europe's failure to transform itself into an 'innovation-based economy'.[8] The 'Kok Report' listed the 'knowledge society' as the first of five policy areas requiring urgent action.[9] And the January 2006 'Aho Report' presented a strategy to create an 'innovative Europe'.[10]

The need for making the transition to the knowledge-based society was recognised not only at European but also at Member State level. Numerous national reports were launched even from before the turn of the century calling for turning knowledge into the basis of the economy and society. To mention just a few examples, in Finland, the *Science and Technology Policy Council* published reports on the 'innovative society' in 1993 and on the 'knowledge-based society' in 1996.[11] In the United Kingdom, a key diagnostic report was published in 2003. Its core message was that the United Kingdom needed a new approach towards competitiveness. It had been successful in implementing market-based reforms such as deregulation, privatisation and competition, but these policies were now encountering diminishing returns. It needed a new approach focussed on improving skills, stimulating innovation, and fostering enterprise. Only by building such capacity, the United Kingdom would be able to move to the next stage of improving competitiveness, and achieve sustained higher levels of prosperity.[12] In France, Daniel Cohen and Michéle Debonneuil, members of the Prime Minister's Economic Analysis Council, wrote in the year 2000 a report on the 'new economy'. They argued that an 'industrial revolution' was taking place in the United States driven by Information and Communication Technologies. The latter was gaining in importance because of R&D efforts, appropriate financing mechanisms, and the deregulation of old monopolies. France and Europe were lagging six to seven years behind and an important effort was needed for the diffusion and assimilation of new technologies, R&D, and production.[13] Five years later, Jean-Louis Beffa, presidential advisor, ascribed France's industrial

[6] *Facing the Challenge. The Lisbon Strategy for Growth and Development*, Report from the High Level Group Chaired by Wim Kok, November 2004, p. 6.

[7] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[8] *An Agenda for a Growing Europe.*

[9] *Facing the Challenge.*

[10] *Creating an Innovative Europe*, Report of the Independent Expert Group on R&D and Innovation Appointed Following the Hampton Court Summit, January 2006.

[11] Science and Technology Policy Council, *Towards an Innovative Society: A Development Strategy for Finland*, 1993; Science and Technology Policy Council, *Finland: A Knowledge-based Society*, 1996.

[12] Michael E. Porter and Christian H. M. Ketels, *UK Competitiveness: Moving to the Next Stage*, DTI Economics Paper No. 3, London, May 2003. See also subsequent more action-oriented reports: DTI, *Competing in the Global Economy—The Innovation Challenge*, DTI Economics Paper No. 7, London, November 2003. DTI, *Competing in the Global Economy: The Innovation Challenge*, Innovation Report, London, December 2003.

[13] Daniel Cohen and Michéle Debonneuil, *Nouvelle économie*, Conseil d'Analyse Economique du Premier Ministre, 2000.

weakness to among other things insufficient R&D, and argued in favour of supporting high-tech industries through large-scale industrial innovation programmes.[14] And in the Netherlands an innovation platform was launched in 2003, the mission of which was to strengthen the innovation potential to secure a leading role for the country in the European knowledge economy of 2010.[15]

1.3 Why Knowledge Took Centre Stage

Several factors could explain why around the turn of the century European policy-makers recognised the need for Europe to turn itself into a knowledge-based society.

Europe's Knowledge Weaknesses and the Incomplete Materialisation of New Economy Hopes

The last decade or so of the 20th century was marked by a significant acceleration in the pace of technological progress. Great steps forward were made in a number of key fields of technology including information and communication technologies (e.g. internet, mobile communications), nanotechnology, and the life sciences (e.g. biotechnology, the human genome project). This rapid pace of technological progress boosted the expectations of policy makers and society at large of the future potential of S&T, not in the least because associated with the arrival of the New Economy in the United States were a stellar economic growth performance and record low unemployment rates.

Most of the technological progress appeared to come from outside Europe, however. Europe did benefit from the arrival of the New Economy, but only to a limited extent. It never succeeded in enjoying US levels of economic growth and employment. The search for the cause of the growth, productivity, employment and technology gaps highlighted research, education, and innovation weaknesses (in addition to structural factors such as the fragmented European market, labour market rigidities, etc.). As a result, the awareness of fundamental European S&T weaknesses moved beyond the scientific community to a wider group of European policy-makers.[16]

More Knowledge to Cope with Increased Foreign Competition

Over the course of the last decade or so, major developing economies including but not limited to the so-called BRICs (Brazil, Russia, India and China) have opened up. Foreign direct investment has flowed into these economies, and foreign companies succeed in producing not just low-tech but also increasingly middle-and high-tech products. Because of trade liberalisation they are able to export these products to advanced markets such as Europe. It is clear that this poses new competitive threats to developed economies such as the European one, forcing them to flee forward into ever higher-tech industries. At the same time, trade liberalisation also generates competitive threats from these countries to more traditional European industries (e.g. textiles), forcing them to upgrade too. Both factors push research to the forefront.

The Knowledge Society as a New Major Project for Europe

Around the turn of the century, the Union could look back to the previous decade with a certain degree of pride. By the early 1990s, substantial progress had been made towards the

[14] Jean-Louis Beffa, *Pour une nouvelle politique industrielle*, France, Présidence de la République, Paris, 2005.

[15] For Ireland, see *Building Ireland's Knowledge Economy. The Irish Action Plan for Promoting Investment in R&D to 2010*, Report to the Inter Departmental Committee on Science, Technology and Innovation, July 2004; For Estonia, see Marek Tiits et alii, *Competitiveness and Future Outlooks of the Estonian Economy—R&D and Innovation Policy Review*, Tallinn, 2003.

[16] Such weaknesses included the mostly private sector R&D investment and expenditure gap with the US and Japan; the European paradox, according to which Europe is strong in science but fails to quickly, effectively and efficiently turn new knowledge into new products, processes and services; the decreasing attractiveness of Europe as a place to carry out research; the lack of S&T mobility, both extra- and intra-European; etc.

establishment of a single European market. By the second half of the 1990s, a single currency was being introduced successfully under a carefully considered and seemingly unavoidable phase-by-phase and step-by-step approach. And the road towards the Union's most ambitious enlargement ever had been embarked upon. Within this context, the search was on for the next major project for Europe.

The realisation of the knowledge society presented itself as a suitable candidate. In this regard, Alyn Smith recently said that "*research and the up-scaling of Europe's economy is Europe's new narrative. Europe used to be about coal and steel, then it was about agriculture and fisheries. For the future, Europe is going to be about research and development, and where Europe adds value in coordinating the two*".[17]

In a way, this constituted a logical sequence to what came before. After the Union's large-scale enlargement, the search was for a project that could contribute to the consolidation and deepening of the Union. Given that the focus in the recent past had been mainly on putting in place certain non-dynamic economic fundamentals (single market, debt reduction, budget deficit reduction, single currency), the search was for a more dynamic policy. Given that previous major European projects had failed to make much of a positive impact on Europe's long-standing low growth and high unemployment problems, the search was for a project able to resolve this policy deadlock. Because of the macro-economic interdependence created by the introduction of the single currency, the search was for a project that could in the short to medium term contribute to the Union's economic convergence. Now that the introduction of the single currency had removed from the macro-economic toolbox currency devaluations and interest rate manipulations, the search was for a project that could nevertheless promote competitiveness. The realisation of the knowledge society was the only candidate project fitting the bill, and it was not too difficult to agree on this. It was a new project, having a 'clean slate', and was untested. It was also non-controversial, holding the promise of a win-win situation for everyone, unlike rapid market integration, the introduction of the euro, or enlargement, where there always seemed to be winners and losers.

1.4 Investing More and Better in the Knowledge Triangle

At both EU and Member State levels, it was immediately understood that making the transition to the knowledge-based society would require putting research, education, and innovation, the so-called knowledge triangle, at the centre, and that direct support programs and suitable regulatory action would have to make more and better targeted resources flow into research, education and innovation. Thus the Lisbon strategy included major headings such as "*Establishing a European area of research and innovation*"; "*Education and training for living and working in the knowledge society*"; and "*Creating a friendly environment for starting up and developing innovative businesses, especially SMEs*".[18]

The call for investing more and better in knowledge triangle issues was repeated in the aforementioned high-profile policy documents. The 'Sapir Report' recommended, first, to make the Single Market more dynamic and, second, to boost investment in knowledge.[19] The 'Strauss-Kahn Report' put "*investing in knowledge by emphasizing research and higher education*" as a priority before the revitalisation of the internal market. The report contained 50 proposals for "*Constructing Tomorrow's Europe*", which impressively underlined the importance attached

[17] Debate at the European Parliament's ITRE committee on 16 June 2006. Alyn Smith, Member of the European Parliament (Greens/EFA), was draftsman of the opinion of the European Parliament's Committee on Regional Development on the 7th Framework Programme proposal.

[18] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[19] *An Agenda for a Growing Europe.*

to research, innovation and education.[20] The 'Kok Report' recommended increasing Europe's attractiveness for researchers and scientists, making R&D a top priority, and promoting the use of information and communication technologies.[21] The 'Aho Report' recommended a paradigm shift going well beyond the narrow domain of R&D and innovation policy. A "*Pact for Research and Innovation*" would be needed entailing a combination of a market for innovative goods and services, focussed resources, new financial structures and mobility of people, money and organisations. The report concluded that "*Europe and its citizens should realise that their way of life is under threat but also that the path to prosperity through research and innovation is open if large scale action is taken now by their leaders before it is too late*".[22]

1.5 Investing More and Better in Research

The Lisbon Objectives in the Field of Research

At Lisbon, and two years later at Barcelona, a number of concrete objectives were formulated in relation to research. They concerned both more and better investment in research.

Table 3.1: Lisbon Strategy Targets/Objectives in the Field of Research

- Increase R&D spending to 3 percent of GDP by 2010. The proportion financed by business should rise to two thirds of that total (target set at Barcelona)
- Network national and joint research programmes on a voluntary basis around freely chosen objectives and develop an open method of coordination for national research policies
- Improve the environment for private research investment, R&D partnerships and high-technology start-ups
- Harness new and frontier technologies, notably biotechnology and environmental technologies
- Introduce a cost-effective Community patent
- Remove obstacles to the mobility of researchers, attract and retain high-quality research talent in Europe
- Roll out a world-class research communications infrastructure

Source: European Commission, Commission Staff Working Document in Support of the Report from the Commission to the Spring European Council, 22–23 March 2005, on the Lisbon Strategy of Economic, Social and Environmental Renewal, SEC(2005) 160, 28 January 2005, p. 17.

Investing More in Research

The objective to invest more in research found its clearest expression in the so-called "*3 Percent Objective*". In 2002, the Barcelona European Council agreed that "*overall spending on R&D and innovation in the Union should be increased with the aim of approaching 3 percent of GDP by 2010. Two-thirds of this new investment should come from the private sector*".[23] In formulating the 3 percent objective, the Barcelona European Council built upon the Commission Communication *Towards a European Research Area* (2000) and the Lisbon Conclusions (2000). The Communication noted that "*more than ever, investing in research and technological development offers the most promise for the future. In Europe, however, the situation concerning research is worrying. ... Europe might not successfully achieve the transition to a knowledge-based*

[20] The first four recommendations were: (1) making research the budgetary priority for the union so that budgetary expenditure on public research would represent 0.25 percent of community Gross Domestic Product, and progressively increase so that research would become the union's most important policy; (2) creating a European agency for science and research; (3) stimulating private research by fixing through a European directive a minimum tax break for enterprises investing in R&D; and (4) investing in higher education by establishing a network of European university centres of excellence, and fixing as an objective that 50 percent of the European population would obtain a higher education degree. (*Construire l'Europe Politique*)

[21] *Facing the Challenge.*

[22] *Creating an Innovative Europe.*

[23] *Presidency Conclusions Barcelona European Council 15 and 15 March 2002.*

economy".[24] The first reason listed was that the average research effort in the Union was much lower than in the US or Japan, and that the gap appeared to be increasing.[25] In response, the Communication called among other things for "*more dynamic private investment*".[26] The Lisbon European Council Presidency Conclusions on the other hand called for the necessary steps to be taken to "*improve the environment for private research investment, R&D partnerships and high technology start-ups*".[27]

From the beginning there was agreement among policy makers that increasing R&D expenditure would require the use of research, other knowledge triangle policies (education and innovation), and still other policies (e.g. competition, market, macro-economic), and thus horizontal policy coordination was essential (Figure 3.1). In this regard, the Commission Communication *Towards a European Research Area* called for promoting more dynamic private investment by better use of instruments of indirect support to research, the development of effective tools to protect intellectual property, and the encouragement of the creation of companies and risk capital investment.[28] The Lisbon Conclusions called for improving the environment for private research investment, R&D partnership and high technology start-ups by using tax policies, venture capital and EIB support, and emphasized the need for macro-economic policies to be supportive of knowledge investment: "*As well as preserving macro-economic stability and stimulating growth and employment, macro-economic policies should foster the transition towards a knowledge-based economy, which implies an enhanced role for structural policies*".[29] And the Commission Communication *More Research for Europe—Towards 3 percent of GDP* distinguished between more effective use of public financing for business R&D on the one hand, and more attractive framework conditions on the other hand.[30]

Investing Better in Research

The objective of better investment in research concerned mainly the desire to overcome the fragmentation of European S&T through greater collaboration and coordination. Around the turn of the century, the fragmentation of European S&T was widely perceived as a problem, and calls for greater collaboration and coordination were widespread. In 1998, for instance, Caracostas and Muldur noted that the foundations of a *European System of Research and Innovation* were in place, but that consolidation of this system would require three kinds of coordination: "*between European, national and (increasingly) regional policies; between Community measures and intergovernmental European measures; and between science and technology policies and other public policies*".[31] A few years later, Kuhlmann and Edler noted that in Europe innovation policy initiatives were pursued in parallel at the regional, national, and trans-national levels, and that this

[24] European Commission, *Towards a European Research Area*, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, COM(2000) 6 final, 18 January 2000, p. 4.

[25] European Commission, *Towards a European Research Area*, p. 4.

[26] European Commission, *Towards a European Research Area*, p. 13–14.

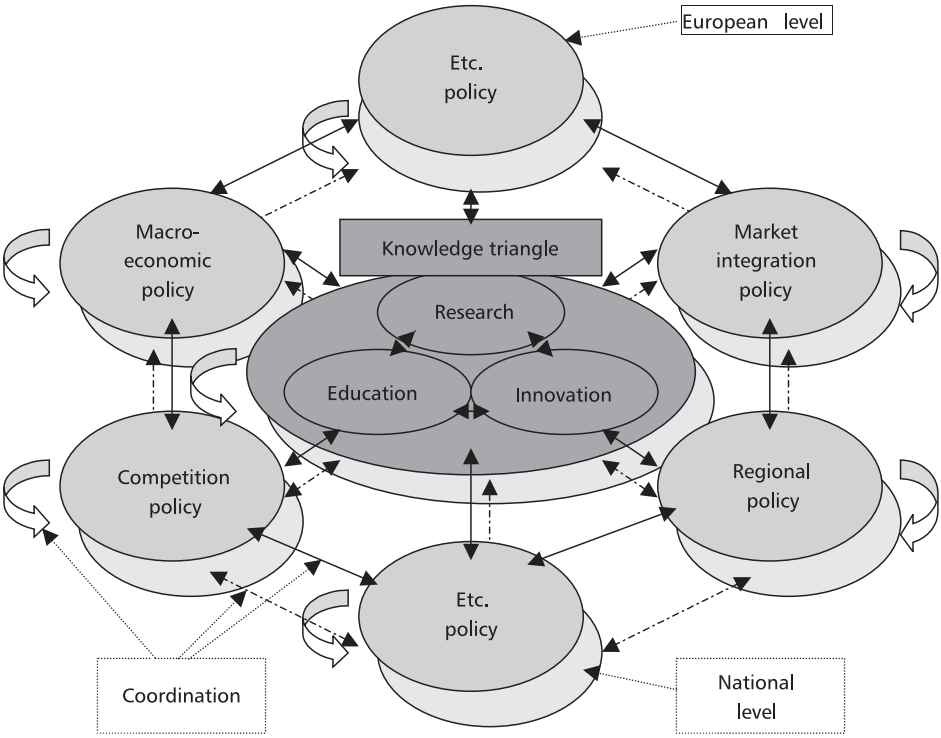
[27] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[28] European Commission, *Towards a European Research Area*, p. 13–14.

[29] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[30] European Commission, *More Research for Europe—Towards 3% of GDP*, Communication from the Commission, COM(2002) 499 final, 11 September 2002. Under the first heading, it called for the use of direct support measures, but also of fiscal incentives, guarantee mechanisms, and public support for risk capital. Under the second heading, it called for sufficient and high quality human resources, a strong public research base with improved industry links, entrepreneurship for, and through, R&D, effective adaptation and use of intellectual property rights systems, research- and innovation-friendly regulations, a competitive environment and supportive competition rules, supportive financial markets covering the various stages of development of high-tech and other innovative companies, and macro-economic stability and favourable fiscal conditions.

[31] Paraskevas Caracostas and Ugur Muldur, *Society, The Endless Frontier*, Luxembourg, 1998, p. 128.



Source: DG Research

Fig. 3.1 The Lisbon Strategy for Getting to the Knowledge-based Society

layer structure left open a governance gap of poor integration and coordination.[32] In response, the Union formulated the concept of the European Research Area, a Europe-wide market for research, characterised by mobility for researchers and knowledge, and scientific cooperation, and by improved policy coordination. The concept was confirmed by the Lisbon Conclusions, which stated that "*research activities at national and Union level must be better integrated and coordinated to make them as efficient and innovative as possible*".[33]

Instruments for the Implementation of the Lisbon Agenda

It was clear that implementing the Lisbon strategy would be a challenge. The initial broader Lisbon objective touched upon many policy fields and goals: "*completing the Internal Market, fostering competition, achieving full employment, raising quality and productivity in work, strengthening social and regional cohesion, launching structural reforms and modernising education and training, pension and healthcare systems, respecting the environment, and developing knowledge through education and training, research, innovation and the wide use of ICT, based on sound macro-economic policies*".[34] And successive presidencies added even more

[32] Stefan Kuhlmann and Jakob Edler, *Governance of Technology and Innovation Policies in Europe: Investigating Future Scenarios*, p. 8.

[33] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[34] European Commission, *Commission Staff Working Document in Support of the Report from the Commission to the Spring European Council*, 22–23 March 2005, on the Lisbon Strategy of Economic, Social and Environmental Renewal, SEC(2005) 160, 28 January 2005, p. 45.

goals.[35] In addition, the legal competence for action in the different policy fields varied. In some areas, it was exclusively European, in some national, and in some shared.[36]

That is why for implementing the Lisbon strategy the full range of existing policy instruments was mobilised. This included EC legislation proposed by the Commission and adopted by both the European Parliament and the Council, and programmes and funding granted by the Community (especially in areas of shared competence), as well as, for instance, action plans setting out how legislation, policy guidance and funding would be brought together to achieve policy goals.[37]

In addition, a specific instrument was proposed for coordination between Member States in areas falling mainly under national responsibility (where the Community Method could not (always) be applied), namely the "Open Method of Coordination".[38] Its main purpose was to spread best practice and achieve greater convergence towards the main EU goals. It was designed to help Member States develop their own policies and involved "*fixing guidelines for the Union combined with specific timetables for achieving the goals which they set in the short, medium and long terms; establishing, where appropriate, quantitative and qualitative indicators and benchmarks against the best in the world and tailored to the needs of different Member States and sectors as a means of comparing best practice; translating these European guidelines into national and regional policies by setting specific targets and adopting measures, taking into account national and regional differences; periodic monitoring, evaluation and peer review organised as mutual learning processes*".[39] The Open Method of Coordination is inter-governmental and soft: inter-governmental because it relies mainly on Member States interacting with each other, and soft because a possible lack of progress would not result in sanctions.

Implementation in the Field of Research

Following the commitments taken in Lisbon and Barcelona, all available means were employed to achieve the objectives defined in the field of research. The Community Method was used to improve research framework conditions (e.g. the efforts towards the introduction of a Community Patent). The Framework Programme was used to promote greater S&T collaboration and coordination. Actions plans were launched, for instance in relation to the 3 percent objective.[40] And the Open Method of Coordination was applied in five areas: the 3 percent objective; human resources and researchers' mobility; science and society; networking and mutual opening of national and joint RTD programmes; and infrastructures of European interest.[41]

All in all, a large share of the responsibility for action in the field of research was assigned to the Member States. To a certain extent, this was to be expected. Research is an area of shared competence, and the bulk of R&D expenditure is situated at national level. But the Lisbon European Council also put extra emphasis on the principles of decentralisation and subsidiarity, and called for Community action that would not upset the delicate agreement reached on Agenda 2000, the Union's financial framework for the period 2000–2006.[42] As a result, the Union acted mainly through a 6^{th} Framework Programme not much larger than the 5^{th} once account was taken

[35] European Commission, SEC(2005) 160, p. 45.

[36] European Commission, SEC(2005) 160, p. 45.

[37] European Commission, SEC(2005) 160, p. 46.

[38] Although not called by this name at the time, the Open Method of Coordination was first applied in EU employment policy, as defined in the Amsterdam Treaty of 1997. It was officially named, defined and endorsed at the Lisbon Council for a broad realm of policies.

[39] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000.*

[40] European Commission, *Investing in Research: An Action Plan for Europe*, Communication from the Commission, COM(2003) 226 final/2, 4 June 2003.

[41] European Commission, SEC(2005) 160, p. 27ff.

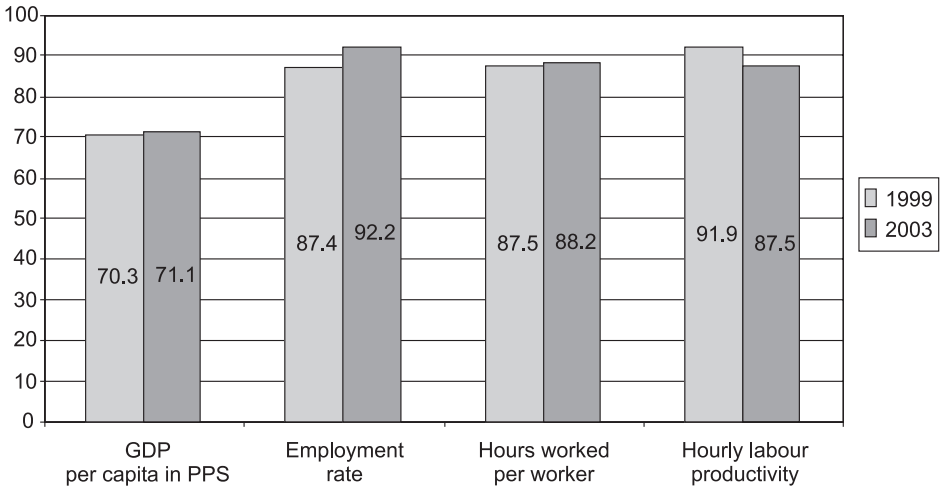
[42] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000*: "A fully decentralised approach will be applied in line with the principle of subsidiarity in which the Union, the Member States, the regional and local

of enlargement, and played the role of catalyst and facilitator within the context of the Open Method of Coordination.[43]

1.6 The Lack of Progress since the Year 2000

Since the year 2000, the progress made towards the achievement of the Lisbon objectives has been limited. In this regard, the 2004 Lisbon agenda mid-term review—or so-called 'Kok Report'—spoke of "*disappointing delivery*", and the fact that " *halfway to 2010 the overall picture is very mixed and much needs to be done in order to prevent Lisbon from becoming a synonym for missed objectives and failed promises*".[44] And a Commission Communication to the 2005 Spring Council reported that "*today, there is general consensus that Europe is far from achieving the potential for change that the Lisbon strategy offers. ... the reality is that not enough progress has been made*".[45]

Limited progress was observed with regard to the Lisbon growth and employment objectives. Between 1999 and 2003, the European employment rate increased somewhat compared to the US. But living standards hardly improved, the number of hours worked per worker scarcely increased, and hourly labour productivity actually fell (Figure 3.2).[46]



Source: European Commission, SEC(2005) 160, p. 7.

Fig. 3.2 Little Progress Made since Lisbon in Economic Terms (EU-15 Performance 1999–2003 (US=100)

But a lack of progress was also observed with regard to the objectives in the field of research as "*overall research and development (R&D) expenditure in percentage of GDP increased*

levels, as well as the social partners and civil society, will be actively involved, using variable forms of partnership"; "and by adding its own contribution to this effort under existing Community policies while respecting Agenda 2000".

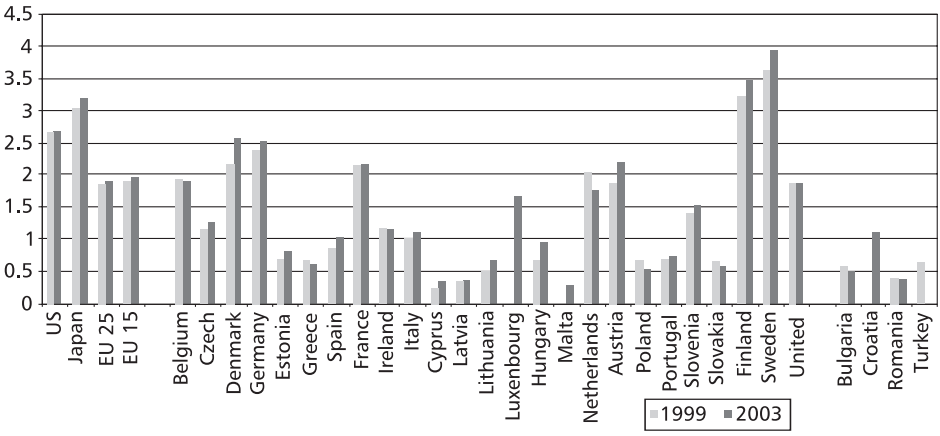
[43] *Presidency Conclusions Lisbon European Council 23 and 24 March 2000*: "A method of benchmarking best practices on managing change will be devised by the European Commission networking with different providers and users, namely the social partners, companies and NGOs". "The Union's role is to act as a catalyst in this process, by establishing an effective framework for mobilising all available resources for the transition to the knowledge-based economy".

[44] *Facing the Challenge*, p. 6 and 10.

[45] European Commission, *Growth and Jobs—A New Start for the Lisbon Strategy*, Luxembourg, 2005, p. 9.

[46] European Commission, SEC(2005) 160, p. 7.

marginally" (and now appears to be decreasing again) (Figure 3.3).[47] In addition it was noted that "*a final agreement on the Community patent remains elusive as the Council failed to reach final agreement on aspects of the translation regime*", and that "*initiatives have been taken both at European level and in Member States to improve the mobility of researchers, to attract and retain high-quality research talent in Europe, to improve the environment for private research investment, R&D partnerships and high-technology start-ups, but these are too recent to register any significant effect yet*".[48]



Source: DG RTD Data: Eurostat

Fig. 3.3 Little Progress Made since Lisbon in the Field of Research (R&D Intensity)

1.7 Explaining the Lack of Progress

The overall consensus is that nothing was fundamentally wrong with the Lisbon agenda and objectives as such. Accordingly, the Commission noted in 2005 that "*both the diagnosis and the remedies are not contested*".[49] Still it is recognised now that the Lisbon agenda could have been formulated more carefully. For instance, "*defined in a period of strong and dynamic growth, bringing favourable perspectives for both employment and macro-economic stability*," the objectives were ambitious. The objectives were defined without taking Member State diversity into account. And too many objectives were pursued in parallel, some of them conflicting with each other in the short to medium term. In addition, the Lisbon agenda was never able to capture people's imagination, included highly unpopular reforms, and was perceived as an agenda for business.[50]

The two main factors explaining the limited progress towards the achievement of the Lisbon agenda were shortcomings concerning horizontal policy coordination (between different policy areas) and vertical policy coordination (between different levels of governance). First, little progress was made towards horizontal policy coordination. This stemmed from the way in which horizontal policy coordination was understood at Lisbon. One of Lisbon's key propositions was that there should be coordination among knowledge triangle policies, and between knowledge triangle and other policies. Compared to the juxtaposition of different Community and national policies in

[47] European Commission, SEC(2005) 160, p. 2, 18 and 62.
[48] European Commission, SEC(2005) 160, p. 3 and 20.
[49] European Commission, *Growth and Jobs*, p. 9.
[50] European Commission, SEC(2005) 160, p. 48–50.

the 1990s this constituted a major step forward. But the basic spirit underlying Lisbon was that while there could be a slight refocusing of non-knowledge policies in support of knowledge policies, there could be no fundamental rethinking of and mobilisation of those non-knowledge policies in support of the knowledge society. A good example is provided by the Stability and Growth pact, which was rigidly adhered to. As Philippe Aghion appropriately observed, "*the only link between macro-policy and long-run growth that most policy makers believe in, is that growth requires macroeconomic stability everything else remaining equal*".[51] Yet the view that macro-economic policies could play a much more pro-active role is now gaining ground.[52] Another good example is provided by market integration, where the understanding is now gaining ground that 'neutral' market integration does not suffice, and that there is a need to develop so-called lead markets.[53]

Not only was the original Lisbon understanding of horizontal policy coordination imperfect. The actual horizontal policy coordination mechanisms put in place were also rather weak, allowing at both Community and national level bureaucratic portfolio protection dynamics to take over, resulting in the continued juxtaposition of policies rather than real horizontal policy coordination.[54] Like those of other policy areas, the economics and finance policy-makers used 'Lisbon'—the new scriptures affording diverse interpretations—to confirm and lock-in their prior orientations rather than to venture towards a new, more intermeshed, configuration.

The governance of the Lisbon strategy was identified as an important problem. In 2005, the Commission pointed out that "*the governance of the Lisbon strategy needs radical improvement to make it more effective and more easily understood. Responsibilities have been muddled between the Union and its Member States. There are too many overlapping and bureaucratic reporting procedures and not enough political ownership*". In addition, it noted that "*we need to revamp the delivery process which has become too complicated and is poorly understood. It generates much paper, but little action. Responsibilities between the national and the European levels have become blurred*".[55]

Within this context, a critical analysis was made in particular of the Open Method of Coordination.[56] On the positive side, it was acknowledged that, for instance, it helped achieve a common understanding among Member States in relation to a particular policy area, that it was effective as far as the exchange of best practices was concerned, and that it was perhaps the best way for Member States and the Community to coordinate policies and efforts in areas where there was little or no Community competence. But the voluntary nature of the Open Method of Coordination resulted in a lack of Member State commitment and weakened its capacity to drive structural change. At the same time, there was not always sufficient control on how Member States translated agreed upon goals into concrete national measures and on how coordination among different levels was ensured (Figure 3.4).

The weaknesses of the Open Method of Coordination were also recognised in the field of research. Commission services noted in 2005 that the "*coordination of national research policies has had mixed success*" and that "*the experience to date suggests that Member States are willing to consider concertation and some degree of coordination between national policies, but that a higher level of involvement will be needed to commit the resources necessary to address sensitive issues requiring coordination between several Member States*".[57]

[51] Philippe Aghion and Peter Howitt, *Appropriate Growth Policy: A Unifying Framework*, 9 August 2005, p. 24.

[52] See Philippe Aghion's arguments in favour of a countercyclical macro-economic policy in Aghion and Howitt, *Appropriate Growth Policy: A Unifying Framework*.

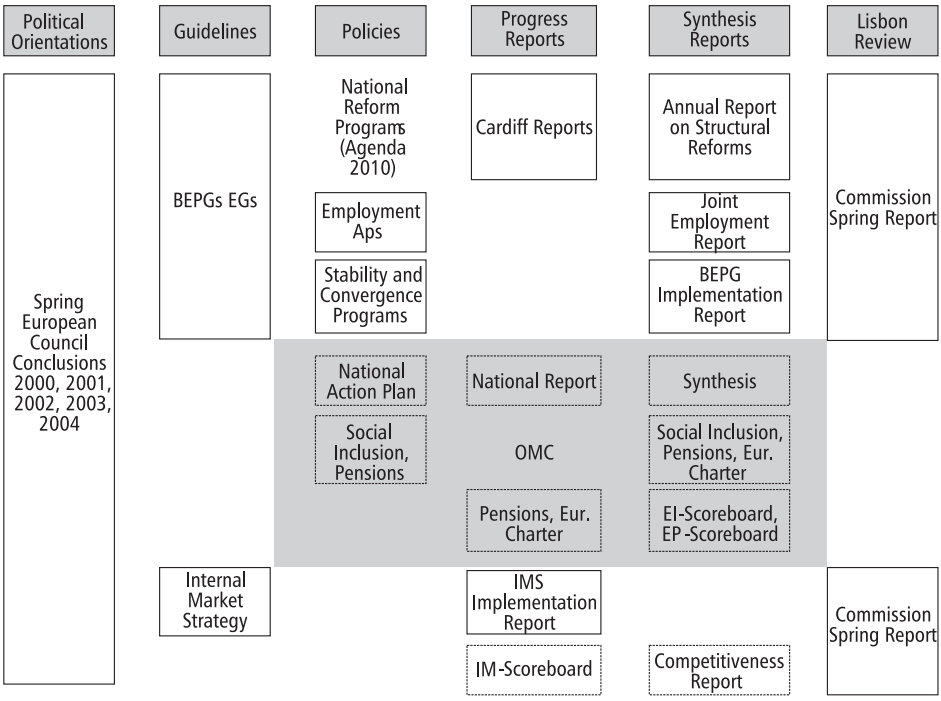
[53] *Creating an Innovative Europe*.

[54] In this regard the 2005 OECD report on the governance of innovation systems constitutes interesting reading.

[55] European Commission, *Growth and Jobs*, p. 12 and 31.

[56] European Commission, SEC(2005) 160, p. 47 and 49.

[57] European Commission, SEC(2005) 160, p. 18.



Source: European Commission, Delivering on Growth and Jobs: A New and Integrated Economic and Employment Co-ordination Cycle in the EU, Companion Document to the Communication to the Spring European Council 2005 (COM(2005) 24) Working Together for Growth and Jobs, A New Start for the Lisbon Strategy, SEC(2005) 193, 3 February 2005, p. 6.

Fig. 3.4 The Open Method of Coordination

2 The New Policy Context and the 7th Framework Programme

In response to the continued validity but excessive number of Lisbon objectives, and the perceived weaknesses of the Lisbon governance system, a number of reforms were instituted starting in 2005. The Lisbon agenda would focus on growth and jobs by ensuring that Europe is a more attractive place to invest and work, "*knowledge and innovation are the beating heart of European growth*", and the policies are shaped allowing businesses to create more and better jobs. Broader support for and ownership of the Lisbon strategy would be built. The governance system would be simplified. And a new partnership between the Union and the Member States would be launched.[58]

Concrete actions included the drafting by the Commission of an overall Lisbon action programme, the integration of the broad economic policy and employment guidelines, the adoption of broadly agreed national action programmes for growth and jobs, the appointment of a 'Mr.' or 'Ms. Lisbon' at national government level, and simplified reporting through a single Lisbon report at EU and at national levels on the progress made.[59]

Under the revised Lisbon strategy, knowledge remained at the centre, and the Union role was strengthened in line with high-profile calls in that direction: "*The conclusion that imposes itself is therefore crystal clear: the inter-governmental method without commitment, which constitutes*

[58] European Commission, *Growth and Jobs*.
[59] European Commission, *Growth and Jobs*.

the basis of the Lisbon strategy, does not function correctly. We need an approach that is more restraining and Community-based".[60]

This revaluation of the possible role the Union could play resulted in a more pro-active role for it, for instance, with regard to the national action programmes. But it also spilled over into the renewal of funding programmes such as the Framework Programme. It opened the way for a Framework Programme more ambitious in scale and scope than any past Framework Programme. It paved the way for "*a new mindset in supporting and conducting research in Europe*".[61]

3 The New Policy Context and a 'New Deal' for an Effective European Research Policy

If the 7*th* Framework Programme is a success, a significant contribution will have been made towards remedying Europe's scientific and technological weaknesses, i.e. the lack of R&D investment, the S&T fragmentation and dispersion, and the lack of horizontal policy coordination. This will put European S&T in a substantially better position to meet the various existing and emerging economic, social, and environmental challenges it is confronted with.

However, even a successful 7*th* Framework Programme will still only represent a small fraction of Europe's overall public research efforts, and will not by itself eliminate all Europe's S&T weaknesses. To achieve this, a more coherent and effective European research policy is required, encompassing all government efforts across the EU, be they at national, regional or EU level. In this regard, the new policy context discussed above has opened a window of opportunity.

What is the best way to arrive at a more effective European research policy? The Commission gave an answer to this question in 2000 with the launching of a European Research Area. This visionary concept had two key dimensions: first, its focus on integration, and, next, its emphasis on excellence. Greater coordination and cooperation had to be achieved throughout Europe. More links had to be established between the different players (public authorities, firms, universities, research institutes) at all policy levels (regional, national, Community, inter-governmental) in the European research system. In addition, excellence was supposed to become the core principle on the basis of which all these players would operate and research funds would be allocated.[62]

Furthermore, the European Research Area initiative identified a list of specific actions required to promote the integration of European S&T and improve its performance. Private research investment had to become more dynamic. The environment for private research investment, R&D partnerships, and high technology start-ups had to be improved by using tax policies, venture capital and EIB support. Effective tools had to be developed to protect intellectual property, so that innovation and ideas would be adequately rewarded within the new knowledge-based economy. Greater mobility of researchers had to be achieved in Europe. Obstacles to the mobility of researchers had to be removed, and a European dimension introduced into scientific careers. A greater place and role for women in research had to be achieved, and the young had to be given a taste for research and careers in science. Europe had to offer attractive

[60] Translation of French original "*La conclusion qui s'impose est donc claire comme le jour: la méthode intergouvernementale sans engagement qui constitue la base de la stratégie de Lisbonne ne fonctionne pas correctement. Nous avons par contre besoin d'une approche bien plus contraignante et communautaire*" (Discours du Premier Ministre Guy Verhofstadt prononcé devant le Parlement européen. Bruxelles, le 31 mai 2006).

[61] Intervention of Janez Potoénik at the European Parliaments' ITRE committee meeting of 13 June 2006.

[62] For instance, in the evaluation of FP proposals a larger weight was assigned to scientific excellence as an evaluation criterion.

prospects to the best brains, so that high-quality research talent would be retained and attracted. European S&T centres of excellence had to be networked, and virtual ones created. A European approach had to be defined to research facilities. Regions had to play a more important role in the European research effort. And the scientific communities of Western and Eastern Europe had to be better integrated.

Six, seven years after the launch of the European Research Area, we recognise that some progress has been made in terms of the two key dimensions (coordination and excellence). But much remains to be done. Some steps forward were indeed taken towards the integration of European S&T via the Open Method of Coordination, the mutual opening up of national research programmes, and Framework Programme instruments such Networks of Excellence and ERA-Nets. Excellence was indeed accepted as the core principle on the basis of which to work. But the efforts made so far to promote greater coordination and cooperation between S&T players are just a start, and the excellence principle still has to be applied more widely and more rigorously.

While the original European Research Area objectives remain valid today, taking stock of the current situation, a more fundamental observation can be made. As originally conceived, the European Research Area was a rather static concept concerning mainly the S&T input side. It essentially accepted the existing architecture of the European S&T system—the established public authorities and institutions, each with their own roles and responsibilities—and simply focussed on building links between them and funding excellent S&T players, under the assumption that this would lead to a higher societal impact of research than under a situation of complete S&T fragmentation and dispersion.

Yet the urgency of realising the Lisbon Agenda is greater than ever. This calls not for a piecemeal raising of effectiveness and impact, but for making effectiveness and impact the key priorities. As a key precondition this means that action should be taken where most effective. This means a reallocation of responsibilities and assumes going beyond the existing structure of the European research system and redesigning, even reinventing it. A more dynamic approach is needed towards the realisation of the European Research Area.

This calls for a frank and thorough exploration of subsidiarity issues, and of the notion of 'added value'. It is important to determine clearly what kind of action is best taken at Community level, and what kind of action best at regional, national, or intergovernmental level. The debate so far has been confined to European added value. In other words, so far it has been the Union which—confronted with Member States striving to retain their national powers unless given a compelling reason to do otherwise—has had to demonstrate that it is better to implement some actions at Community level than at other policy levels. In order to spend our scarce R&D resources more effectively, there is an urgent need to broaden this debate. The burden of proof needs to be more evenly divided. In addition to European added value, an honest discussion needs to be waged on regional added value, national added value, and intergovernmental added value. In fact, the discussion of different kinds of added value is systemically linked. One cannot hope to really understand European added value if one does not have a clear insight into the added value of other policy levels, the one being the flipside of the other.

This debate on which kind of action to implement at which level, i.e. the systematic exploration of the added value, must be evidence-based and waged on the basis of solid data. More generally, the evidence-based approach to policy-making, which has already been embraced by the Union through the implementation of its Better Regulation Action Plan and the application of ex ante impact assessment to major legislative initiatives, could be usefully extended to other policy levels.

In order to explore added value and achieve a clear division of labour and true complementarity between different policy levels, it is important to have a clear insight into what is presently being

done at each level. At present, however, there is no complete overview of research measures in Europe. While Community research policies are well-known in the Member States, and often analysed and assessed there, more complete and consolidated information is needed on the S&T policies implemented by regional and national authorities, which still account for over 90 percent of Europe's public R&D expenditure Some useful initiatives have been taken in this regard (e.g. Trendchart), but this still gives only a partial picture, and a more exhaustive inventory is needed.[63]

Next, comparative information is needed on the effectiveness of policies at different policy levels. But how to measure this? Existing S&T indicators and datasets cannot provide this kind of information. Within the framework of the S&T benchmarking initiatives launched within the context of the Open Method of Coordination, a wealth of S&T information has been collected over the past few years. New (e.g. composite) S&T indicators have been developed. A serious effort has been made to collect comparable data at the regional, national, and aggregate European levels for both existing and newly developed indicators. And a great multitude of S&T indicator reports have been published at regional, national, and Community level. However, the purpose of these indicators has been mainly to track progress in terms of S&T inputs or performance. They do not provide us with information on the relative efficiency and effectiveness of implementing an action at one policy level versus another.

That means that a completely new data effort is needed. The first step in this new-generation data effort should consist of the development of new and improved ex-post evaluation methodologies. These should seek to link a particular public research support input with all possible S&T and societal outputs and impacts.[64] This can only be done if rapid progress is made towards addressing long-standing methodological challenges in the field of ex-post evaluation concerning, for instance, additionality and crowing-in/crowding-out, and attribution. These new evaluation methodologies have to be action-specific. For example, ex-post evaluation methodologies for research infrastructure actions would differ from those for human resources actions. Efforts towards the development of new evaluation methodologies should also be broad-based, involving the Member States as well as the Community so that the results obtained will be credible, legitimate, and broadly supported.

The next step has to consist of both the Member States and the Community systematically applying the newly developed ex-post evaluation methodologies to their complete project portfolios, and then capturing, via a common set of indicators, the relative effectiveness and efficiency of project implementation. By facilitating for the first time, a comparison of information across policy levels, this evidence-base would provide a solid foundation for an improved distribution of effort between the different levels.

If successful, this approach would turn research evaluation from an all-too-often bureaucratic exercise of ex-post justification into a real strategic planning tool. Two things are needed to make this a reality. The first is the integration of the European research ex-post evaluation community. A 'European evaluation area' has to be achieved, in which both Member States and Community try to make real methodological progress in the field of research ex-post evaluation, and to arrive at broadly supported evaluation approaches. In addition, a further revision is needed of the policy cycle. The role of ex-post evaluation has to be strengthened, and its link with policy development tightened.

What is needed is a pan-European knowledge community, not only in the area of ex-post evaluation, but also in socio-economic and scientific and technical foresight. One cannot hope to

[63] The European TrendChart on Innovation, a product of the European Commission, measures innovation performances across the European Union. It includes e.g. annual country reports, information on national policy measures and Government decisions.

[64] For instance, tracing to a particular research project all its scientific and technological outputs and wider impacts.

restructure the European research system and achieve a true European Research Area if there is no common vision of how major societal and S&T challenges will evolve, how scientific disciplines will develop, and how the research system as such will progress. Europe has a long history of activity in this field and a large community of excellent players has built up a wealth of experience and of knowledge on these issues. But European foresight suffers from some of the same problems as the European research system. Foresight efforts are fragmented and dispersed, and there is substantial overlap among national initiative and between national and Community projects. Tackling this requires linking the different players in this field more effectively, and perhaps creating a common institution.

Once pan-European evaluation and foresight communities have been established, and a credible evidence base has been built up, it will be possible to draw solid conclusions, and take bold and courageous political decisions—as indeed Europe has always done at key junctures over the last fifty years.

These are the foundations for a 'New Deal' between the Member States and the Community. Its aim is to develop a more coherent and effective European research policy which can have a greater societal impact, and help Europe to tackle the many existing and emerging challenges it is facing. This 'New Deal' would involve a more ambitious approach towards the realisation of the European Research Area. It builds upon the solid foundation of the European Research Area concept launched in 2000, and shares its concern about the fragmentation and dispersion of European S&T. But it seeks to go much further by re-designing the architecture of the European research system. Unlike the original ERA initiative, it does not simply promote the establishment of links between existing European S&T players, each with their own existing roles and responsibilities. Instead it proposes a more dynamic and impact-oriented approach towards the completion of the European Research Area. It puts on the agenda, the redesign, even the reinvention, of the European research system. It opens the possibility of a significant reallocation of research policy responsibilities between policy levels should available evidence point into that direction. Within this context, it calls for an in-depth debate by the Community and the Member States on the issues of subsidiarity and added value based on solid evidence of relative policy effectiveness and a common vision for the future. It is, above all, important to keep an open mind about the outcome of this debate and inquiry. It could mean an expansion of national or regional activities in some areas. It could lead to an increase in EU level actions in others. It may even result in a need to build new, common European S&T institutions, whether supranational (in the vein of the planned *European Research Council*) or intergovernmental (in the vein of CERN). The 'New Deal' would mean preparing these decisions together based on solid, shared evidence, and bravely facing the facts about what may need to change. Europe has risen to such challenges in the past. Its ability to do so again could herald a new phase in European S&T.

WILHELM KRULL

CREATIVITY AND INNOVATION AS A CHALLENGE FOR EUROPEAN UNIVERSITIES AND FOUNDATIONS

I. Changes and challenges

Change and talking about change and the challenges that go with it are as old as European thinking. The Greek philosopher Heraklitos once said: "Change is the only thing in the world which is unchanging." And yet, when we look back at the developments of the past ten to fifteen years, we cannot help but recognize that the speed of change has increased quite dramatically. This not only applies to the European political landscape but also to the public private infrastructures that impact upon our daily lives. Gradually, we have come to realize that we live in an increasingly interdependent, basically science and technology driven world which requires a thorough rethinking and subsequent re-alignment of our hitherto quite stable concepts and approaches.

During the next 20 years, Europe's economic paradigm will change fundamentally. While the manufacturing base will continuously shrink, future growth and social welfare will rely increasingly on knowledge-intensive products and services. And we can also observe that, particularly with our demographic development in Germany and more or less in the whole of Europe, we are faced with a completely new challenge of how an ageing society can actually innovate. In this respect—as well as with respect to the overall financial situation—priority-setting will become even more important in the future.

As far as the research and higher education sector is concerned, I foresee six major developments. The first one is the increasing impact of electronics and information technology on the creation, distribution, and absorption of new knowledge. The second one is an increased emphasis on inter-, or transdisciplinary approaches; and the third one is the move from bi- or trilateral internationalisation towards network approaches and strategic alliances, setting up for example joint graduate schools or virtual research centres across the globe, and thus linking up with elite institutions in other countries. The fourth major development is the changing public/private interface and its consequences for the division of labour, particularly in the research and technology sector as well as the need to mobilise more private resources for public purposes like basic and strategic research. The fifth major development is on the research side itself which has to come to terms with integrating evaluation, foresight approaches, and priority-setting processes, thereby trying to find new ways of assessing performance while at the same time avoiding solutions that are too technocratic. And finally, of course, the growing public concern

about recent scientific and technological developments, particularly in areas like stem cell research or nanotechnology, but also in other areas, is also an issue that the research community has to consider discussing which kind of programmes and which kind of approaches we develop.

II. Strengths and weaknesses

When we try to position Europe's performance on a global scale, it is interesting to see that the picture is not as bleak as it is often reported in the press. As you know, the EU countries have agreed to a goal for 2010 of spending 3% of GDP for research and development. It is an ambitious goal and, thus far only the Nordic countries have reached the 3% threshold or are even beyond it. With respect to the total number of graduates the figure for the EU is larger than for the United States. Also the number of PhD graduates is almost twice as large as the number in the US. When we look at the numbers of scientific papers published in the different parts of the world, we also see that Europe has overtaken the United States in the mid-1990s and is currently the largest producer of scientific publications. But in the meantime we have to recognize that the Asia-Pacific region is catching up quite fast. This rapid growth of scientific output in Asia-Pacific nations is in stark contrast to slow growth in Europe and stagnation in the United States. If this trend continues, the Asia-Pacific nations will be the biggest research community in about ten years time from now. In a number of other relative indicators—such as publications per inhabitant, per scientist or per million Euros spent in our universities—the EU is also ahead of the United States and Japan; and in triad patents per millions spent in business R&D, some European countries—Germany, Sweden, and the Netherlands—clearly outperform Japan and the US.

With respect to elite institutions, Europe is not in such a good position. For example in a ranking of the best universities published by Shanghai Xiaotong University 2005, only two of the top twenty universities were European, while 17 were American. On the other hand, in the top five hundred of the same ranking, Germany comes second with the 46 universities compared with 38 British and 168 American universities. Of course, we could discuss the basis for these rankings and the explanations for these results at length, and it seems to me that we have tried to develop good universities in the various parts of Germany, but over the last three decades we have not really focused on creating high-class internationally competitive universities, and the result is shown in these rankings as well as in many other benchmarking studies. Europe has also been loosing ground in the field of basic breakthroughs. Fifty years ago, European scientists dominated the lists of the Nobel Prize. Today, Nobel Prizes and similar prestigious awards are mainly won by scientists working in the US. And the gap in R&D investments between the EU and the US is steadily increasing. Apart from a few research areas such as astrophysics, space research, nuclear physics, and molecular biology, Europe suffers from an almost total lack of transnational support of basic and strategic research. In particular, risky, open-ended "frontier research" is not supported sufficiently.

The message for European research in an environment of global competition seems pretty clear: We really have to make an effort if we want to develop competitive research structures as well as support competent researchers in future. However, as the relative indicators show, we are not doing as badly as is publicly perceived, we are doing quite well in some respects, and we still have a very strong research base—I believe it is important to keep this in mind when analyzing the overall situation. But we really have to do something to establish new cultures of creativity in order to achieve major breakthroughs.

III. The role of foundations

European foundations are a very heterogenous pool of institutions whose defining characteristics often depend on local factors and the regulatory environment. In comparison to the US, foundations in Europe have played a less prominent role until now, but in recent years the importance of foundations has grown significantly. According to the latest comparative statistics for Italy and Germany, around 50% of registered foundations have emerged since 1990, while other countries such a Belgium, Finland, France, and Sweden report between 19 and 29% increases in the number of foundations.

Unlike publicly financed funding agencies which have to provide equal opportunities for all institutions, private foundations can act much more freely, flexibly and quickly. They can put objectives on top of rules and regulations, and they do not have to wait for political consensus. They can really encourage different ways of thinking and enable new lines of research very early on by supporting the first experiments, taking risks, and being frontrunners in institutional reform. Furthermore, due to the perpetuity of their funds, foundations have the capacity to be reliable partners who are willing to foster risky projects, and who have the capacity to help researchers in groundbreaking activities. They do not have to consider election periods or shareholders views. Therefore, they can strive to gain new insights, develop fresh ideas, find solutions for endeavours that their politicians cannot or do not want to embark upon.

Their independence contributes to the inspiring effect that private funding has on the development of higher education and research, but it also increases the willingness of citizens and enterprises to spend their money on these purposes. However, there are also limitations to the contributions of foundations. Given the billions of Euros spent by public authorities and enterprises, the impact of comparatively small-scale foundations is dependent on spill-over effects. Foundations have to rely heavily on partnerships. If we can develop the right kind of partnerships, we can have a liberating effect, and this is—in my opinion—the way forward, particularly with respect to risky projects and researchers who are prepared to follow new pathways. Despite this limitation, foundations have the flexibility to respond quickly to the needs of the research community, to pilot projects, and trigger spending on research by other funders by fostering risky projects, encouraging change, and helping the most creative researchers to break new grounds, foundations can at least create a few islands of success. They can encourage and support institutions and their leaders to engage in change processes towards achieving research-, and innovation friendly structures.

IV. The way forward: Towards a culture of creativity

When it comes to establishing a culture of creativity, there are at least seven aspects which have to be considered (but I am sure that one could come up with many more): competence, courage, communication, diversity, persistence and perseverance, innovativeness, and serendipity.

IV.1. Competence

The first precondition is to train the future generation of researchers. It is essential that you create a stimulating environment, but it also takes time, trust, and considerable investments. It starts with rethinking and subsequently reconfiguring our curricula at the undergraduate level.

Elite institutions such as Harvard University as well as experts in curriculum development from other institutions are deeply concerned with the challenges ahead of us. One quotation from

a recently published interim report may suffice to demonstrate the scope and complexity of the issues at stake: "Harvard faces the challenge of preparing its students to lead flourishing and productive lives in a world that is dramatically different from the world in which most of its faculty grew up. The world today is interconnected in ways inconceivable thirty to forty years ago (...), it is a highly unstable and uncertain world. By virtue of their gifts, their hard work, and their good fortune, Harvard's students will enjoy exceptional opportunities. But they will need to make their way in an environment complex in new and incompletely understood ways; and they will also be responsible for more than themselves. They will lead lives that affect the lives of others. It is our mission to help them find their way and to meet their responsibilities by providing a curriculum that is responsive to the conditions of the twenty-first century." (Preliminary Report of the Task Force on General Education, October 2006). Subsequently, the Task Force recommends to implement a curriculum with five broad areas of inquiry: Cultural Traditions and Cultural Change; The Ethical Life; The United States and the World; Reason and Faith; Science and Technology. These are to be complemented by developing critical skills in written and oral communication, at least one foreign language, and in analytical reasoning as well as in "activity-based learning".

Very much in line with these observations and recommendations on undergraduate education, the Carnegie Foundation for the Advancement of Teaching has published a series of essays on doctoral education which clearly emphasize the need to reconfigure the balance between an indispensable degree of specialisation and a just as urgently needed ability to make informed judgements about complex societal issues. But also in their respective field of expertise doctoral students should obtain a good overview of its general scope and development. In short, they should become "Stewards of the Discipline": As George Walker puts it: "The Ph.D. holder should be capable of generating new knowledge and defending knowledge claims against challenges and criticism; of conserving the most important ideas and findings that are a legacy of past and current work; and of transforming knowledge that has been generated and conserved into powerful pedagogies of engagement, understanding and application." (Golde, Criss, Walker, George eds.: Envisioning the future of doctoral education: Preparing Stewards of the Discipline. Carnegie Essays on the Doctorate. Jossey Bass, San Francisco 2006.)

After having been trained as a doctoral student and completed two or three years of postdoctoral studies, it is important that for the next phase the young researcher can work independently and set up his own group. Young researchers should pursue their own ideas much earlier and more independently than is currently the case. In Germany, the average age at the completion of a Ph.D. is now around 33 years, which is—compared to other parts of the world, very late, and this makes the case for independence even stronger: Their need to gain scientific independence quickly is even greater and more difficult to achieve than for their counterparts in countries where the graduation age is much lower. The flow of highly qualified researchers between countries and between private and public sectors requires flexibility and permeability. And, of course, universities and research institutions also have to offer tenure track options or similarly reliable career structures if you want to make sure that the best people do not stay in mainstream areas, or even move out of research.

IV.2. Courage

The second precondition for establishing a culture of creativity is courage—not only on the side of the researchers, but also on the side of funding agencies. Researchers and funders must both be courageous and adventurous. Only if you are prepared to share the risks, you can encourage people to enter new fields and leave the beaten track; you cannot expect people to take

high risks in their research if you do not make attractive offers to reward them for taking such risks.

I want to present two examples that the Volkswagen Foundation has pursued recently in order to illustrate this point. To set the scene, it is worth mentioning that we try to identify topics usually early on—but we do this in a way that tries not to impose them on the research community. The first example is our support for neuroscience. We wanted to link researchers from different disciplinary backgrounds to investigate the issues of "Dynamics and Adaptivity of Neuronal Systems. Developing Integrated Approaches to Analyzing Cognitive Functions." In the late 1990s we had a preparatory workshop and a number of international experts commenting on the usefulness of pursuing this topic. Before that we had already supported pilot projects to develop a promising field in close contact with the research community at a time when this field was not (yet) supported by public funders. More than 80% of the projects funded were international co-operations, and all partners were selected based on scientific merit; and the ex-post evaluation by an international expert group to assess success or failure, and also the impact is still going on. But we can already see that in particular to put an emphasis on the future generation of researchers and on international collaborations has led to an enormous number of very impressive findings and publications.

The second example is "Physics, Chemistry, and Biology with Single Molecules". In this case one of the Max Planck directors, Professor Dr. Gerhard Wegner, was instrumental: When I moved from the Max Planck Society to the Volkswagen Foundation, he said to me: "Well, as far as I know, the Volkswagen Foundation and you will be looking for emerging topics, so perhaps you get interested in single molecules?" At this time, in 1996/97, he had just found first hints on single molecules, and Professor Dr. Christian von Borczyskowski and his co-workers from the Technical University Chemnitz had started to write papers on physics and chemistry with single molecules for the Foundation. We followed basically the same procedure as in the case of neuroscience, invited a number of experts from various places, and established the funding initiative in 1997. The first breakthroughs were made early in 1998, and in 1999 the well-known journal *science* had the headline on its cover page saying: "Frontiers in Chemistry—Single Molecules" (*science*, 283 (54089, 12 March 1999, S. 1667–1695.) Of course, at this point the whole topic took off and very quickly turned into a hot topic for all the other funding agencies, too, so this is the reason why the Volkswagen Foundation's initiative was running not all that long. Compared to seven to ten years for the typical initiatives in the 1990s, we funded this topic for only 5 $\frac{1}{2}$ years and closed the initiative in 2003, because by the end of 2002 there were already several research units ("Sonderforschungsbereiche") supported by the Deutsche Forschungsgemeinschaft (DFG) and similar activities supported by other agencies. Of course, you may ask why we did not continue anyway, as it was so successful. At the time already 16 of the young researchers were promoted to full professorships, and there was a generational turnover and a lot of opportunities for our researchers, so the end was in a way the consequence of enlarged public funding and career opportunities.

IV.3. Communication

Thought-provoking discussions are essential for achieving progress in research, in particular cross-disciplinary and transcultural exchanges, but also interactions with the outside world. It is an important task of group leaders, professors, and funding institutions to foster interdisciplinary and intercultural exchanges, to strengthen the interaction between research centres and universities as well as to configure adequate research structures which help to establish the right kind of networks and exchange opportunities. But it is also necessary to address the scientists' role in

society, and it is essential to make them capable to deal with these issues. If you compare the traditional role of researchers with their new role in society, the main differences will quickly come to mind. I just want to highlight two points in that respect: the traditional role of providing facts, figures, and results will have to be complemented by the ability to communicate about processes, objectives, and, last but not least to offer compelling stories. And the second one relates to the different modes of communication. It is no longer sufficient to simply use the transmitter-receiver mode of communication and just establish a one-way flow of communication. It is much more important to develop an interactive and dialogical way of communicating with the public (which may also speak back to the scientist!), and this again calls for additional skills to be developed in order to communicate successfully with the wider public.

IV.4. Diversity

Also in academia, monocultures do not provide an adequate breeding ground for exceptional thoughts. Meanwhile, it even seems to have become more or less common wisdom that new knowledge is usually formed at the boundaries of established fields, so the interfaces between these areas of expertise must be activated. Apart from the usual difficulties in securing career prospects for researchers embarking upon new areas, interactively productive diversity is also limited by another factor: the size of an institution. It is essential to strike a balance between a sufficient degree of diversity and 'critical mass' on the one hand, and ample opportunities for all the researchers involved to get to know each other and have intensive interactions so that new pathways can be developed and breakthroughs achieved on the other hand.

There is clearly a need for a re-alignment between scientific values and society's needs. The basically subject-oriented organization of European universities and corresponding career patterns do not work in favour of problem-oriented research approaches. The marked emphasis of our universities on discipline-based specialisation often prevents reseachers from committing themselves to inter-, and transdisciplinary research which otherwise could be fostered, in particular in medium-sized institutional structures. As the American researcher J. Rogers Hollingsworth has shown, there is clearly a close connection between the degree of communication and the degree of scientific diversity within an institution, and there is also the danger that an increase in size and diversity may create a decrease in the integration, productivity and flexibility of an institution (cf. J. Rogers Hollingsworth: The Role of Organisations and Institutions in the Innovation Process, 2003.)

IV.5. Innovativeness

The fifth precondition of success in achieving breakthroughs is to foster innovativeness. We have to make sure that we initiate unconventional ways of thinking if we want to develop research that really sets a new agenda with radically new approaches: "transformative research" as it has recently been called. For a funding agency as well as a private foundation it is important that we can identify those researchers who are prepared to really think in new ways, who are prepared to take a risk with unconventional approaches and go off the beaten track. The prime aim of private funding of transformative research must be to overcome the disciplinary boundaries and put new research topics, fields, structures, and approaches on the agenda. Transformative research scarcely originates on its own. The readiness to engage in ground-breaking research has to be encouraged and facilitated. The need for transformative approaches and for new funding opportunities for young researchers has to be tackled as two sides of the same coin. Furthermore, it is also a recurrent issue for any funder to separate the wheat from the chaff without frightening off the most original thinkers and the most creative researchers. This requires

different modes of communication, selection, and support, e.g. through successive grants and long standing commitments.

IV.6. Persistence and perseverance

To take new pathways in a barely known territory requires much longer timescales than the usual pattern of two to three years of project funding. It is also important to allow that mistakes can be made, and pursuing other directions than originally planned is possible. Patience, persistence and perseverance are important factors for successfully establishing a culture of creativity. Critical in this respect is the establishment of mutual trust. Only if the relationship between the funder and the researcher is based on trust and long-term commitment, instead of brand-making and short-term financing, can we hope to be successful in the end.

IV.7. Serendipity

Definitely, the decisive moment when a radically new idea emerges, or a major scientific discovery is made cannot be planned for. But there are numerous examples in the history of university-based research which prove that it is possible to establish a particularly stimulating environment which is clearly more conducive to achieving scientific breakthroughs than others. And although there is no one-size-fits-all kind of recipe we can apply, it is certainly worthwhile to try and try again. In research as well as in research funding it sometimes helps to remind ourselves of what the French writer Albert Camus once said: "We must conceive of Sisyphos as a lucky man." So there is nothing left but start rolling the heavy stone of creative research once more up the hill.

V. Conclusion

Many challenges can only be met if we take a long view. We must be prepared to exercise judgement, and to make long-term commitments whilst maintaining the flexibility to respond to new challenges. The most important prerequisites for a successfully performing research institution clearly are a research-friendly governance and decision-making structure. A move towards a more professionally organized and autonomous university is badly needed. Therefore, research institutions have to constantly tap their resources and realize their potential, ensure efficiency in their spending, accelerate and simplify their processes, and intensify communication within the organization and beyond it.

Foundations can encourage and support institutions and their leaders to engage in change processes towards achieving research-, and innovation-friendly structures. Two basic concepts are institutional conditions sine qua non for ground breaking research:

- an organizational structure which facilitates cross-disciplinary interaction,
- strong leadership connected with very high quality standards.

Research institutions have reacted to the increasing complexity of knowledge creation and research with an increase in size and diversity. This often creates an increase in bureaucracy and hierarchic structures, but does not help to foster creativity. With respect to creativity the seven preconditions outlined are essential. Furthermore, it is important to focus on small research groups of five to seven researchers, allow for more creative spaces within large grants, e.g. collaborative research units, centres, clusters, as well as to develop new modes of funding which support medium-, to long-term research projects and fellowships of between seven and ten years.

Time and space for some thorough rethinking of common wisdom is urgently needed, e.g. research professorships and extra grants for the most creative senior researchers should be expanded. It is also important to reconfigure the review process, and actively encourage risk-taking by applicants, reviewers, and decision-makers, e.g. based on a two-stage process including personal presentations and interviews.

Foundations can help higher education and research to tackle the challenges of change by encouraging risk-taking, stimulating new developments, redressing imbalances, creating role models for an effective change of research strategies, helping to improve organizational structures, and contributing to the creation of a more research-friendly environment. Ultimately, we should not feel overwhelmed by the complex and quite complicated issues involved. Rather we should take an optimistic view just like Albert Einstein once said: "Amidst all the difficulties, there is also room for opportunities."

JAN LAMBOOY

THE UNIVERSITY AS A DYNAMIC NETWORK-SYSTEM

Universities are 'knowledge hubs' in the networks of a dynamic global society. This means that they have the challenging function to develop knowledge that can be used all over the world, and at the same time to help the students becoming creative citizens in their regions, countries and in the organisations where they will work. Universities, in some respects, can be likened to large enterprises. The famous French economist François Perroux (1950) has developed the idea of '*growth poles*'. He meant that large enterprises had two impacts when they invest and produce. The first one is that they are active in their *'geographical space'*, where people work and live. In this space there are buildings, infrastructure and communications. The second one relates to the effects in *'economic space'*, with which he meant a topological or network-space, independent of geographical location. This space can be connected to all other enterprises in different parts of the world. Within this economic space the units, like firms or scientific organisations, are connected via markets, or via flows of knowledge to each other in networks. Perroux had an anti-nationalist message. He published his idea after World War II, in order to show that societies and economies were not confined to areas within classical borders. They have ramifications all over the world, even if one cannot physically detect these links within the national geographical spaces of post-war Europe. This development can even become a goal in itself, the establishment of a Europe without barriers to scientific contacts.

However, to achieve this goal cognitive barriers have to be overcome. Economic and social sciences can contribute to this endeavour, by developing knowledge that can be transmitted via the many links of international connectivity. But what are 'knowledge' and 'creativity'?

Knowledge can be divided in 'data' (unstructured information), 'codified knowledge' (structured and written information') and 'tacit knowledge' (tied to persons as person-specific skills, competencies and knowledge). Creativity is also person-specific and difficult to transmit. Only the results of tacit knowledge and creativity can be transmitted if this kind of knowledge can be transformed into codified knowledge or when persons (the carriers of tacit knowledge) are relocated to other organisations or places. *Creativity can be defined as the capability to see and define new situations and find solutions to existing or new problems not yet found before. Creative minds are also open to the challenges of serendipity.*

Universities are knowledge centres and their 'products' are knowledge and scientists, some of them just with the competence to use codified knowledge, others gifted with creativity. Creative students and scientists are part of a complex environment, in which they work and live. They

perceive the needs and problems of that environment and attempt to find solutions. The university is a framework for 'explorative learning' or for the education of the 'Homo explorans'.

According to Mokyr (2002), the universities develop two kinds of scientific knowledge, 'pure science' and 'applicable science'. The first kind can evolve and later be used for the second kind, but that is not the primary goal of the creative scientific mind. He argues that on the European continent the universities were focused on the development of 'pure science' within closed systems, 'ivory towers', whereas the more open Anglo-Saxon universities put their emphasis stronger on 'applicable knowledge', one of the reasons of their advantages in technological development in the last century. In Europe the relationship of universities with enterprises was not so well developed as in the Anglo-Saxon world. That did not mean that European creativity did not result in high-technology products, but these worlds were more divided than in the UK and the USA.

In this century many authorities worry about the 'European paradox', which means that the divide between universities and firms is too strong, because there are no strong connections that can bridge the gap between high-quality knowledge-development and the application for economic purposes. This relates to two issues: firstly, the system of financing and managing of universities; and, secondly, the perspective of fostering creativity.

Universities can be financed either by public finance or private finance, and of course also in many mixed forms. There is no direct relation between the source of finance and the direction of applicable outcomes, but the direction of research can be influenced. With private finance the source of finance can be an independent fund, in which case the orientation towards commercially applicable output is not directly related with the private sector. This can be different in the case of universities funded directly by corporations, labour unions, sport federations or religious organisations, where the goal for the output is explicitly formulated. Even more difficult is the situation with government. Public finance is based on the contributions of taxpayers. However, in the political arena there are many 'intermediate institutions', like unions of employers, labour unions, political parties, churches and environmental interest groups that want to influence the outcome of research paid for by taxpayers money. Finance determines the output, but in many different ways.

The more the goals are narrow and pre-defined the more it will be necessary to manage the university as a bureaucratic organisation. This is a serious problem if we attempt to have creative and innovative societies. Although Herbert Simon argued that 'nature loves hierarchy', he acknowledged that this is not always the optimal structure for social organisations. Many situations demand more freedom. Also Hayek (1937) argued that the development of knowledge needs structural freedom. Hierarchy is connected with a structure of command and formal equality of the subjects, and the control of actions in formal codified sets of rules. This does not in it self hamper creativity, but it is not the most suitable organisational environment to foster creativity. Unequal positions of actors, of inputs and outputs, are jointly necessary to arrive at new solutions. Many solutions are found by creative minds, and sometimes by pure luck ('chance' or 'serendipity'). This cannot be 'organised' by a system of hierarchy. This is a reason for, what I call the need of a 'personal creativity space' for talented researchers.

The best approach to solve the tensions of a well-managed university and the freedom to be creative is not only to accept successes, but also failures. Creativity needs financial and personal room for both. Not only universities need creativity our economic system also needs successes, but also room for failures. Schumpeter defined 'innovation', the introduction of novelties in markets, by pointing towards the attitude towards risk-taking. Nelson (2005) defines capitalism as 'a restless system, because knowledge is restless'. Knowledge, as Hayek emphasised, is the basis of new dynamism, because it disturbs equilibria and opens new windows of opportunity.

For publicly funded universities the problem of hierarchy versus creativity is, firstly, how to recognise the responsibility towards the taxpayers as their financial source, and secondly, how to co-ordinate the 'actors of the development of science'. Therefore, one of the main issues is how to construct a combination of 'hierarchy' and 'loose networks' of creative minds. Combined with that issue is the growing evidence that many scientists work within global networks in the sense of the topological space of Perroux, a reason why bureaucrats cannot anymore really control scientific development and its use, either commercially or not. The networks of connectivity can be more adequately described as 'systems of self-organisation', or 'emergent systems', as can be studied in 'complexity science'. The individual actors dynamically interact with each other and with structures. The concept of *'self-organisation'* is used to indicate the structural impact of decentralised decision-making of scientific actors, without determination from a centre of authority. This can lead to influence the process of decision-making by temporary coalitions and 'interest-groups', and to an impact on various structures. The competencies of actors and their organisations are decisive for the adjustment processes of systems.

Societies are complex dynamic systems, with multiple layers of development and decision-making. People are individual actors, but at the same time they participate within groups, organisations and states. But because their interactions are context-dependent, communication processes with participants in other contexts play an important role. Universities are complex adaptive systems, at the same time hierarchical structures and participating in networks, in which the outcomes cannot be foreseen or planned. A combination of hierarchy and self-organisation is sometimes called '*swarming*', after the behaviour of self-organised flocks of birds or fish. Various corporations and armies already use this approach, like Nokia, Microsoft and the armies of the USA and Israel. Science is based on emergent processes of creative participants and receptive social contexts. The basic element here is that hierarchies have to cope with variety, which they tend to hate. Hierarchy loves uniformity, but creativity needs 'structured chaos'. There is a trend towards individual empowerment because of the increased participation in education and the increasing opportunities of new forms of communication and new kinds of organisation structures. In the past the governments and the management of large organisations attempted to find the solution to the problem of communication and command. They often tried to establish a hierarchy but with some layers of intermediary structure like middle management. New forms of organisation are necessary in a networked and dynamic world, with empowered individuals and many channels of communication and flows of information.

An important issue for the development of science and society is the role of the 'regionally embedded university'. Universities are, together with firms and governments, part of a 'regional innovation system'. The region is an important context for communication of tacit knowledge and emergent interaction processes that are the basis for the development of innovative firms (Boschma and Lambooy 1999). Nonetheless, many important relations of scientists are outside the region. However, these relations are mainly based on codified or 'codifiable' knowledge. This is one of the reasons why universities in larger city-regions have easier patterns of contacts within that region with firms, governments and interest groups than universities in smaller remote cities. This latter kind of universities, however, can regain part of their scientific territory when they specialise in a creative kind of research, in open access with a global network (Lambooy 2006). Economic growth is increasingly dependent on the kind of 'human capital' of the city, the region or the country. In that respect governments can finance the universities, but they do not have to direct the kind of 'human capital' the universities deliver in a bureaucratic way. But they can help to define the societal needs in order to foster creative minds to find solutions. It remains necessary that creative researchers have their 'individualised creativity spaces'. To achieve this

goal universities have to find an optimal mix of hierarchy and freedom for creative scientists and students, in order to be the institutions for the 'Homo explorans'.

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PAUL DREWE

INNOVATION—MORE THAN JUST A SOUND BITE?

'Life can only be understood backward, but must be lived forward'.

(S.A. Kierkegaard)

'A man's feet should be planted in his country, but his eyes should survey the world'.

(George Santayana)

Everybody talks about innovation today, not at least the European Union. Innovation is the cornerstone of the Lisbon Strategy launched in 2000 and 'reanimated' in 2005: to change the EU into 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' (Horvath, 2005 had even alluded to 'the death of Lisbon'[1]). There is a danger of turning innovation into another sound bite or buzz phrase, unless some fundamental questions are addressed. Here are some of the issues to be tackled:

- how to *define* innovation?
- how to *measure* innovation?
- how to *explain* innovation?
- how to *promote* innovation?
- do *cities* matter?
- what role for the *university*?

Trying to answer these questions will also open up avenues of research.

1. How to *define* innovation?

Innovation—according to the dictionary—is 'the introduction of something new' or 'something that deviates from established doctrine or practice' (Webster's). Newness is a matter of perception. 'An innovation is an idea, practice or object perceived as new by an individual' (Rogers, 1971: 19).

Innovation is more often than not associated with new technology, especially with the so-called knowledge-based economy currently in vogue. Basic innovations are product innovations starting a new industry, based on related discoveries or inventions. In other words, they are related to the

take-off phase of the product life cycle. Basic innovations are also considered as carriers of long waves of economic development, for example, the Kondratiev cycles (more about this in section 3).

Technological innovations, however, are not limited to final products. They include all new or improved products, services and methods of production (one might even add new or improved infrastructure facilities). Another distinctive feature of technological innovations is their being market related or commercially successful (it may therefore be even more appropriate to call them commercial innovations).

Technological or commercial innovations are usually distinguished from social innovations, related to important social or institutional changes. Compared to commercial innovations, social innovations linked to what traditional economists refer to as externalities. Social innovations represent social benefits or social capital. They may also result from internalizing social costs of production and consumption (in which case they, in turn, may become a commercial success).

If social innovations, as opposed to technological innovations, are not supposed to be commercially successful, one must find other ways of measuring their success. To put it generally, they must be accepted socially in order to be successful. Rates of adoption depend on: relative advantage, compatibility, complexity, trialability and observability of an innovation (Rogers, 1971: 22–23). Seen from this angle, commercial innovations in order to succeed, too, must be accepted socially. This brings us to consider technological and social innovation not so much as a clear dichotomy. Instead it seems wise to conceive of their relation as one of mutual interaction or reciprocity: with technological innovations supporting or counteracting social innovations and vice versa. As the example of ICT shows, a new technology may tend to aggravate existing inequalities unless social innovations emerge or are developed to battle the so-called digital divide (Drewe, Fernandez-Maldonado & Hulsbergen, 2003). Anyway, to explain innovation, the concept of social innovation is indispensable (more about explanation in section 3).Some may still be tempted to oppose 'soft-nosed' social innovation to 'hard-nosed' technological innovation. In the end, the two are united by a larger notion of technology, that is the science of the application of knowledge to practical purposes. However, the 'solution of social problems lags behind technology because we have not organized the same sharp search for ideas to deal with them' (Platt, 1966: 132).

2. How to *measure* innovation?

If technological innovations are defined as new or improved products, services and methods of production that are a commercial success, then the measurement of innovation must focus on the output of the innovation process or of innovation policies for that matter.

The EU, for example, has developed the European Innovation Scoreboard (EIS) which pertains to the goal of the Lisbon Strategy.

The EIS aims at measuring innovations across the EU using a list of 26 indicators which refer to five key dimensions of the innovation process. Three of the five dimensions are input-oriented. The remaining dimensions refer to the output. See Illustration 1 [2].

The EIS in a way tries to shed light statistically on the entire innovation process which includes: innovation drivers, knowledge creation, innovation & entrepreneurship, application, and intellectual property. Only one indicator comes close to our definition of innovation, to wit, 'sales of new-to-market products (% of total turnover)'. The intellectual property indicators such as patents do not necessarily represent innovations, unless they lead to new-to-market products. But they may reflect a general climate of innovativeness.

The Scoreboard approach requires empirical testing of the implied causal (linear) relationship. It does not take into account e.g. a phenomenon such as serendipity or the ups and downs

	INPUT - Innovation drivers
1.1	S&E graduates per 1000 population aged 20-29
1.2	Population with tertiary education per 100 population aged 25-64
1.3 new	Broadband penetration rate (number of broadband lines per 100 population)
1.4	Participation in life-long learning per 100 population aged 25-64
1.5 new	Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)
	INPUT – Knowledge creation
2.1	Public R&D expenditures (% of GDP)
2.2	Business R&D expenditures (% of GDP)
2.3 new	Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)
2.4 new	Share of enterprises receiving public funding for innovation
2.5 new	Share of university R&D expenditures financed by business sector
	INPUT - Innovation & entrepreneurship
3.1	SMEs innovating in-house (% of all SMEs)
3.2	Innovative SMEs co-operating with others (% of all SMEs)
3.3	Innovation expenditures (% of total turnover)
3.4	Early-stage venture capital (% of GDP)
3.5	ICT expenditures (% of GDP)
3.6	SMEs using non-technological change (% of all SMEs)
	OUTPUT – Application
4.1	Employment in high-tech services (% of total workforce)
4.2 new	Exports of high technology products as a share of total exports
4.3	Sales of new-to-market products (% of total turnover)
4.4	Sales of new-to-firm not new-to-market products (% of total turnover)
4.5	Employment in medium-high and high-tech manufacturing (% of total workforce)
	OUTPUT - Intellectual property
5.1	EPO patents per million population
5.2	USPTO patents per million population
5.3 new	Triadic patent families per million population
5.4 new	New community trademarks per million population
5.5 new	New community designs per million population

Fig. 1 EIS 2005 Indicators

of fundamental research carried out at universities. It does not suffice to relate the Summary Innovation Index to per capita GDP as a measure of economic performance. One-factor theories cannot explain complex phenomena. The success and failure of innovation is far more complicated. It is also a matter of consensus among researchers. But sometimes there is also a lack of consensus e.g. with regard to the role of R&D intensity. See Van der Panne, Beers & Kleinknecht (2003).

The distinction between input and output indicators (within the limits just indicated) offers an interesting opportunity for evaluation. In principle, one could relate input to output in some kind of cost-benefit analysis, a question of importance as far as the promotion of innovation is concerned. Such an evaluation needs to go beyond simply relating a composite indicator for inputs to one for outputs as in the EIS exercise.

Measuring innovation at the national level, however, is problematic. Working at the national level implies an aggregate view of the economy where individual actions of companies and consumers do not count as they only interact with the mythical entity of 'the market'. The latter is rather a directed network, composed of nodes (of economic players) and links (quantifying various interactions between economic players). If the links are weighted in terms of value added per receiver, and subsequently aggregated, one arrives at macroeconomic entities used to measure the economic performance of nations.

The network approach (Barabási, 2002) to the economy can also help to understand 'rich-get-richer' phenomena which in the field of innovation refer to the convergence or rather non-convergence of innovativeness across countries.

The use of macroeconomic measures entails the danger of 'blackboxing' economic behavior. To fix an aggregate target, expressed by R&D expenditures as a percentage of the GDP (such as the famous 3% for Europe) testifies to a fallacy of misplaced concreteness, apart from being input-oriented. It is not exactly an example of 'intelligent policy benchmarking'.

How about measuring innovation at the regional level? The EU has done this for previous years [3].Only six indicators were available plus regional per capita GDP. The price for this disaggregation is poorer information. Economic behavior is still 'blackboxed' though at the lower level of statistical regions. This also holds for more recent attempts to measure regional innovation performance at the European level [4].

In both cases—nations and regions—the scoreboards provide rankings. As the example of city rankings show, rankings need to be handled with care (Drewe, 2006a). Countries are classified as 'leading' (e.g. Sweden and Finland), 'average', 'catching up' (e.g. Portugal) or 'losing ground' (see Poland). At the regional level, one distinguishes 'best performers', 'above average performers', 'average performers', 'below average performers', and 'poor performers'. Is this meant to incite competition among European regions as rankings and the sound bite of competitiveness pair (Drewe, 2006b)? Or is competition limited to the EU performance vis-à-vis the US and Japan?

The best use to be made of innovation scoreboards would be to identify preferably regions that might represent good or bad practice cases, say, leading regions and those catching up, on one hand, and on the other, regions losing ground. Innovation happens in regions or cities that need to be evaluated critically in order to provide useful leads for the explanation and promotion of innovation.

The European Innovation Scoreboard has been chosen a prototype of innovation measurement. It is also typical with respect to the absence of any indicators of social innovation [5]. Non-technical change is dealt with. It is composed of the share of SMSEs that have either implemented 'advanced management techniques', new or significantly changed organizational structures' or 'significant changes in aesthetic appearance or design of at least one product'. Social innovation, however, is not limited to the realm of business firms.

Finally, innovation seems to present an issue where different scenarios for the future EU clash: the 'Centralized Europe' of the Lisbon Strategy versus the bottom-up innovation strategy of a 'Subsidiary Europe'. See for details Drewe (2006c).

3. How to *explain* innovation?

There is not just one theory of innovation. Variegated approaches exist with different angles and levels of aggregation. "'Looking forward and backward and in all directions' appears to be a fertile place generating explanations of innovation" (Platt, 1966: 134). The diffusion of innovations, for example, is relatively well developed both theoretically and empirically. See Rogers (1971) and, in particular, the generalizations.

Our main interest is in explaining how commercially successful new or improved products, services or methods of production emerge. We have selected some examples which highlight different angles and levels of aggregation providing some key arguments. The selected approaches are:

- long waves
- the role of 'imagination'
- social innovation
- innovative milieux

Explanations related to the role of cities or of universities will be treated separately in respectively sections 5 and 6 because of the growing (EU) policy focus on cities and universities.

Long waves

'When we cross over into a new region of time, ... the immediate past is usually a poor guide to the future, and we need to look for corresponding episodes in the more distant past' (Boulding, 1985: 19). This is what long-wave theorists do (see Drewe, 1987, 1990). Take for example Marchetti (1980), an outspoken representant of long-wave thinking. He has constructed three historical innovation (invention) waves or cycles using a function of the form:

$$\log (F/1\text{-}F) = at + b$$

with F representing the cumulative number of innovations (inventions), t refers to time, and a and b are parameters to be estimated.

Take e.g. the 1921 wave shown in Illustration 2 (Drewe, 1987: 2).

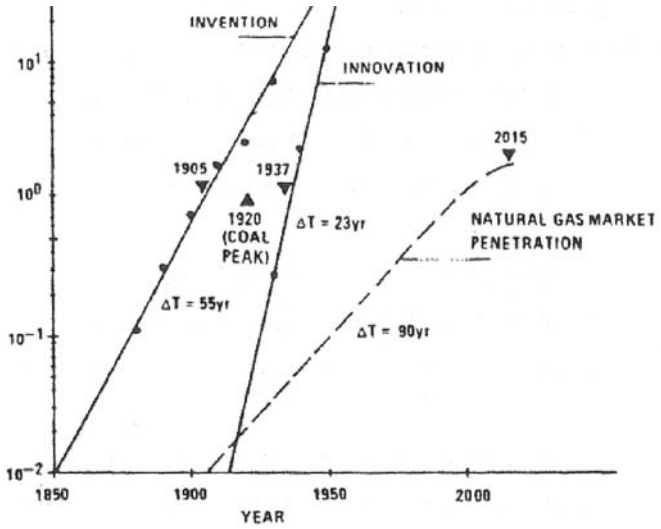

Fig. 2 The 1921 wave

The innovation cycle starts in 1921 (midpoint). It comprises 41 basic innovations or inventions among which penicillin, radio, television, and the jet engine. Television e.g. was invented in 1907. It started a new industry in 1936. In 1937 half of the basic innovations had been introduced (this is referred to as the innovation center point, corresponding to 10 on the innovation line). It took 23 years (T) for the fraction of the total set of basic innovations to be implemented (F) to increase from 10% to 90% (from 10 to 10 on the innovation line).

The 1802 and 1857 waves were reconstructed in the same way. They resemble Kondratiev cycles with the time difference between innovation center points being respectively 53 and 57 years.

As an explanation of innovation, Marchetti's approach leaves much to be desired (not to mention his heroic attempt to construct the forthcoming 1980 wave). There are important questions left unanswered:

- What causes innovation waves?
- Why are some (a few) inventions developing into innovations while others (most of them) are not?

- Why do basic innovations come in bunches?
- And why do innovations identified at world level, do or do not 'happen' in certain countries, regions or cities? What about the geography of innovation?

The role of 'imagination'

For the role of imagination see Musso, Ponthou & Seulliet (2005).

It is in may ways the opposite of the long-wave approach. It is both microscopic and 'soft'. It centers around the notion of 'l'imaginaire' defined as 'the network of images, discourses, myths and stories, crossbreeding the production and uses of services, of techniques or of innovating products' (Musso et al, 2005: 16).

The approach itself is innovative as it leads to a new innovation process as well as to the 'fourth generation of R&D'.

The new innovation process, unlike the traditional one, is client- or user-oriented as shown in Illustration 3 (adapted from Musso et al, 2005: 179; quoting Vredenburg, Isensee & Righi, 2002).

Traditional approach	User-oriented approach
'Technology driven'	'User driven'
Focus on parts	Focus on solutions
Limited multidisciplinary cooperation	Multidisciplinary teamwork
Focus on internal architecture	Focus on external architecture
No research on user experience	Specializing in user experience
Quality judged by product defect	Quality judged by user
Focus on present customers	Focus on present and future customers

Fig. 3 Innovation: a comparison of two approaches

The 'inventors' are confronted with the users in a multi-actor environment which includes state firms, advertising and marketing, studies and surveys, and various 'littérateurs' (journalists, novelists, moviemakers etc.).

The new innovation process is cyclical not linear. It comprises five phases and a number of feedback loops. The five phases are:

- observing, studying, watching and analyzing clients, markets and trends
- generating supply concepts
- illustrating , scenario building, modeling, prototyping, simulating
- testing, confronting with reality
- priorities, selecting, choosing for implementation.

The whole process is fueled by imagination which is not intangible but the field of work of scientific and technical laboratories, designers, and artists. 'Limaginaire' can also be managed by companies. More than 90 practitioners have contributed their experience to Musso, et al (2005). This testifies to the seriousness of what might appear to some as a soft-nosed approach.

The new innovation process implies a fourth generation of R&D:

- the first corresponds to the creation of R&D centers in large firms, following the model launched by Edison in 1876

- the second generation corresponds to a project organization aiming at higher commercial efficiency; starting after World War II
- the third generation of R&D is linked to the introduction of methods of strategic planning, management of project portfolios and marketing. One had to deal at the same time with techno push and market pull. The former refers to projects involving high risk but also high competitive advantage. Market pull, on the other hand, is about meeting short-term demand for improved products, a demand revealed by market research.
- The fourth generation of R&D capitalizes on the methods of the third generation by setting up an iterative of creation and knowledge management, combining marketing and technological processes. This is to be achieved by according the client a pivotal role in the innovation process and by investing in the 'upstream' phase (when costs are still low and one can act on potential results).

At the end of the day, one may ask what the European Innovation Scoreboard is really measuring when it refers to R&D expenditures.

Social innovation

Social innovation is more than just the effect of society on the emergence of technological innovations. Fontan, Klein & Tremblay (2006) argue, "... that the continuous presence of society must be taken into account throughout the 'process of innovation production', starting with the inventor's instinct, the different mechanisms leading to its institutionalization, the necessary efforts to construct the social usage of the innovation, and ending up with its diffusion" (Fontan et al, 2006: 2).

To shed light on this would require an extensive review of the literature. This being beyond the scope of this article, we must settle for a synthesis.

To explain an innovation, a set of factors is significant pertaining to social, technological, economic and political characteristics of individual and collective actors: in a specific place and time. In brief, the explanation hinges on social actors, time and space.

Having defined social innovations as being accepted socially, whether an innovation becomes positive for a community depends on what actors will do with it (note that an innovations also may turn out negative for a community). The social milieu comes in at three stages:

- '...prior to the innovation, through a redefinition of cultural orientations;
- ... during its implementation, through the new methods of social relations, consultation and partnership for example;
- ... following its implementation, through pressures exerted in order to change individual and collective consumption habits'.

(Fontan et al, 2006: 10)

As to the temporal dimension, innovations are cyclical as shown for the long waves albeit only for bunches of basic innovations in a 'spaceless world'. A link with the product life cycle would be more appropriate for shedding light on the cyclical nature of innovation.

Finally, there is the spatial dimension. Innovation does not appear everywhere, only in specific places. This is the missing link both with regard to long waves and the role of imagination. The gap is closed theoretically by 'the existence of a set of social innovation systems ranging from the global space to the local space, transiting through the intermediary spaces (continental, national and regional) (Fontan et al, 2006: 10). If these systems become hierarchical, rich-get-richer phenomena occur. And if territorial proximity, local or regional, counts, the concept of innovative milieux becomes of interest.

Innovative milieux

An innovative milieu or environment—according to Maillat (1994)—has the following characteristics:

- a group of actors
- material and immaterial and institutional elements
- cooperation
- learning or 'apprenticeship'.

There is a wide array of actors involved such as business firms, research and educational institutions, and local public authorities: all of them possessing power of decisionmaking and able to make strategic choices. Material elements are plants and infrastructures whereas immaterial ones pertain to know-how. The institutional elements refer to local public authorities and other organizations with decision power. The actors are interacting in a cooperative fashion. They are networking to make best use of existing resources, thus creating value added or synergy. Permanent learning enables actors to modify their behavior in order to develop new solutions, adapting to a changed environment. Both learning and cooperation relate to:

- the creation of know-how which allows for mastering the production process and the creation of new products and new techniques
- the development of behavioral norms guiding the cooperation among actors, balancing partnership and competition
- the ability to identify the specific resources of different actors and of the milieu as a whole as opportunities for cooperation
- the relationship between the actors of a milieu and the external environment; the milieu is not isolated, but part of a technical and market context which is both international and dynamic through transterritorial networks (this is where the new science of networks comes in).

The concept of innovative milieu has been developed by GREMI, a European research group from 1985 until recently through a series of case studies in six editions. Editions 1 and 2 have dealt with enterprise/milieu interactions. With GREMI 3 and 4 the emphasis has shifted to innovation networks and long-term perspectives of innovative milieux. GREMI 5 has focused on urban innovative environments, in particular on the complex, indirect relations between milieux and cities. Finally, the last edition of GREMI has tackled resources such as heritage, agriculture, tourism and culture. See Matteaccioli and Tabariés (2006) and for more detailed information Camagni and Maillat (2006).

Innovative milieux are close to the foregoing approach of social innovation (for details, focusing on urban revitalization, see Matteaccioli, 2006). The relationship between innovative environments and social innovation are twofold. On the one hand, the creation of an innovative milieu in itself constitutes a social innovation. Its basic characteristics -actors, elements, cooperation and learning—are non-market features. On the other hand, the work of the research group has moved fro technological innovations to innovations in the realm of cities, nature and culture.

Linking local territorial proximity to global networks, the innovative milieu turns into the cornerstone of a Glocal scenario of development (Drewe, 2006c).

4. How to *promote* innovation?

Those who use innovation as a sound bite also tend to advocate quick fixes for the promotion of innovation. A recent example of this is the so-called theory of the creative class (Florida, 2003, 2005).

According to Florida, the share of creative people ('bohemians') in a given area attracts other types of talented or high human capital individuals which, in turn, attract and generate innovative, technology-based industries. Hence a higher share of 'bohemians' would produce innovations: a one-factor theory leading to a quick fix. However, empirical evidence from the US and the UK casts serious doubts on three major claims made by the author of the theory:

- 'There is a creative class in Western societies, which wants to live in diverse, tolerant, cool cities.
- The creative class shapes the economy of many cities. Increasingly, jobs move to where the skilled people are.
- Cities which attract and retain the creative classes do better. Creativity is driving their development' (Nathan, 2005: 3).

Another popular instrument to promote innovation is cluster development. It is not so much a quick fix but more of a panacea cherished by numerous countries and regions. See e.g. Wallonia or the Bask country [6]. Recently the EU has also published a study of clusters in the EU-10 new member countries (Ketels & Sölvel, 2006). A comparable study for the EU-15 countries is forthcoming.

Clusters are defined as a number of related, common-interest firms including connected institutions and services, located in each other's proximity. For an extensive discussion of clusters see, for example, Jonas (2006). See also the French equivalent of local productive systems ('systémes productifs locaux') [7]; a policy instrument recently rebaptized as poles of competitivity ('pôles de compétitivité' (DATAR, 2004).

As with all policy instruments, 'the proof of the pudding is in the eating'. Looking back at the explanations of innovations, one can venture the hypothesis that a necessary condition for the success of cluster development lies in the creation of an innovative milieu. Take a look at one of its early success stories, l'Arc Jurassien (Maillat, Crevoisier & Lecoq, 1993). Meanwhile, there is no reason to discard clusters altogether, provided they are handled with care following a practical guide to cluster development (Ecotec, 2004).

To obtain an overview of innovation policies one is advised to examine the European level. A small group of our high level experts—the so-called Aho group—has proposed 'a 4-pronged strategy focusing on the *creation of innovation friendly markets*, on *strengthening R&D resources,* on *increasing structural mobility* as well as fostering a *culture which celebrates innovation* [8]. This urgent plea for 'a Pact for Research and Innovation'—dramatically labeled 'before it is too late'—implies a certain criticism of existing innovation policies and that of the EU in particular. An impressive arsenal of tools already exists including various European Action Plans, European Policy Initiatives, European Funding Schemes, national and regional policies. This battery of policies is not exactly transparent and could certainly use some streamlining (unless the lack of transparency is intentional). As the proof of the 'European pudding', too, is in the eating, critical evaluations can also help to improve transparency as recently demonstrated, at the national level, by the Central Planning Bureau, CPB, of the Netherlands (Centraal Planbureau, 2006). The CPB has carried out an ex-ante evaluation of 24 project proposals expected too boost innovation, spending 140 million euro: 14 proposals score negatively and cannot be improved either; in four cases improvements are possible and only six proposals are meeting the criteria. The overall criterion applied is 'contribution to social welfare'. Interestingly enough, the expected success of the projects extends to the dimension of social innovation.

Of course, one should also carry out critical ex-post evaluations: the final test of the pudding after the money has been spent. Before the money has been allocated, ex-ante evaluations can serve as an early warning (mid-term assessments can also be useful).

At the European level critical ex-post evaluations are important with regard to the potential transfer of good or even best practice experience between countries, regions or cities. The golden rule of double evaluation applies. Two questions need to be answered:

- Does an innovation policy or tool work in its own context? (a critical evaluation can be seen as an antidote to success stories produced by region or city marketing)
- If yes, can it be transferred or adapted to a different context?

Anyway, he who asks how to promote innovation also has to ask how to evaluate innovation policy. There is no lack of methods (see for example: http://www.fteval.at or: http://www.evalsed.com). Whether the EU, in presenting the results from 15 years of regional innovation, has stuck to the rules of a critical ex-post evaluation, is more than just an academic question (European Commission, 2006).

5. Do *cities* matter?

Recently the EU has acknowledged 'the urban contribution to growth and jobs in the regions' (Commission of the European Communities, 2005). Moreover, cities are going to matter even more in the period 2007–2013 as far as the EU cohesion policy is concerned. The approach will be that of the URBAN Initiative, practiced from 1992 to 2006. This is essentially an integrated area approach.

The question is whether cities matter when it comes to innovation. Do cities offer a valid explanation of innovation that can serve as a lever for policy interventions? That cities matter is almost a truism with over 60% of the EU population living in urban areas of over 50 000 inhabitants. It would be rather surprising if the bulk of innovations would occur in the remaining smaller urban areas or in rural areas for that matter.

Cities are just a black box. They must be 'unblackboxed' to shed more light on their potential role as incubators of innovation. This is what Florida has tried to do with his creative class theory. Unfortunately, it does not work as a quick fix. But beyond the doubt cast on this theory, 'quality of life is important' as pointed out by Nathan (2005: 6): 'there should be some positive links between prosperity and creative activity'; 'skills and talents matter' and 'there is other work demonstrating links between cultural diversity and economic performance'.

Others claim that "... F2F contact is at the heart of a key advantage of the city today, its 'buzz' " (Storper and Venables, 2002; see also the references). Innovations require 'high levels of complex and unfamiliar coordination tasks—face-to-face contact: "meeting; becoming a member or getting 'in the loop'; investing and performing in the relationship"(Storper and Venables, 2002: 33).This seems to be an interesting way of unblackboxing cities, but it remains just another hypothesis. So do the EU guidelines for urban action with regard to innovation and the knowledge economy, hypothesizing six major levers of interventions (see Illustration 4; Commission of the European Communities, 2005: 12).

Plausibility is no proof. Without prior empirical evidence, policy interventions are experiments involving uncertainties with the proof of the pudding—once again—in the eating. Hence the importance of critical, double ex-post evaluation mentioned before.

Preparing urban interventions or setting up urban projects depends on how cities are conceptualized or 'thought'. There seems to exist today two dominant paradigms: the 'best-cities-for-business' paradigm and the 'sustainable-city' paradigm. They are described in Illustration 5 in terms of dichotomous profiles (Drewe, 2006a).

'Best-cities-for-business' are marked by an emphasis on technological or commercial innovations whereas 'sustainable cities' also emphasize social innovations. Compared to the URBAN experience

Guidelines for action include:

- Cities must attract and retain knowledge workers and, more generally, an important share of tertiary educated residents. A key input to choice is the attractiveness of a city in terms of transport, services, environment and culture.
- Cities should take a leading role in preparing an innovation strategy for the broader region. They may also, where appropriate, take the initiative to support or undertake their own research.
- Cities should work to make regional RTD innovation and education supply more efficient and accessible to local firms, in particular SMEs.
- Cities can stimulate and co-ordinate partnerships and clusters of excellence with universities and other institutions of higher education, creating business incubators, joint ventures and science parks.
- Cities are encouraged to develop an integrated and balanced information society strategy. This should take account of the objectives of the new i2010 initiative (in eGovernment, eBusiness, e-Learning, digital literacy, e-inclusion and e-accessibility) as well as compatibility with regional and national information society strategies.
- Cities should support early adoption of eco-innovations and environmental management systems[12]. Investing in this area now will give European businesses the opportunity to build a leading position in a future growth sector.

Fig. 4 Innovation and the knowledge economy

between 1992 and 2006, social innovations in urban revitalization are hardly a luxury (Drewe, Klein & Hulsbergen, 2007). A critical re-evaluation of the URBAN Initiative has revealed major shortcomings which disqualify it as a blueprint for future EU policy—unless one learns from the experience (Drewe, 2006d). A real innovation would be to extend the concept of innovative milieux to urban environments (Crevoisier and Camagni, 2000).

6. What role for the *university*?

The traditional tasks of universities are teaching and research (see also Drewe, 1991). Many want to add a third task, to wit innovation. The hopes are high: 'the universities at the heart the Europe of knowledge' (Commission of the European Communities, 2003). The Commission has even organized a conference in 2004 addressing 'a vision for university-based research and innovation': 'The Europe of knowledge 2020' (this is obviously a long-term affair). A consultation of stakeholders tells us how difficult this is to be achieved (Commission of the European Communities, 2004). Doubts may be expressed as to the feasibility of achieving the objectives, in particular, if the consultation of stakeholders is limited to the supply side of the 'knowledge factory', i.e. to associations of universities, individual universities, professional associations, and unions. Universities more often than not tend to be biased toward the supply side: we got knowledge stored here, come and get it. The real question is whether, for example, the University of Liege's impressive, self-advertised offer links up with the clusters of Wallonia and helps them to perform thanks to innovations.

'Best-cities-for-business'

versus

'Sustainable cities'

- **Cities as products to be marketed**
  versus
  Cities as complex arrangements of living conditions
- **Cities as business firms competing on the market**
  versus
  Public responsibility or mandate for city development
- **Survival of the richest cities: 'the rich get richer'**
  versus
  Different degrees of fitness among cities: 'how do latecomers make it in a world in which only the rich get richer?'
- **Endowment with location factors**
  versus
  Quality of life & public goods
- **Emphasis on technological innovations**
  versus
  Also emphasis on social innovations
- **Short-term orientedness**
  versus
  Long-term perspective & attention for the limits of urban growth
- **Large-scale urban projects and events**
  versus
  Integrated area approach
- **City ranking, marketing and branding**
  versus
  Liveable cities

Figure 5 Thinking cities: two paradigms

It does not suffice to add innovation as a third task to the traditional ones of teaching and research. The question is what teaching and research can do for innovation. Or to put it differently, what university for the future? Is the model of the Humboldt University finished and should we prepare for a university focusing on 'technostarters' (Wissema, 2005)? Should the university leverage talent, not technology (Florida, 1999)? What are the relevant criteria for academic bachelor's and master's curricula (Meijers, van Overveld & Perrenet, 2005)?

There are no easy answers to these questions. Since the role of the university is a way of explaining innovation, similar to the impact of cities, one might ask whether what has been said in section 3 can provide some guidelines.

What about the role of 'imagination' and the new innovation process or the fourth generation of R&D?

The new innovation process, described in Illustration 3, is a far cry from the old innovation process cherished by universities, in especial by technical universities or universities of technology.

The old process is basically a linear, non-user oriented process: from fundamental research to the commercial exploitation of results, via inventions, prototypes and marketing. If universities teach competence in doing research and in designing, do the curricula cater to teaching 'l'imaginaire'?

A similar question relates to social innovation. Meijers et al (2005) assume rightfully that academics should take account of the temporal and social context. But how important is this topic in a study program seduced by a 'technology push'? More fundamentally, will universities also engage in social innovation? How about the new innovation process organized as a sharp search for ideas to deal with urgent social problems? [10].

Finally, there are lessons to be learned from innovative milieux. Universities can be one of the actors (even if it has become only one of the many producers of research). Universities provide material, immaterial and institutional elements. But to make the milieu work, universities must cooperate or create synergies with the other actors. This includes becoming part of transterritorial networks.

The university of the future, as an agent of economic growth and social welfare, must be fully integrated in an innovative environment and, above all, a learning institution. Or is a learning university an oxymoron?

7. Where do we go from here?

This section, by way of conclusion, is meant to be a brief research agenda with regard to innovation. Research on innovation—like regional studies—must avoid 'fuzzy concepts, scanty evidence, and policy distance' (Markusen, 1999)—unless innovation just serves as a sound bite, cherished by politicians at national, regional and urban levels, EU officials, consultants, and ... academics.

'First, conceptualization has become fuzzy, which means that concepts point at phenomena which have two or more alternative meanings and can therefore not be identified and operationalized by different scholars. Second, the standards of evidence are falling: empirical evidence is not only scarce, it is also often collected in a selective and anecdotal way, which is not transparent to others. Third, the fuzziness of concepts and the falling standards of evidence, in turn, increasingly weaken the policy relevance of regional studies' (Grabher and Hassink, 2003: 699).

First, to avoid fuzzy concepts:

- innovation must be clearly defined; this includes social innovation
- explanatory approaches to innovation, too, must be properly conceptualized as far as social context, time, space and level of aggregation are concerned
- the roles of (sustainable) cities and of universities, as explanatory variables, require special conceptual attention.

Second, with respect to empirical evidence:

- empirical measures of innovation are an antidote to sound bites, but the level of conclusion must always correspond to the level of analysis which, ideally, should cover nations, regions, cities and the microscopic levels of business firms, products and services
- innovation policy approaches are to be seen as hypotheses that require empirical testing ('the proof of the pudding...') hence the importance of critical evaluative research.

Third, as to policy-orientedness , avoiding fuzzy concepts and scanty evidence—as indicated—will reduce policy distance. Note however, that policy-orientedness is about 'being close but not too close' to political decisionmaking.

Hence there is still some work ahead and another task for universities...

Notes

[1] Horvarth, J. (2005) The death of Lisbon: http://www.heise.de/bin/tp/issue/r4/dl-artikel2.cgi?artikelnr=19678

[2] Source: http://trendchart.cordis.lu/scoreboards/scoreboard2005/methodology.cfm

[3] See : http://trendchart.cordis.lu/scoreboards/ scoreboard 2003/inno_eu.cfm

[4] See: http://www.best-practice-graz.at

[5] The Technology Marketplace, however, focuses on key *exploitable* results in three sections: business, science, and *society*: http://cordis.europa.eu.int/marketplace

[6] See respectively http://clusters.wallonie.be/xml/index_fr.html and http://www.france-euskadi.org

[7] See the monthly information letter on local productive systems: splinf@cdif.fr

[8] See: http://ec.europa.eu/invest-in-research/action/research06_en.htm

[9] Examples are: the Centre de recherche sur les innovations sociales, CRISES at the University of Québec: http://www.crises.uqam.ca. See also Tardif (2005). Or the Center for Social Innovation at Stanford University: http://www.gsb.stanford.edu/csi

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MÜLLER KAREL

INNOVATIVE EUROPE—CONSTRAINS AND CHALLENGES

1. Introductory remark

The aim of the following text is to discuss the conceptual, analytical and pragmatic issues concerning the performance of European innovation area. The way of discussion is not only reflecting my research experience in the field of social studies of science, technology and innovation but also by the cognitive framework of the Warsaw conference "Towards a new Creative and Innovative Europe", which has been initiated and articulated by prof. Kuklinski in the course of preparation of conference by his "Thirteen Notes"[1] As indicated in the title of my communication I would like to focus my arguments on the issue of innovations in Europe. Doing so I refer to my study of the issue of innovation, which I try to understand with reference to debated concepts of innovation, available databases about innovation resources and performance, innovation regulatory policies and practices within European Union. A fruitful contribution to my understanding this issue has been gained by a follow up studies of accession of Central European countries to EU and its implications for changes in the fields of science, technology and innovation.[2] The accession process can be, indeed, labelled as a real trans-formation[3] , a situation when full scope of social actors and their current practices are exposed to a pull of changing environments. Since such changes are affecting not only the framework (regulatory) conditions but also everyday (self-regulatory) practices, their study should make use of a creative sociological insight (sociological imagination as was stressed by C.W. Mill when he realised limited cognitive power of positivist approaches in sociology). One should understand how and why the respective social actors resist the undergoing changes, how after all get dis-embedded from current formation

[1] Kuklinski, A., The Warsaw Conference—Towards a new Creative and Innovative Europe, a contribution to the pre-conference discussion, Thirteen Notes. WSA-NLU, Warsaw–Nowy Sacz, October 2006, 26 p.

[2] I would like to refer to the following published texts: *Central Europe in Transition: towards EU membership* (eds. Gorzelak, Ehrlich, Faltan, Illner), Regional Studies association, Warsaw 2001; *Innovation policy issues in six candidate countries: the challenges*. EC Directorate-General Enterprise, EUR 17036, EC, Luxembourg, 2001

[3] The term "*formation*" is here used in order to defend macro-social approach to study of societies, and to accept their ability to find *just forms* of their existence, in opposition to the (post-modern) views claiming that such ability has got disappeared. E.g. the concepts of modernity are representing an effort to understand such formative social framework (see closer Hall, S. Gieben, B. (eds), 1992, Formations of Modernity, Polity Press and Open University, Cambridge). The similar aim is generally expressed by the term "system", like business system, innovation system, education system etc., but in many cases under this term the internal structuration of the differentiated social field is taken into account only, while interfaces to its environment are neglected.

and practices and how and in what pattern new formative framework gets stabilised into a new (self-evident) practices. Such cognitive experience has stimulated me to study wider scope of social factors influencing the innovative processes and search for corresponding interpretative framework. Following this experience I claim an assumption that

- the study of innovation may become a good source for understanding essential formative factors of current (modern) societies, and that
- a productive conceptual framework of social formation can be a productive cognitive instrument for understanding the nature of innovation.

I intend to apply the above-indicated assumption and discuss the issue of innovation from both viewpoints. The framework of European situation is offering a good case for such discussion: there are general efforts not only to promote innovation within wider strategical aims (Lisboan agenda) but also to form a consistent social space for that field (European innovation area). Closer look at these efforts is well documenting that they are outcome of close interaction of conceptual, methodological, empirical and pragmatic factors—all of them attempting to arrive to a better understanding of the ways, how innovative performance is shaped and what normative and analytical arguments can be used in favour of such understanding. In order to clear up the above formulated assumption, that (i) study of formative factors of innovation can help understand creative drive and potential of current societies, and that (ii) study of modern societies can help understand the way of social shaping of innovation systems, can be supported in conceptual terms by wider scope of social studies. In former case the wide stream of neo-schumpeterian studies and evolutionary economics have been available. In the latter case the macroscopic studies of current societies can be used, e.g. the concepts of capitalist formation and its institutional embedding, or the concepts of modernity and its institutional setting.

That said, I am going to discuss the issues of innovativeness—and its relation to knowledge, imagination and freedom—with respect to the debated conceptual approaches, available analytical data and their methodological construction, and the implementation of conceptual and analytical knowledge in regulatory and political practices. This line of arguments has also influenced the structure of the following text. In the first paragraph I am going to clear up relation between knowledge and innovation and its implication for the analysis of innovating action and pro-innovative (structural) environment. In the next chapter the conceptual and analytical issues of national innovation system (NIS) are discussed including the ways, how its institutional analysis could be carried out. The fourth chapter will approach the issue of innovation from the position of more general concepts of social systems (capitalism, modernity). The question will be asked, what can we learn about innovation from this field of social studies. In concluding remark some proposals for institutional analysis of NIS will be formulated.

2. The interpretative framework of innovation—the issues of current debate

Modern societies have, indeed, embarked on a track of turbulent changes and innovative drive. It is difficult to get oversight about their many-sided forms of appearance. The unexpected consequences of many innovative projects have challenged the pattern of our expectations and valuations. Following the Popperian advise which tells us how to explain situation with such unclear and complex empirical appearance I will start with the ***conceptual approaches to innovation***, their theoretical justification and evolution in the course of last decades. It can be expected that within such reflection the basic interpretative lines of current innovation can be identified. Starting with

conceptual approaches to innovation it should be mentioned that theorising about innovation has a productive foundation in the Schumpeterian tradition of economic studies. Schumpeter identified two important factors of modern (capitalist) formation: (a) innovation as a key competitive factor, the resources of which rest on advances of scientific knowledge, and (b) permanent as well as destructive pressure of innovation-based enterprising activities—carried out in a competitive environment—on institutional setting of capitalist societies.[4] The following (neo-schumpeterian) studies have further developed this cognitive tradition, supported it by extensive empirical studies and have arrived to a concept of national innovation system (NIS).[5] These academic findings have enjoyed the advantage that the NIS concept has been accepted as a cognitive framework for regulatory practices in the field of innovation policies in the OECD countries.

Regardless of advances of our understanding the interface between technology and economy still some issues formulated by A. Schumpeter remain unclear or pushed aside. One can even now claim that better understanding of innovation should recall the original Schumpeterian heritage and pay closer attention to the issues of creative individuals, social environment for "creative destruction" and the role of "Geist des Kapitalismus" (symbolic framework for competitive action). One has to admit, that the institutional framework for support of innovation has undergone extensive and intensive transformations, and it is much more influenced by activities of corporate actors.[6] But its *basic driving forces*—creative activity of individuals oriented to "Zeitgeist" on one hand, and on the other hand pull effects of structured and institutionalised environments in favour of support of innovation remain to be unclear. Of course, right away a question can be formulated, what does it mean "Zeitgeist", a basic orientation for human action following valued and valuable aims (and expressed in symbolic way). In the similar way the question can be asked what does it mean a structured environment for support of innovations. Let me make some short remarks to both issues.

The relevant institutional framework and its functional mission orient innovative action—in the form of discoverer, inventor, innovating firm, and generally creative actor —. Such framework is not, however, able to finalize (to grant a "causa finalis") the orientation pattern. It is given by fact, that consequences of action based on present scientific knowledge are not limited to the regulatory framework of this or that social sub-system. Perfect functioning of such social arrangements was expected to contribute to reliable social ordering and environment for human action. However, the outcomes of current social syb-systems are too complex to know their implications. Their "unintended consequences" are, therefore, transcending to the realm of culture, where social norms and valuation patterns are maintained. It has been assumed, that cultural framework of modern (European) societies can "absorb" the implications of effective growth of the functional sub-systems. It is now clear, that modern societies have approached the limits of such line of development. Growth of functional capabilities, and their unintended consequences, poses more and more the question, what aims are embedded in functional capabilities and how they should be assessed with the view to their current power. One cannot expect any more that unintended consequences of functionally based growth will be "absorbed" by current capacities of culture. The cultural studies are already informing us that culture "speaks back"—assessing negative implications of current development and formulating critical revision of some evident knowledge assumptions. Such trends should be studied and mobilised in order to influence and

[4] It should be remarked, that Schumpeter'is insight into nature and driving forces of innovation was influenced by his close contact not only to leading economic authors but also to general debate and theorising about modern society and way how to understand it; in his concept the influence of M. Weber is evident.

[5] Nelson, R. R. (ed.), 1993,*National Innovation Systems: A Comparative Study*. Oxford, Oxford University Press

[6] Frageberg, J.: *Schumpeter and the Revival of Evolutionary Economics*: an Appraisal of the Literature. *Journal of Evolutionary Economics*, 2003, No.13, s. 135–159.

balance growth of functional capacities of social sub-systems with their cultural background. Here, the role of political system is also challenged.[7] Important role is also played by social science and humanities in their capacities to understand valuations, which are followed by human innovative actions being based on powerful functional resources. That said, one has to admit that the notion of "Geist des Kapitalismus" is not sufficient to orient human innovative and creative efforts.

How a ***structured environment for a support of innovation*** can be understood? This question can be well discussed with focus on the issue of innovation. The concept of NIS is based on identification of functional interfaces among the institutions and actors, which are forming the innovation resources and transforming them into innovative outcomes. The closer interfaces among these institutions, which have been identified by many studies, have led to a conclusion that innovation is carried out within systemic environment. In a historical perspective it has been found out that such systemic environment has been shaped by national states and their efforts to support science, technology and innovation. Such approach, however, runs a risk to construct borderlines to institutions and activities, which happen to be behind the borders (in the national states, and in relation to the other states). Moreover, the areas behind the borders gain a label to be in non-systemic in relations to systemic nature of current arrangement. As I have argued above, in such situations a constitutive influence of cultural resources and current institutions has to be taken into account. A systemic arrangement, which is stressing internal consistence of an institutional cluster, like NIS, can turn out to be a limiting factor in understanding the current nature of innovation, since it does not include into a process of reflection the influences coming from its environment. For this reason I suggest to use (instead of system) the term ***infrastructure***, which is noted not only by interfaces among the innovation building institutions but is also open enough to respond to wider socio-cultural context of innovative activities.[8]

The above-mentioned arguments have indicated that the original Schumpeterian arguments (creative destruction and Geist des Kapitalismus) are in a need of more sophisticated interpretations but still their positive message rests in the assumption that they have to be understood in their countervailing relationship: efforts of creative individuals which are getting socialised as well as structural pull which is becoming more open to evaluate destructive impact of human creativity. Such countervailing interface cannot be settled without clashes of differing interests, without destructive implications. It can be, however, assumed that such destructive potential "may get dissolved" within purposeful efforts of relevant and ***knowledgeable actors***. Such actors are distributed within the whole pattern of social production of knowledge and are noted by reflexivity. Key position among such actors is taken up by social sciences. In order to hold such position the nature of social sciences knowledge should be reconstituted: it should be understood, that reliability of their findings is not granted by methodological instruments and evaluation by relevant community of scientists only, but also by its diffusion to knowledgeable actors, who are using and advancing such knowledge. I would like to claim, that positive role of social sciences in understanding the destructive pressures of innovative capitalism can be played provided two important features of its present shape are understood: (i) circularity of knowledge as a way of its formation, and (ii) diarchy of social sciences, which is based on the existence of two discursive cultures in this cognitive realm. I will finish this chapter with short comments to both issues.

In the above-mentioned description of role of economic studies in shaping innovation policies in OECD countries we could notice what positive impact on regulatory practices has been

[7] The term of re-politisation is well reflecting this situation with the claim of renewal of politics to shape and re-shape valuation patterns. See closer Beck, U., 1993, *Die Erfindung des Politischen*, Edition Suhrkamp, Framkfurt am M.

[8] Such proposal is supported also by cognitive efforts in various social sciences, which start to pay more focused attention to the study of institutions.

brought about by the debates between academic and regulatory actors. Academic knowledge about innovation was first accumulated, became relevant in practical terms and applied by regulatory actors; regulatory practices produced practical knowledge, which has become a new resource for orientation and critical reflection of academic research, the outcome of which finds again its way to decision-making of regulatory actors. The above described ***circularity ok knowledge*** is representing important experience, which is not only typical for the role of social sciences in modern societies but also necessary for management of modern knowledge production. It draws attention to various localities, where knowledge is produced and reproduced. It can indicate, how knowledge is distributed by current institutional setting and where its cognitive power can lead to institutional changes. The above-indicated interpretative framework can advance our understanding the role of theoretical, empirical, methodological, pragmatic and evaluative aspects in formation of innovation-related policies and practices. Reflecting such dynamic cognitive framework one can also better identify the role of single cognitive aspects in knowledge formation, and assess which cognitive resources are insufficient and what improvements should be done.

Circularity of knowledge is supported (and also constrained) by the current differentiation of social sciences. The pull of inter-disciplinarity is produced by requirements of practical and regulatory actors, who are taking part in circular processes of knowledge production. However, more serious factor in cognitive efforts of social sciences is played by their differentiation by discursive cultures. Taking into account current discussion about the nature of scientific knowledge one has to count with its differentiation in nomothetic and idiographic discursive cultures in social science, be aware of cognitive limits, if nomothetic approach is applied in a study of human action and strive for building bridged between both epistemological approaches.[9] It is this perspective which makes me to claim that positive effects of circularity of knowledge in shaping our understanding the nature of innovation have been *constrained by insufficient input of social sciences with idiographic cognitive resources* to the study of innovation. The availability of extensive databases has been seducing many scientists to apply nomothetic cognitive approaches in the study of pragmatic and evaluative side of innovative activities.

The implications of the above-mentioned critical standpoint can be well observed in the study of NIS and its institutional setting. Even if the so-called Maastricht memorandum has outlined important features of institutional framework for support of innovations (interfaces among the actors, long term orientation, openness to environment, diversity of forms, complementarity of co-operative and competitive means of co-ordination, pull of systemic features in the technology-economy relationship).[10] The following process of reflection of NIS has been mostly tested by set of input and output indicators and explicit nomothetic methodological instructions: describing NIS by input/output relationship, constructing stages of its growth by help of statistical coefficients, assessing the level of NIS development by them and even reducing the explicit diversity of national and regional institutional frames into a single composite innovation indicator.[11]

[9] See closer Wallerstein I. at al., 1996, *Open the Social sciences*, Stanfiord Unuiversity, Stanford, California or

[10] Soete, L., Arundel, A.(eds.), 1993, *An Integrated Approach to European Innovation and Technology Diffusion Policy*. A Maastricht memorandum, Brussels, Luxembourg.

[11] *Methodology Report on European Innovation* Scoreboard 2005, EC, DG Enterprise, European Trend Chart on Innovation, May 20, 2005.

3. Infrastructure for support of innovation and its institutional pattern

The notion of infrastructure is closely related to the issue of ***institutional change***, and in general to the **concepts of institution**. Institutions are generally understood as an opposite phenomenon to a freedom action, and in this perspective their nature rests in a limiting, constraining function to a free action. Such approach is not fruitful, since it identifies the issue of institutional change by measures, which can ease their constraining role and increase a space for free action. The knowledge gained by revival of institutional studies in social sciences suggests taking seriously the issue of institutions in formation of societies. Their role and chances for an institutional change are understood in a more profound existential framework. In this perspective the contribution of A. Gehlen seems to form good ground for a more productive institutional analysis. In his view, institutions are representing (i) an alternative to insufficient instinctive capacities of human being, and (ii) make easier human inter-action while fixing accumulated knowledge as a shared (self-evident) standard or framework for action (Entlastung). Contrary to mainstream approach it is stressing *challenging and facilitating role of institutions*, not only by its constraining and disciplining impact. Another important message of a new approach is the assumption, that institution building is based on formation of habitus and generally accepted routines[12], and a reliable institutional change is dependent on a process dis-embedding (from relevant habitus and normative framework) and re-embedding (appropriation of adequate habitual and normative pattern). That said one could formulate the following thesis: innovation performance is conditioned not only by functioning of NIS but also by capacities of societies to change its institutional framework, including the formative institutions of NIS

In the following discussion I shall point to conceptual efforts, which try to understand the above-formulated thesis. Some of them are exploring the issue within the framework of NIS concept and available databases. Some of them attempt to make use of a historical knowledge about innovation. Important contribution is also played by those concepts of modernity, which are assessing the role of science, technology and innovation within in formative pattern of human societies. Brief comment to each of them will be presented with the aim to identify their common cognitive problems.

The concept of **national innovation system** (NIS) has become a powerful instrument of orientation for innovation policies and their regulative impact. It shaped also a theoretical platform, which could gain support and verification by empirical research and relevant databases. Due to its openness to both the practical regulatory efforts and the scientific assessment it could assess (and foresee) emerging qualitative changes in the structures of NIS. A transition from a **linear** model of NIS to the **interactive** one is an example of paradigmatic change in theorising about innovation systems.

The shift in the conceptual approach to NIS as well as wide availability of indicators and databases about innovation performance has brought up better insight in weaknesses of European innovation capacities. They can be formulated as follows:

- Identification of weaknesses of European innovation system in comparison with the US one. European weaknesses are concerning the issues of intellectual property, size of population with tertiary education and expenditures to ICT. Available data are indicating that in the promotion of creativity by its effective protection, massive participation in professional education and extensive utilisation of communication technology the European countries are lagging behind the US situation.

[12] See closer Berger, P. I., Luckmann, T., 1966, Social construction of reality. A treatise in the sociology of knowledge, Doubleday, N.Y.

- EIS 2005 and its new set of indicators have helped better understand barriers to knowledge flows, which seem to be a crucial negative factor influencing the innovative performance in European countries.
- Alternative methodologies of construction of EIS, like EXIS, contribute to study of institutional framework for support of innovation. E.g. due to EXIS data one can better understand varieties of forms of innovating firms, which are shaped due to available resources and innovating strategies of firms. They give us positive message about the role of diversity in promotion of innovating efforts. [13]
- It has been possible to gain empirical support for concept of learning firm and learning economy and improve the position of these important concepts in the interpretation of innovative issues in the micro- and macro-perspective.
- Recently, some studies have been focused on the issues of governance, and in particular the governmental provisions in the fields of science, technology and innovation. It has been learnt that even the expert knowledge is to great extent embedded in pattern of governance and organisation and specific efforts have to be implemented to promote its diffusion and learning in different institutional contexts. These studies give us message about the diverging codes of reflexivity of NIS actors and the need for improved institutional reflexivity within NIS.

Promising way of further elaboration of NIS concept is followed in particular by B.-A. Lundvall. He suggests taking seriously the process of diffusion of knowledge and studying its impact on the changes in **learning capacities** of relevant actors. He makes an important contribution to the study of the relationship between technical and organisational innovations in innovating firms, and also explores relations between learning capacities and various forms of organisation and co-ordination of industrial processes. Here, important structural factor is identified: learning processes are promoted not only by capacities of educational systems but also by forms of social coordination, and the balance of centralised and decentralised provisions.[14] This line of study makes an important contribution to the institutional analysis of NIS, while explaining that institutional change is not outcome of growing innovation pressure but of slowly changing interfaces between knowledge and the social context of its application. Innovating power of knowledge becomes manifest only after it gets dis-bound from current social context and is pulled by advanced social context. Such findings are close to the knowledge claims of modernity studies, which indicate that an institutional reflexivity is a crucial factor of governance of complex and uncertain developments in current societies. This point I shall approach in the next chapter.

The issues of learning and reflexivity come to foreground of academic attention after the innovation surveys have been extended to new EU member countries. The available data have been describing not only diversity of innovation systems in this larger group of countries but also differences in the level of their innovation resources and performance. European innovation area has been described by four types of innovation systems, which are noted not only by different level of innovation efforts but also by different structural dependencies. It means that a transition from lower level grouping to a higher one will not be an easy process. It will depend on capabilities of respective country to dis-embedd from structural impact, and to embark on a trajectory of path creation, to be ready to deal with institutional changes.

The challenges of ***path creation*** are important for new EU member countries. Having in mind a general point of view it can be argued, that these countries share common industrial and cultural heritage with traditional EU member countries and there is, therefore, no need for

[13] Arundel, A., Hollanders, H., 2005, *Innovation Strengths and Weaknesses*, European Trendchart on Innovation. Brussels, Maastricht, European Commission, DG Enterprise, MERIT 2005.

[14] See e.g. Lundvall, B.-A., 2005, *Interactive Learning, Social Capital and Economic Performance*. Paper presented at conference "Advancing knowledge and knowledge economy", Washington, 10–11.1.2005.

Table 1

Inter-country differences in innovation performance

Type	Country
Leaders	DK, FI, SE
Intermediate innovating countries	BE, DE, FR, IT, NL, AT, UK
Trailing innovating countries	CZ, ES, LT, HU, SO, SK
Laggards	EE, EL, LV, PL, PT

Source: Arundel, A., Hollanders, H., 2005, *Innovation Strengths and Weaknesses*, European Trend chart on Innovation. Brussels, Maastricht, European Commission, DG Enterprise, MERIT 2005.

path creation. The picture of general framework for innovation action and regulatory practices is available. One should have a good will to apply it. Even if it is true in general and normative perspective, it is not true in analytical and practical terms. And indeed, case of innovation and its effective mastering can be solved without such practical provisions. Innovation is associated with sophisticated technological, regulatory and self-regulatory instruments and practices, which have not been experienced in former socialist countries. Conceptual, analytical and pragmatic issues have to be advanced in order to construct a path of possible development and orient also necessary institutional changes.

The above mentioned data about types of national innovation systems and the factors, which influence them are also giving evidence that new member countries are challenged by very country specific situations. On one hand there are even opportunities, which are offered by EU economic and social space but also visible obligations and responsibilities given by EU framework for action. On another hand different modes of social transformations—as followed in single countries—have mobilised different capabilities, expectations and forms of action. All these factors can interact in very specific way and shape country specific situations in dealing with challenges of EU, e.g. the targets of Lisboan agenda. I would like to demonstrate the complexity and ambivalence of such situation by help of specific case—business enterprise sector in the Czech republic and its position and role in transformation of national innovation system.

In the above-mentioned studies and in recent study of sources of competitiveness of domestic industry in the CR[15] it has been indicated, that in case of the CR—and due to strategy of economic reform (following the aims of the first Washington consensus)—the factors of market pull have been mobilised and, indeed, they have pulled the changes in the domestic NIS, in particular in its business enterprise sector. Industrial science has traditionally good position within domestic science and technology. BES has been always funding more than half of the total national gross expenditures on research and development and also the half of the domestic R and D capacities are located in BES. Due to privatisation of industrial research institutes the traditional links between industrial and academic science have been disrupted. In recent decade the industrial science has been recovering. Positive role has been played by a growth of economy and its technological transformations. However, the co-operative links between academic and industrial science have not be restored so far. On contrary, the NIS is suffering by weak interfaces among its segments.

The above-described pattern of path dependence of NIS, and its sectors, can be well documented by the data given in the Table 2. The Table 2 is describing the set of standard factors, the impact of which is used to assess the performance of innovating firms (methodology of EXIS).

[15] Kadeřábková, A. et al., 2006, The Competitivness Yearbook Czech Republic 2005, Analysis. CES, NTF, Prague

The position of innovating firms is assessed by six composite indicators, which are describing both the situation in BES and the interfaces to the other sectors of NIS (knowledge flows, innovative skills, innovative governance). Comparing the CR data with the EU average we can learn, how (remote, close to the average) powerful the domestic resource can be. The Table 2 is indicating that the situation of Czech innovations system is by many indicators deeply under average EU level: by indicator of diversity of enterprising and innovating firms, and by the governance capacities. The other indicators, which are dealing either with innovation resources or the way of their implementation, are already quite close to the average level. The indicators of diversity and governance are concerning rather the institutional framework and its capability to face the pressure of innovation adopts necessary changes in regulatory practices. The other indicators are describing the situation of BES in positive terms: there is demand for innovations, which is supported by comparatively good level of investment, and knowledge flows. With reference to these data one could argue, that BES has become important driver of NIS growth. However, this driving effect has low impact on the transformation of NIS, as it is suggested by low level of institutional indicators (organisational diversity and governance capacities). The above described development of domestic NIS and its BES is giving a good argument in favour of above formulated claim, that new member countries are, indeed, challenged by very specific conditions and obliged to apply an inventive approach to institutional change and path construction.

Table 2

Profile of innovating firms in the CR by EXIS methodology

Country / indicator	Diversity	Market demand	Knowledge flows	Investments	Innovative skills	Innovative governance
EU-19	0,41	0,48	0,30	0,45	0,47	0,49
Czech republic	**0,28**	0,43	0,30	0,40	•	**0,17**

Source: Arundel, A., Hollanders, H., 2005, *Innovation Strengths and Weaknesses*, European Trendchart on Innovation. Brussels, Maastricht, European Commission, DG Enterprise, MERIT 2005.

4. Institutional changes in view of studies of modern economy and society.

Crucial step in favour of better understanding the relationship between innovative power of modern societies and their institutional framework has been done by R. Hollingsworth and R. Boyer. They have studied institutional implications of innovative pressure and found out, that (i) "creative destruction" is undergoing in several levels of (capitalist) institutional setting, and (ii) each level is representing specific pattern of embedded practices, which are shaping innovations rather than being dissolved and re-shaped by innovations. Having identified diversified pattern of institutional implications accompanying innovation processes, the authors have faced a need of interpretative framework, by which they could be assessed. The authors have come to the cognitive position, which has been formulated in the introductory remark: the study of innovation, and their institutional implications, gives better picture about current societies. Yet, such picture is incomplete, if concepts of innovation-based (economic, social cultural) systems are not involved in the interpretation. Within this line of innovation studies the need of a more advanced concept of current economies and societies is urgent.

Hollingsworth has followed this way. He has summed up available data and historical findings about innovation in the concept of an ***institutional framework for innovative situations*** (and societies). In Hollingsworth's view, institutions should be studied at several levels—**(i)** the level of basic norms, rules, conventions and habits; **(ii)** the level of forms and capacities to co-ordinate, like markets, hierarchies, obligation networks, associations, the state, communities and clans; **(iii)** the level of the institutional sectors of society, like, for example, suppliers, funding sources, regulators etc.; **(iv)** the level of organisations and their structures; **(v)** the level of outputs and the performance of institutional components—their flexibility and variety. In his view the institutional analysis should proceed at each level and should identify the specific social context, rules, incentives, procedures for enforcing compliance, and measures for reducing the costs of compliance.[16] Further study of the institutional implications of innovation has stimulated him and his colleagues to suggest a theoretical approach, which would enable them to suggest different types of relations among the identified levels. The concept of ***social system of production*** has been formulated in order to understand institutional framework of current societies.[17]

Scheme 1 is supporting the above-outlined concept in graphical terms of description. The advantage of such picture-like information may rest in representation of certain complexity at one glance. Indeed, various forms of governance are available to promote innovation process but an imperative of current situation is to implement them in certain balance, even if they by their nature seem to be contradictory to each other. Of course, one could think about a universal (systemic) way of governance. Long lasting pressure of functional way of action and organisation has been even demanding such solution and offering systemic provisions to attain it. Yet, current social and cultural impact of technology and innovation cannot be governed without mobilising cognitive and self-governing capacities of cultural realm.

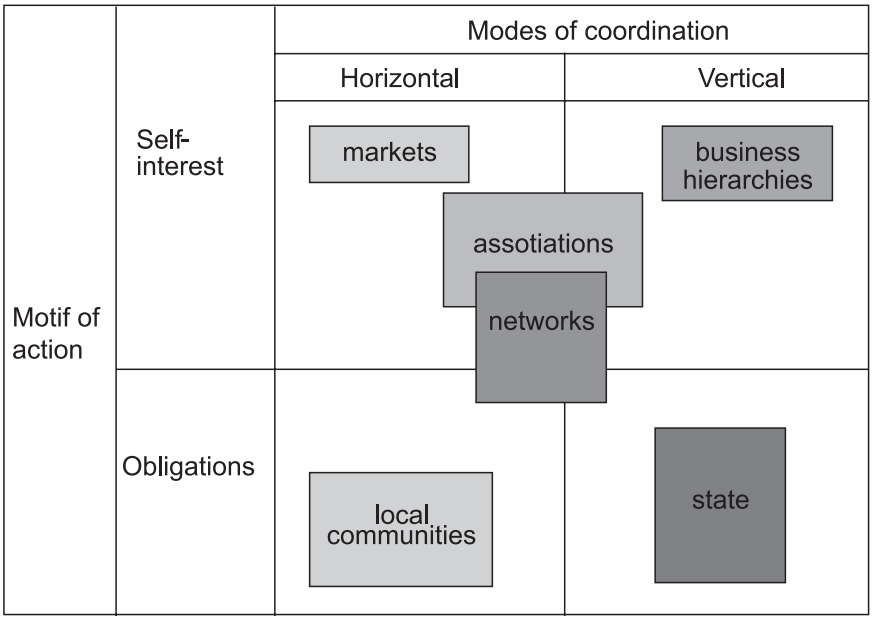
The above-mentioned conceptual contributions to the study of institutional setting of modern and innovative economies are extensively transcending a borderline of mainstream economic studies. They are coming to conclusion, that the study of institutional consequences of present innovation performance cannot be successful without a concept of a conceptual framework of economy. So far, such framework is advanced within the concept of capitalism. Here, a space for positive contribution of the other social sciences is open, since current societies exist not only because they are capitalist ones. In particular the assessment of the extensive institutional shifts in the last two decades has contributed to a better understanding the nature of institutional pattern of current modern societies. Consequently, schemes have been suggested, how productive institutional change could be described and attained. In this line I would like to draw attention to concept of ***institutional cluster of modernity***, as advanced by A. Giddens. He argues, that the current situation of modern societies cannot be understood only within the capitalist institutional dimension. Referring to the discussion about the consequences of modernity he highlights three additional institutional factors influencing modern societies: the political system with the surveillance function of state, the industrial system and the systemic control of means of violence. The interfaces among all these factors are shaping an institutional framework within which the institutional changes become feasible. He identifies also implications of their mutual interactions: emergence of post-scarcity system organised by socialised economic order, emergence of multi-layered democratic participation supported by coordinated global order transcending the surveillance of national states, emergence of demilitarisation with decline of war as mean of solution of international conflicts, and emergence of humanisation of technology supported by

[16] see closer Hollingsworth, R., 1998, *Doing Institutional Analysis*: Implications for the Study of Innovation. Mimeo, University of Wisconsin, Wisconsin.

[17] See closer Hollingsworth, J., R., Boyer, R., 1997, *Contemporary Capitalism*, The Embeddedness of Institutions, Cambridge University Press, Cambridge (UK).

system of planetary care. It should be added, that his concept counts with *diarchic nature* of modern institutions—the significance of the countervailing role of *formal* (systemic, organised) and *informal* (self-actualised, self-organised) *actions and assets*, which are important preconditions for institutional changes.[18]

Scheme I: Governance pattern and coordinating forms of modern economy



Source: Hollingsworth, J., R., Boyer, R., 1997, *Contemporary Capitalism*, The Embeddedness of Institutions, Cambridge University Press, Cambridge (UK), p. 9

The above-outlined "institutional cluster of modernity" is offering a picture of institutional framework of current societies. If it is compared with the governance pattern of modern economy (see Scheme 1) one can find out that it counts not only with markets, state and various forms of self-organisation but with additional institutional dimensions (or media of power formation and co-ordination): (i) industrial resources driven by science and technology, and (ii) control of means of violence. Yet, both concepts have also common features. They count with co-ordinating power of market and hierarchies and with countervailing power of formal and informal (diarchic) sources of power. As far as the institutional issues of modern societies are concerned one can learn interesting lesson from controversy between modernist and post-modernist interpretations of current social situation. Regardless of the other issues also the concept of institution is the point of controversy. According to post-modernist interpretation all elementary western values (like freedom, reason, reasoned public debate, identity) have been suppressed by specific institutional arrangement, which is controlling social and cultural environment. In this view the idea of diarchic nature of power and institutional setting is erroneous. There is only one source of "arché" controlling the social situation. Modernist position is e.g. followed by Giddens. He cannot accept the idea that western societies could exist "outside" the above-mentioned elementary values. The problem is that these values have become embedded in the specific institutional development, brought about

[18] Giddens, A., 1990. *Consequences of modernity*, Polity Press, Cambridge (UK)

radical changes of social environment and have, therefore, to be "evacuated" from the current institutional setting and reconstructed with the view changed social and cultural environment. Modernist approach points to the issues of ***reflexivity***, in particular institutional reflexivity to be key resource of institutional change.

Let us look at some arguments, which are formulated by modernist approach and find out, how they can advance our understanding the issues of institutional change. The significance of reflexivity in the modernist approach is stressed by the fact that some authors even suggest that the current situation should be labelled as radicalised or reflexive modernity. How to understand the knowledge, which is labelled by this term? Regardless the differences in understanding the nature of reflexivity, all presented approaches are stressing, that the modern knowledge is not source of certainty; on contrary, it is the reason of uncertainties, unintended consequences or even risks of human action. All authors are also sharing the standpoint that ***trust*** is an important precondition in functioning of modern institutions.[19] Trust should be understood also as a form of knowledge, which is invested into all possible situations, where the information about these situations is missing. The trust building is a key factor of reflexivity. But reflexivity means more. It means also that all implications, which are monitored by actor in his effort to be trustful for his environment, are reflected in his self-organising efforts and strategies of action. The current debates to the issues of trust and reflexivity give us an idea, how they are socially shaped, what forms of knowledge are mobilised in favour of their formation, in what conditions they get transformed into mistrust and feelings of generally perceived uncertainty and how their formation is influenced by different cultural background. Interpretations of reflexivity are laden with same differing points of view as the notion of trust. Do they need tacit knowledge, or personal knowledge, which is based on familiarity with persons or situations? Or are they based on trust in principles or functioning of systems? I would share the standpoint that modern societies are pushed into trajectory of latter mode of trust building and reflexivity, but they have to maintain the forms of latter sources of trust formation in order to be able to exist as human societies. In analytical term this standpoint is well described by the concept of institutional reflexivity, and accession points, which they form, in order to be trustful.[20]

Concluding this chapter I would like to refer to another study, which has followed same mission as I do in this chapter. It also argues, that advanced modes of governance of science-society cannot be developed unless we better understand the potential of institutional change of current societies. It disposes of essential advantage—it operates with knowledge, which has been accumulated in the field of social studies of science and technology. Nowotny, Scott and Gibbons have attempted to assess the available findings of modern society studies vis a vis the current concepts of knowledge (N. Stehr) or risk society (U. Beck). They construct a picture of Mode-II society, which should emerge, if innovative power of science and technology is faced and balanced with governance and cultural capabilities and expectations of human societies. In their view the following four lessons should be taken into account for re-construction of science—society interface:[21]

- Science and society interface should be reflected and constructed in their mutual transgressivity and in a co-evolutionary manner;
- Current forms of scientific knowledge have already attained a high level of social robustness;
- Scientific knowledge is influenced by a context of its growth; strong and weak forms of contextualisation of science can be identified;

[19] see Beck. U., Giddens, A., Lash, S. , 1994, *Reflexive Modernization*. Politics, Tradition and Aesthetics in the Modern Social Order. Polity Press, Cambridge UK).

[20] Giddens, A., 1990, Consequences of Modernity, Polity Press, Cambridge (UK),.

[21] Nowotny, H., Scott, P, Gibbons, 2001, Re-thinking Science. Knowledge and the Public in an Age of Uncertainty. Polity Press, Cambridge (UK).

- Key role in mediating the interface and transgressivity of science and society is played agora-like communicative platform.

The above-outlined findings seem to be crucial for the aim of this analysis. They are formulating crucial arguments, the cognitive impact of which should be taken seriously while considering the issue of institutional changes of innovation-based societies. They are also well accomplishing the foregoing discussion and encourage me to come to concluding remarks.

5. Concluding remarks

The preceding discussion has followed the assumption, that the capacities of creativity and innovation in European countries are not constrained by shortages in creative activities, innovative resources or even product and process innovation in branches of manufacturing industries and services. Many countries and their national innovation system are demonstrating very good innovation performance, which is competitive with world forefront profile of innovation performance. Many leading companies with high innovation activity are located in Europe and use European markets and their demand for innovative products, processes and services as an advantageous place for their enterprising activities. Non the less the comparison of European innovation area, its resources and performance, with established innovation areas in the USA and the growing markets in Asian countries does not give reasonable ground for optimism. There is evidence, that transformation of innovative resources into the innovation performance is lagging behind the efforts and effects, which are monitored at the western as well eastern counterparts of the European innovation area. Having in mind the driving forces of modern societies it seems that centre of global economy is getting diffused outside the European continent. Is this assessment correct? And if so, what are the reasons of lower performance of European innovation area? I will try to offer a reply to both questions with the reference to the basic methodological assumption of this text as well as arguments, which have been above-discussed within this perspective.

What findings have been gained in the line of the first part of the suggested methodological assumption—the assumption, that the study of innovation systems may help in our understanding the essential (formative) factors of modern societies? The key contribution has been made by concept of national innovation system and the empirical findings, which have been collected to support it. Systemic approach to innovation has been important since it has indicated its complexity as well as bounded ness of its factors. The data about the surveyed national systems have documented, how systemic pattern has been attained, what common features as well as country specific ones have been mobilised to promote the growth of the national innovation systems. Important conceptual step has been made by advancement of national innovation system to its interactive pattern: one demanded not only the systemic coherence of its elements but also their mutual interactivity. The new conceptual approach has also found support in advanced set of indicators and empirical data. The brief look at the methodological arrangement of EIS 2005 is well documenting that not only the indicators of stocks (structural resources) but also the indicators of dynamic and growing areas and areas of interactivity are taken into account. Similar initiative has been suggested by EXIS methodology: it claims, that better insight into situation of innovation actors should be developed and for this reason new set of indicators has been applied. The suggested indicators are monitoring growing innovation-based localities, the interfaces among innovation activities and qualitative innovation resources. Their message is interesting: the key drivers of innovating firms are their capabilities to make use of diversified and advanced resources and opportunities, and at the same time they are able to advance their governance capacities. There is empirical evidence that according to this indication the EU countries could be distributed to well shaped (and different) types. By this indication also the gap between traditional and new

EU countries is well described. The concept of learning firm and economy has drawn lesson from these new findings: the innovating actors are not only mutually ***bounded*** into a systemic way but they are also ***embedded*** into social situations (way of organisation, way of communications, local setting of interest groups). So, the interactivity and growth of national innovation system seems to be conditioned by links to its internal and external social environment and the way, how these links are reflected and learnt.

Let us now turn to second part of the formulated assumption—the assumption that concepts of modern economy and society can contribute to our understanding the ways, how national innovation systems are socially constrained and promoted. Three macro-social concepts have been picked up to discus the issue: the institutional concept of capitalism, concepts of modernity and concept of mode-II society as proposed by the authors from field of social studies of science and technology. The chosen concepts belong to different fields of social sciences. One should not be, therefore, surprised, that their methodological and vocabularies are different. The above-presented discussion has attempted to identify certain line of problem formulation and arguments, which are common for all of them. The innovation concept of J. Schumpeter has been laid as the starting point of this line: his notion of creative destruction and "Zeitgeist" are well pointing to dynamic and stabilising factors of innovation based economy. That said, one has to explain, how the destructive and constrictive sides are related to each other, and even more, how it can be attained in the situation of functional differentiation and complexity of current economies and societies. While drawing attention to the issues of knowledge, institution, governance or forms of co-ordination and reflexivity it was possible to find out that these issues have been usually interpreted in ambivalent forms of appearance.[22] However, all the discussed concepts are counting with diverse, and essentially dual, sources of innovative power but at the same time they are stressing co-evolution, co-habitation and complementarity of these sources. Here, an important question should be asked: how co-ordination of diversified and ambivalent resources is guided or governed? Is there certain "Zeitgeist" to do it? Or are there other options? In this point one can identify quite essential differences among the discussed concepts. In the sociological perspective one counts with unintended consequences and uncertainty of action, which can be counterbalanced by general and intensive reflexivity and trust formation. In economic studies of innovation one still counts with balancing the countervailing forces (self-interest and obligation, competition and co-ordination, market and hierarchies).

The above-outlined discussion has explained that innovation system, which is driven by competitive markets and the aim of economic growth, is challenged by urgency of institutional change. In case of European innovation area the institutional change is undergoing in an environment of diversity, which has been shaped historically. Such situation is advantageous for a growth of creative and innovative action; it supports the efforts of self-organisation and bottom-up activities; it also helps better face uncertainties of future. On the other hand it makes the institutional change more difficult to be started and carried out. The preceding discussion has formulated the issues, which have to be taken into account while studying and supporting institutional changes: reflexivity, which is an important instrument of dis-embedding from overdue practices; mobilisation of all available forms of social co-ordination and governance; inclusion of the whole set functional social sub-systems (see the concepts of institutional cluster of modernity) into the debate about governance framework. How can be all these issues discussed and related to each other. There is no other way than to revive the arenas and means of public political discussion—agora-like communicative platform as has been claimed by the above-mentioned authors.

[22] Let us mention some examples of such dualities: expert versus practical knowledge, formal versus informal forms of organisation, markets versus hierarchies, reflexivity versus reflection.

DIMITRIS KYRIAKOU

PROSPECTIVE TECHNOECONOMIC ANALYSIS: COMPETITION AND CREATIVITY*

There is an old quip about philosophers being people who are searching for a black cat in a dark room. Prospective analysis is a similarly straightforward sort of exercise, only the cat has not entered the room yet.

Pessimistic quips aside, it is instructive to explore the potential impacts of technoeconomic developments, especially in an inexorably competitive global environment, where innovation is pursued with existential angst, and where science & technology (S/T) can be seen sitting squarely at the intersection of our most persistent preoccupations: employment and competitiveness in a world of ever spiralling competition, sustainability in a world of finite resources.

It is precisely in the context of competition intensification that technoeconomic developments should be situated, and where the exploration of their impact should be anchored. Competition-spirals are driven by three engines: first, the prevalence of the dominant economic paradigm, which calls for competition-enhancing regulation/deregulation; second, the S/T advances that continue to reduce extra-legal barriers to trade and to market entry (such as transportation costs, information costs, cultural distance, etc.); third, international legal/institutional frameworks, which seal the changes set in motion by S/T and by deregulation drives, but also provide a guiding framework for further changes.

The western economic system is the result of a 'softening' of the liberal capitalism of the XIX century, a 'softening' whose roots can be traced to universal suffrage and to the emergence of the warfare state during World War I. With the Great Depression in the role of the midwife, the warfare state gave birth to the welfare state in the thirties. The post-World War II economic system, was sketched out at the Bretton Woods conference in 1944. The so-called Bretton Woods system attempted to resolve the tension between on the one hand autonomy for domestic economic policy, needed to alleviate recessionary pains, and on the other hand the desire for international financial stability, which would facilitate economic openness, discouraging the beggar-thy-neighbour policies that were seen as an accelerator/propagator of the 1930s depression.

The compromise reached, the so-called compromise of 'embedded liberalism' achieved its goals as long as the domestic economy was sufficiently isolated from the rest of the world. Technological and organizational innovations however led to increasing international flows, undermining the insulation of the domestic economy, as well as the various exchange rate systems that were set up to strike a golden medium between fixed and flexible exchange rate systems, in increasingly competitive environments.

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* The opinions expressed herein are strictly personal and do not necessarily reflect those of the author's employer

Ever since the fall of the Bretton Woods system, liberalization drives (e.g. in financial markets in the 70s in the US and since the 80s in Europe), have sealed the gradual undermining of a state's insulation to external economic events. In practical terms, the global dimensions which competition attains are not only a blow to a state's narcissistic confidence in its sovereignty, they also signal the need for mobility and adaptability, in order to address unemployment, thus putting education, S/T and human capital at centrestage.

Global competition implies that developed states would be hard-pressed to compete with the developing world in traditional industries. Furthermore, developed and middle income states should not want to focus on highly competitive, commoditized industries, where profits are not easily sustainable, where they cannot exploit their comparative advantage in S/T and human capital.

Prospective analysis helps us understand the role S/T can play, by having a central part in adaptability-enhancing education and human capital formation; by alleviating environmental burdens, both through helping us to understand the stakes and devise solutions, and through its engine-of-growth role, allowing us to afford these often expensive solutions; and by facilitating the pursuit of the holy grail of our time: innovation.

Innovation

We live in a world that delights in novelty and innovation, celebrates its manifestations in the present environment, an environment which, in turn, is anointed as profoundly innovative—in quite a self-referential, self-reverential way.

This welcoming of innovation comes with a twist: the litany of and on innovation, novelty and in the final analysis of hope for something fresh and enlighteningly engaging is shakily predicated on a strong undertow of scepticism.

Novelty's shadows invariably take the form of fear; fear of the future consequences novelties may set in motion, the spectre of instability, of precariousness, of loss of control. They also take the form of yearning for a time—largely imaginary—in which control was within our grasp.

In other words, the rhetoric of innovation, which still holds strong, even as an echo of its nineteenth and twentieth century precursors, is couched paradoxically in a strong questioning/crisis of utopia(s); not of any single utopia in particular, but of utopias as relevant —even if unreachable- guiding lights for improving the state of the world.

There have been few eras as profoundly convinced that there is nothing new under the sun as ours. Our societies are driven by a rhetoric of the future, in which however they seem to place little trust.

Observations of the more day-to-day aspects of our lives give ample anecdotal evidence for this reticence towards new holistic/programmatic views. It can be seen in the continuous conscious—and loudly self-conscious—re-visiting of schools/approaches in the arts, the barrage of retro-styles, succeeding one another in predictable and even pre-announced order (often by decade, the fifties revisited before the sixties, then the seventies, etc). It can be seen in its finding a home, and an intellectual umbrella under post-modernist de-construction of modernist, universal, holistic agendas, and the promotion of fragmentary, nostalgically pre-modern, and proudly non-programmatic, non-holistic approaches.

Innovation seems to be often reduced to cyclical (and nostalgia-mongering) repackaging, echoing sceptical premonitions present in many languages/cultures: from Di Lampedusa's 'everything has to change so that all stays the same', to the French proverbial 'Plus ça change...'

This repackaged, rhetoricised concept of innovation reflects then the underlying belief that nothing profoundly fresh and galvanisingly enlightening is in store. Quite ironically then, the

future is simply the present, fully unfolded; just as the past in medieval times was conceived simply as the natural extension of the past. In both cases what follows is quite unchangeably an extension of what came before it.

This future-tense conservatism is, by the way, not unique to affluent, atomised and self-absorbed societies—most radical movements preaching breakthrough and change, became future-tense conservative when they came to dominate (in politics, arts, science, etc): it is hard to preach continuous change/breakthroughs when your brand is running the show.

It is time to disentangle novelty from innovation. True innovation is truly difficult and uncommon. Not for nothing, areas as diverse as management manuals, romantic diatribes, and motivational speeches are full of clichés. Novelty is what we usually get, even though it is dressed up as innovation; i.e. rehashed food on new plates.

Novelty is what the sceptical public expects; true innovation is what it hopes for—though it knows the probability of true innovation is extremely low. To be pleasantly surprised beyond reasonable expectations is what hope translates to. And it survives, because the Fukuyamanesque announcements of the End-of-History-is-Here have proved premature—and even Fukuyama is distancing himself from his early-nineties bombastic proclamations.

There are differences between novelties and innovations in micro as well as macro terms, and there are differences between the rhetoric of paying lip-service to innovation, the end-of-history narrative and the seeds and promise of breakthroughs (technoeconomic and otherwise) and their implications.

There is no strategy to generate guaranteed innovation. This quite self-evident notion becomes of fundamental practical importance in at least two settings: competition at the level of individual economic entities or—as is fashionable to discuss it in the last couple of decades, among countries; and competition between human beings and machines (robots included) for jobs. Two related important concepts come to the fore in a prospective analysis: creativity and competitiveness.

Creativity and competitiveness in a prospective view

Starting with creativity, and to put it in terms of the common denominator behind many policy concerns and initiatives, i.e. growth and jobs, creativity and its irreducibility to pre-programmed algorithms can:

1) save jobs, incomes and growth when competing with economic entities facing lower cost schedules (in terms of labour, raw materials, but even capital);

2) make it hard for machines (robots) to take over those jobs requiring at least a modicum of creativity (from white-collar corporate planning to blue-collar gardening)

With respect to employment and growth, S/T can help raise income and employment through promoting new products/markets, shaping dynamic comparative advantage in desirable directions. It can also endow workers with the skills leading to well-paid and meaningful jobs.

Our persistent (un)employment problems in many European countries reflect the fact that technical progress has been 'unskilled-labour saving' to an extent that was not matched by the progress of education. Beyond the skilled—unskilled dichotomy, there is the short term–long term juxtaposition: in the short term technical progress may destroy jobs but the increase in productivity and in disposable income leads to increases in effective demand and eventually to the creation of new jobs—though the adjustment and transition would not be painless. S/T can help in all these areas.

An emphasis on education, and S/T in particular, can prepare a technologically literate population that will adapt better to rapidly changing environments (technologically and otherwise).

What many firms may very well need is not the specialist low-or mid-level white collar worker but rather intelligent, literate and numerate people who can be flexibly assigned to tasks according to need, and who can learn fast. Moreover, targeted innovation can overcome obstacles to the speedier reaping of the rewards of increased productivity; finally, socially sustainable allocations of these gains can help cushion the transition process.

To return to the point about the creativity content of jobs, the vulnerable jobs are those which require skills easily learned, by either human competitors or machines. Regarding specifically the impact of infotechnology however, the critical dichotomy however is not between skilled—unskilled but rather between repetitive and computer-reducible tasks, vs. creative, 'irreducible' activities.

The counterpart of creativity's role at the micro-level is its impact on competitiveness at the macro-level. First, in the sense of creative/smart policy- which we will leave for the end of this paper; second, as a factor in helping larger economic entities compete more effectively. As mentioned above, developed countries should not want to focus on highly competitive, labour-intensive, commoditized industries, where profits are not easily sustainable, where they cannot exploit their comparative advantage in S/T and human capital.

Forward-looking recasting of competitiveness: attractive societies

Competitiveness is a 'fuzzy' concept and not often clearly defined . It has been used in as synonymous to profitability, to market share, to trade surpluses, to high-value-added exports, to high wages, etc. The above, although potentially useful indicators in individual contexts, do not suffice for a notion that should extend beyond fleeting snapshot statistics, and should reflect both rising incomes as well as the performance of economic entities in world markets.

We posit competitiveness as a measure of a society's ability to allow economic entities of all sizes, to foster increasingly coveted skills, capacities and products which are differentiated, hard to reverse-engineer, and are handsomely rewarded in world markets. Key for success in this sense is the ability to attract the capital (human and otherwise) to generate and nurture economic entities which can compete successfully worldwide on a social fabric which can adaptively absorb the social tensions bound to emerge as demand shifts, skills need updating and adjustment is often inevitable.

Note that in this formulation the role of the social fabric is key. Unlike older formulations competitiveness is not sacrificed in order to reduce social tensions. Rather competitiveness in the longer run needs social environments which can draw capital—the old-fashioned type, as well as the increasingly more important human type—through the creation of attractive societies.

To put it in a nutshell: competitiveness marks societies which generate and nurture economic entities (from individual to large firms) which can flourish and perform successfully in world markets, and to which human (and other forms of) capital is attracted. Competitiveness implies attractive societies in which to live, work and invest—note that this differs (in its wider economic scope and in its emphasis on the social fabric) than Florida's emphasis on the 'creative class' (Florida, 2003, 2005).

The pillars of the argument are the continuing shift in western societies towards the services—including activities/jobs which did not even exist 20 or even 10 years ago—and the speed and impact of technological change.

As globalization allows more and more countries to compete with western countries on the latter's traditional turf, at lower wages, and adopting standard technology fast, the way for western countries is to escape forward. This implies an emphasis on continuous technological advance, upgrading of workers' skills all along the skill ladder, a shift away from increasingly

commoditised industries, and towards services which are intensive in human capital, i.e. in the factor of production in relative abundance in western countries, and Europe in particular.

The second pillar of the argument is technological change, which reduces what we call availability/marketability costs, which include transport costs, communication costs, the costs of overcoming cultural barriers, of convincingly marketing products, of setting-up shop, of having access to, and allocating factors of production. Once this pillar is in place the picture becomes to emerge: high growth activities in terms of jobs, wages, profits, tax receipts, etc. are very often human-capital intensive activities (typically services).

On the one hand, thanks to new technologies, start-up firms can emerge, or existing firms can adopt management paradigms, in a way that will allow them to become more competitive, and can geographically spread their operations location-wise in the way that is most efficient for them. With availability/marketability costs driven down, and as human capital becomes the key driver, where human capital locates will be a key determinant of the location of economic activity (and therefore of jobs, incomes, tax receipts, etc.); ergo the importance of attractive societies.

Note that in Europe this process goes hand-in-hand with integration and monetary unification. The EMU reduces the availability/marketability costs, facilitating the aforementioned process (which will make EU firms more competitive and the Union more cohesive, promoting catching up by lagging regions). At the same time this process can shield cohesion and make EU economies more similar among themselves—and less vulnerable to asymmetric shocks. The reason is that in a monetary union countries may find it difficult to deal with asymmetric shocks, shocks which do not affect similarly all members of the EU, and which may call for different responses in different countries. Before EMU countries could in principle resort to exchange rate changes to deal with transitory shocks, and to monetary policy to alleviate recessions. After EMU countries must find other ways to deal with diverging unemployment, with business cycles which are not synchronous, with economic problems originating inside a country, etc. Making economies more similar among themselves, through reversing geographic concentration patterns, can make such asymmetric situations less likely to strain the monetary union.

As a consequence of the above, at least in Europe, the agglomeration trend may well be reversed as integration drives marketability costs towards zero. Human capital's movement towards the most 'attractive societies' will determine the location of economic activity.

There are several factors that can be critical for the success of this process—effectively by raising the attractiveness of a place for living, working and investing. These include well-functioning public services (e.g health, education), infrastructure (e.g infotelecommunications and transport), and environmental protection, access to inexpensive finance, flexible labour and, even more importantly, product markets, and the well-balanced system of protection of intellectual property rights, which becomes increasingly crucial when more and more of total income comes from human-capital, gray-matter intensive activities whose product is notoriously easy to steal/reproduce.

Beyond the above, what will be critical is a pool of skills which is not only strong, but also features high adaptability, i.e. people who have learned how to learn, and have the foundations to indulge in life-long learning, not as a pastime, but rather as a necessity. These skills have to emphatically include entrepreneurship, not machine-like obedience but rather visionary initiative.

Due to these forces countries should gradually move away from approaches in which ex-ante social positions count more than outcomes/results, and where family names and lineage still have exorbitant weight vis-à-vis merit. In order to be competitive in the emerging knowledge society one must relegate to the museum the *ancien regime* and its vestiges.

It used to be the case that we saw attractiveness of societies and competitiveness of their economic entities as opposite poles, between which one had to choose. We are suggesting that

adopting a forward-looking, technology-informed view, the two may well turn out to be long-lost Siamese twins.

S/T and convergence in monetary unions

We said above that members in a monetary union, having given up the monetary policy and exchange rate policy instruments, and having accepted substantial limitations to their use of fiscal policy (e.g. budget deficit limits) must find other ways to deal with diverging unemployment, with business cycles which are not synchronous, with economic problems originating inside a country, and more generally with asymmetric shocks.

In principle, increasing integration can be associated with future specialisation for each country in the activities in which it enjoys a comparative advantage. In an uncertain world this renders the country more vulnerable to stochastic, country-specific shocks, as it loses the cushion of a wide spectrum of diverse productive activity. Since the EU is supposed to move increasingly towards further integration, let us use a highly simplifying example at the country level.

Suppose that within Spain adverse climatic conditions may hurt the wine industry. To continue with our highly stylized exposition this will affect mostly the Rioja region, which in this hypothetical example of intra-Spain division of labour has specialised in wine-production. Before free trade and political union among Spanish regions, Rioja had to be more self-sufficient, inefficiently undertaking a wide spectrum of productive activity. At that time fluctuations in rainfall and the concomitant adverse effect on wine quality would not have a detrimental effect on the welfare of its inhabitants. The absence of productive diversity in post-specialisation Rioja renders it more vulnerable to such stochastic shocks (ephemeral demand fads, climatic patterns, etc.).

The role of the cushion, of the shield against unwelcome fluctuations in the income of Riojans is played now by a large central government budget (greater than 30% of GDP for most western countries), which provides fiscal transfers, helping adversely hit areas to shoulder the burden of adjustment to shocks. The EU Commission budget is too small ($\sim$1% of the cumulative GDP of all member states) to play such a cushioning role within the EU.

The above sounds rather oversimplifying; indeed it is. There is another way in which a country can deal with a temporary adverse shock, a way not available to Rioja, or to any region within a country. A sovereign country can allow its currency to depreciate enough to preserve its products' attractiveness (i.e. to avoid being priced out of competitive markets). It can thus continue to afford to purchase, albeit in reduced quantities, the commodities it needs to import in order to prevent a drastic drop in its citizens' welfare. Monetary union however implies forgoing recourse to exchange rate policies; hence EU member states may find themselves in a predicament similar to the one faced by Rioja in the stylized scenario presented above. In the case of the EU however, member states will have to make do without the cushion of a large central tax-and-transfer system. Note furthermore that borrowing in the capital markets is also restricted due to EU ceilings on deficit spending and debt accumulation, as well as due to the exigencies of common monetary policy.

Should we adopt such a pessimistic attitude in our prospective analyses? Is there a way out of this seeming cul-de-sac? There are at least two ways. Briefly, the first approach promotes post-specialisation financial diversification as a substitute for the real diversity which existed in the pre-specialisation production structure of the economy. In other words fully integrated asset markets and diversified portfolia will replace real diversity in the production structure.

The second approach promotes convergence for lagging regions not only in terms of performance but also in terms of production structure (i.e. negating or countering specialisation), so that asymmetric shocks become less probable to begin with. If shocks—due to such congruence

among the economies of member states—have symmetric effects throughout the EU, the design of a common monetary policy to deal with adverse shocks will be facilitated. This would mitigate the effects of the lack of independence for national monetary policies in member states due to monetary union.

This provides a monetary-union-based prospective view of the importance of S/T in promoting convergence, allowing less-favoured regions to catch up, and explore the dynamic character of comparative advantage, in order to overcome the confines of their prima vista indicated specialisations.

Shaping comparative advantage and path creation

Finland is the standard example of a country which has in a few years reshaped its comparative advantage and moved from a natural resource intensive economy to a knowledge based economy (Schienstock, 2006). It was spurred by the large economic crisis of the early 90s; by the demise of the Soviet Union, in which Finnish industry had had a steady client; by certain organisational/social attributes of traditional Finnish industries (e.g. the role of small landowners in the forest industry); and by the emergence of new (no-clear-incumbent) rapidly growing markets in mobile telephony worldwide, due to the emergence of the GSM standard, and telecoms liberalisation programmes in many countries.

Perhaps more importantly however, it was enabled by policies friendly to this new emphasis on knowledge-based industries (already beginning in the eighties after the second oil crisis), of path-breaking executives with bold plans and ideas (e.g. regarding financing through stock markets), the central role of a large player as NOKIA, institutional adaptation to the changing times, and the provision by policymakers of a framework (in terms of education, science parks, seed capital, R&D spending, etc) conducive to innovation in knowledge-driven industries.

By way of example, the government-founded technology Development Centre (TEKES) helped Nokia with its funding to develop its GSM technology early on.

The key point here is that although objective factors (e.g. the early nineties crisis, the demise of the Soviet Union, etc) played an important role, decisions left at the discretion of policymakers were crucial for creating a new knowledge-based path for the Finnish economy—instead of defending its traditional declining industries.

The example of Finland is a very hopeful, glamorous and celebrated one; there are however lesser known efforts in other countries, e.g. in the recent entrants in the EU, which also move along the lines of exploring the role of S/T in shaping comparative advantage and new path creation. Examples include the creation of public private partnerships—e.g. in the form of competence centres—wherein the strengths and interests of scientific communities are wedded to needs/interests of firms in the corresponding sectors, with the state providing initial funding and setting/guaranteeing the rules of these interactions, the external evaluation processes, intellectual property rights, etc.

Along the same lines, there are efforts to target public funding of research activities and not spread it thin over a large number of areas, using as a joint criterion promising performance in scientific areas which can feed into promising economic activities.

We should stress that these approaches should not try to 'pick winners' among firms and researchers; nor 'fine-tune' research as if one were an omniscient academic advisor. They should help focus the limited resources earmarked for research in ways that can galvanise it towards producing tangible economic benefit, and engages the private sector in a bottom-up process, in identifying specific topics and in co-funding research on them.

In any implementation a parameter that should be checked often is the targets/programmes—perhaps similar—adopted by other countries, neighbouring or not, facing similar choices, and the impact they may have on own programmes. The impact is not obvious a priori; identifying it will require empirical work and monitoring. This is because there are forces working in opposite directions in this case: on the one hand similar targeting by neighbours will compete for scarce capital (human and otherwise) as well as scientific recognition. On the other hand however, spillovers (scientific and otherwise) from the research financed by neighbours may very well benefit own programmes.

This brings to the fore more general horizontal issues regarding specialisation processes. There is a tendency for increased competition, often leading to the parallel establishment of highly overlapping institutional settings within neighbouring regions/countries and sub-optimal duplication of support efforts. To avoid the disadvantage of setting up specific facilities or developing expertise, which could also be available in a neighbouring region, co-ordination of support efforts seems useful. It is important to put emphasis on co-operation and learning. Incentives are necessary to initiate the sharing of support institutions and to stimulate networking among support organisations such as universities and research institutes. In addition, the formation of regional partnerships could increase the leverage of innovation policy.

In pondering creative policy approaches towards shaping comparative advantage and path creation, we should also take into account that in regional development terms and in the European context, S/T can play a catalytic role. S/T (e.g. through its role in path creation) is one of the few ways amenable to discretionary policy, through which less favoured regions of the EU can leap-frog stages of capitalist development (loosely understood and utilised for lack of a better term), converge with their richer partners, and shield the EU from shocks with asymmetric economic effects to the economies of EU member states. For the less favoured regions of the EU regional development can come through focusing on their advantages, using S/T to maximally exploit such advantages, as well as to forge in desirable (and feasible) directions comparative advantages, which are often of a dynamic character, not necessarily blindly imitating their wealthier partners. Less favoured regions have the advantage of the latecomer: not only they can learn from the mistakes of the pioneers, they also have no large sunk costs and vested interests to drag them down and slow down their adoption of new technologies—especially when the latter are of a revolutionary nature, as the case of Finland shows.

This highlights the prospective possibility of exploring the dynamic character of comparative advantage, in order to overcome the confines of the prima vista indicated specialisations of less-favoured regions. If it is too late for them to meet richer partners at a capital intensive stage of development, maybe they can reach them, at a S/T, human-capital intensive one.

The silent scepticism that meets such suggestions reverberates across auditoria and laboratories with an ear-piercing echo. However, those who lament the dire predicament of less favoured regions or states and believe such optimistic transformations to be impossible, should pause to take notice of the reference in World Bank's 1991 World Development volume (p.14), to a 50+ years-old prime-ministerial report from a developing country. That prime-ministerial report claimed that in that country workers' productivity had fallen, that productive jobs were shunned, that wages were too high, that the country's enterprises were inefficient and heavily subsidized. The country, the authoritative report stated, had priced itself out of the world markets and was facing acute competition. It would be the last opportunity, concluded the prime minister, to see if the country can stand on its own two feet or be a burden for the rest of the world. That country was Japan...

Discussion

In closing, prospective technoeconomic analysis is as difficult as it is necessary. It is necessary because it elucidates the ways S/T can ultimately help negotiate or even overcome hard dilemmas/tradeoffs as we saw above—e.g. in recasting competitiveness, or in path-creation policies, or in dealing with asymmetric shocks in monetary unions. Also as we saw above in looking forward it can identify the key aspects, below the ornamentation, in convoluted issues, such as competitiveness, and employment implications.

It is difficult because the tendency to be limited by current constraints in thinking about the future, and to simply extrapolate from the present, is simply too strong.

History is rife with cases of projections/statements made by extremely successful entrepreneurs (and scientists), which proved far off the mark, to put it mildly: from Ken Olson's (president, chairman and founder of Digital Equipment Corporation) questioning in the late 70s why would anyone want to have a computer at home, to Lord Kelvin's declaring in the 1890s the implausibity of heavier-than-air flying machines, to IBM chairman Thomas Watson predicting in the 1940s a world market for 4–5 computers.

S/T challenges our assumptions on what is possible, but also tests our views on what is desirable. The speed of S/T developments also makes it hard to keep any thing constant in any analysis of the situation. It is enough to remind ourselves of convergence technologies in infotelecoms, of ubiquitous computing, and of the recent developments in molecular biology, the cloning of mammals (science fiction material until a few years ago), and the faster-than-expected mapping and sequencing of the human genome.

S/T is present in a series of hard trade-offs: competition enhances efficiency and overall income, but may generate large pockets of unemployment and disturbingly differential gains; protectionism can constrain employment losses in the short run but also total social welfare in the medium run; growth pays for environmental restoration but reckless growth may undermine its own backbone, natural and human capital; a heavy emphasis on efficiency and competition undermines equality but too heavy an emphasis on equality may undermine incentives for innovation and growth.

S/T figures prominently in any plan to escape these dilemmas/trade-offs. S/T can find new ways to wed sustainability and growth. S/T accounts for the most important part of growth, namely the part not attributable to mere labour and capital accumulation. It is thus S/T and organisational innovation that is responsible for enlarging the economic pie, for promoting positive sum games over zero-sum games, which exacerbate conflict.

In practical terms this discussion is related to the analysis of economic institutions which affect the development/exploitation paths for different sorts of technologies, and more importantly perhaps, in this context, the ability of countries/regions to shift into new areas of economic activity. An example could be the contrast between Germany and the US. Arguably, for traditional engineering (and related industries) to flourish, certain types of institutional settings are required, promoting collaborative work, the embodiment of learning-by-doing in labour, etc. This dictates certain types of institutions (e.g. laws against poaching labour) in order to facilitate the operation of such industries, the build-up of human capital in-house, etc. This contrasts with other industries, such as information-based industries, where individuals can have good ideas that can be developed independently. In this latter case one needs very flexible institutions that enable people to leave companies and set-up their own new firms. In this light Germany has developed institutions that have nurtured its comparative advantage in engineering, while the US has developed institutions supportive of its comparative advantage in information technology (IT) industries. This pattern may well have been further entrenched in the eighties and nineties, as trade has been increasingly

liberalised. Economic institutions suitable to one or the other type of industry, if inflexible, can make it harder for countries/regions to adapt to technical change, especially if the latter shifts emphasis (and profits) away from the type of industry for which these institutions have been traditionally very supportive.

This underscores an important point: prospective analysis of S/T must entail a thinking through of S/T developments and their implications, so that we can foster the kinds of institutions and incentives that will help us make the most of S/T change. The goal would be to endow the economy with the incentives and institutions to do that as a matter of course, and not need to rely to ad hoc re-active measures.

Prospective technoeconomic analysis can facilitate the emergence of common platforms for policy making, helping Europe to define and frame the great debates, instead of reflecting the ideas of others (countries, organizations, etc.). It can thus help set the stage for consensus-building, for responding to challenges in a pro-active way, understanding and anticipating change, instead of exorcising it, opting for a state of prospective alert over a state of introspective denial.

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BOGUSŁAW SKUZA

CREATIVITY AND INNOVATION AS CHALLENGE FOR THE EUROPEAN CORPORATIONS

I. Introduction

"Let us not follow where the path may lead, let us go instead where there is no path, and leave a trail"

This old Chinese saying was the most favorite among senior management of Skandia in the era of 1990's.

It all started with decision to leave all traditional lines of business of almost 140 years old insurance company to explore new market opportunities. Decision taken at adverse market condition, under pressure of time and capital markets to secure company survival for next generations.

Heavy financial losses resulting from unfavorable market developments of property insurance and reinsurance in late 1980's and beginning of 1990's forced Skandia to critical decision making process of evaluating its business model sustainability. Bankruptcy or prosperity were at stake. Only new creative approach to very old fashion business of insurance could turn the wheel of fortune of the company.

Understanding current weaknesses, foreseeing future opportunities, translating actions into added values, communicating changes to stakeholders, gaining employees commitment and contribution, securing customers satisfaction were the key ingredients of the successful transformation.

Important part of the transformation process was dedicated to creation of new model of company valuation which would allow to reflect in much more accurate way all tangible and intangible assets of the company. What is the value of the company relationship with customers? How much of company value is driven from its market partnerships and strategic alliances? Does the company culture affects its market valuation? How do we account for employees commitment and contribution? Is group knowledge and intellectual capital included into valuation process? How the past experience affects current and future valuation of the company ? How much of market value results from research and development process? Is information technology driving or supporting business development? How much of company success depends on new products and ability to develop market demand? Those and many more questions needed detailed analysis in all level of company operation and beyond.

In 1995 Skandia presented to financial markets its Intellectual Capital Report, prepared by world's first Director of Intellectual Capital Professor Leif Edvinsson . That report brought company to the next curve of its development. Capital markets captured Skandia's innovative way of communication its market capitalization and allow premium price in company valuation process. That was just the beginning.

New business model and its operational implementation on international scale required new set of talents and skills. Traditional values of old insurance industry were no longer sufficient to challenge and explore market opportunities.

Red Ocean[1] was no longer a place for Skandia. *Blue Ocean* was tempting with its unlimited opportunities and unknown discoveries. But the journey to *Blue Ocean* was long and full of unexpected turnarounds and painful mistakes.

By year 2000 Skandia was the biggest provider of investment and saving products and solutions in the world. With its gross annual premium in excess of 15 bn US dollars Skandia left far behind the competition of much stronger and bigger players of insurance and banking industries. Success was in the air for many months and company planned for its next developments on global scene.

September 11^{th} , 2001 terrorist's attack on Twin Towers of World Trade Center in New York and its global consequences created yet a new dramatic business and social environment for Skandia. Collapse of all financial markets, huge losses of insurance industries, loss of confidence by individual customers, corporate investors and whole nations pushed Skandia's market value down by 95% from its 2000 level. Again company's *be or not to be* was at stake.

Skandia saga continued during the following years. Corporate scandals with senior management, open and very intensive public criticism , management crises , criminal charges and hostile takeovers rumors were daily facts in company live till February 2006.

Despite all those adverse events and developments Skandia survived. Its business model survived. Today Skandia still is the premium brand and leading provider of innovative investment solution in Europe. Skandia is the leader of innovation in product development and information technology support. Skandia is the master of open architecture in all major European markets.

Innovativeness and creativity were and still are the key components to company survival and current success. Free minds and spirits of Skandia's employees were supported by company culture and courage to create new ideas for company life. Learning process was allowed to built what is today a solid block of high performing, operating units which are sharing and maximizing its knowledge and intellectual capital. Again and again those employees and those operating companies have proven that innovativeness is the core part of human being. Creativity is given to all irrespectively of their sex, culture, education, social or work position. Creativity comes in bad and good times as threats and constrains are translated into opportunities and objectives. Skandia is the creative and innovative place in which company success comes with success of its employees.

II. The Story

The Pioneer Company. On November 20th, 1854 , an invitation was issued to purchase shares of the insurance company Skandia. It began with the following words:

[1] W.Chan Kim, Renée Mauborgne "Blue Ocean Startegy" Harvard Business School Press, 2005

"The absence of the domestic institution offering life insurance as well as insurance against fire damage without consideration of certain locations or certain types of property has long been acknowledged and requested."

The proclamation received broad support of 91 members of the establishment and on January 12th, 1855 Skandia was granted a concession by King Oscar I. Skandia's name is a Swedicizied spelling of Scandia, the Latin name for Scandinavia. It was also given after the same proud name as Sweden's first iron steamboat .

The new company was a pioneer in many respects. It was the first Swedish insurance company that operated as a limited company. Earlier insurance companies were of the mutual variety, owned entirely by the insured parties. Skandia was also the first Swedish limited company to offer life insurance policies.

From the very beginning Skandia aimed at the international markets. One quarter of the shares were issued in Norway, Finland and Denmark. Shortly thereafter branches were opened in these Nordic countries as well as in St. Petersburg, Hamburg and Rotterdam. The company first claim was in 1855 for a fire in the Norwegian city of Bergen.

Skandia was established as industrial revolution swept through the Nordic region with its beginning in the opening of a steam sawmill outside of Sundsvall in 1849. Few years later in 1855 Sweden's first railway tracks were laid in and official weights, measures and coins were replaced by decimal system we know today. Many companies with valuable assets were also founded in this period, which created a growing market for business insurance. In pace with the growing prosperity , the market for life insurance also increased.

Skandia was the first Swedish company that was able to meet insurance needs emerging from industrialism. Previously only foreign companies were active in that market. Operating as a limited company Skandia found it easier than the mutual insurance companies to raise capital.

This made it possible to establish a strong presence on insurance market with wide geographical reach. Furthermore , as a limited company , Skandia had also ability to re-insure itself. This allowed company to assume much larger risks, which would be required in the future.

Through the years , like many other insurance companies, Skandia has been placed under high stress and many tests of its financial ability to meet market promise. Claims were paid for wide-spread fires, natural disasters, property crises and stock market crashes. At the same time Skandia went through internal company strife.

However Skandia survived and continues to develop. Till June 2006 Skandia was the only active, modern company that was part of the initial day of trading of Stockholm Stock Exchange on February 4th, 1863.

The first 100 years. On June 25th, 1888 the Swedish cities of Sundsvall and Umea were ravaged by fires, which resulted in large claim payments for Skandia. The stately stone city in Sundsvall that was quickly built after the fire reminds us today of the value of having comprehensive fire insurance.

In 1900, Skandia established itself as the first non-British foreign company in the United States of America. Six years later the great 1906 San Francisco earthquake devastated the city and this became Skandia's largest loss at that time. Pay-outs wipes out company's entire annual profit but the company is none of the few insurance able to pay out directly (US $ 2,4 m) and meet its obligations in an expedient way which gave it a good and solid reputation on the North-American insurance market and among catastrophe victims.

In pace with the growth in economical prosperity , the types of insurance policies expanded. Skandia actively campaigned for legislation to protect workers , especially in sawmills, were accidents rates where high. That activity resulted in introduction in 1916 of compulsory occupational insurance as part of statutory social insurance. During the first half of 1900 Skandia

started to sell burglary insurance, accident insurance, health insurance, homeowner's insurance and motor insurance. In year 1920 Skandia writes its first motor insurance policy.

In 1940 war insurance is introduced after German invasion on Norway and Denmark. In the same year one-third of Skandia's male employees are drafted into military and emergency services , while female employees are seconded to work in the agriculture sector.

1949 new insurance legislation compelled Skandia to divide its operation on two property and life insurance divisions. The two companies were formed with the property insurance division serving as the mother company. In 1953 Skandia opened its subsidiary in Colombia with focus on burglary and fire insurances. That was the continuation of Skandia's international expansion plans from the very early days of establishing. Skandia celebrated its first 100 years of operation with opening of its subsidiary in India which is wound up in 1971 when the Indian government nationalizes insurance industry.

Those are just a few examples of Skandia's activity in the area of business creation and development. Constant search for and implementation of new ideas in local and international markets were core for Skandia's culture. Innovations driven by legislative changes, tax regulation, social developments but industrial revolution supported boom on insurance industry in Sweden and prepared ground for seeds of the investment saving wave.

The era of merger. In 1960 , three Swedish insurance company groups were merged when Skandia purchased Sveagruppen in Gothenburg and Skanegruppen in Malmoe. The three company groups formed what became known as the S-bolagen (The S-Companies). In 1961, Skandia purchased the marine insurance company group Oresund with locations in Malmoe and Stockholm. At the beginning of 1960's , Thule, which was the largest insurance company in the Nordic region, experienced extensive economic problems, which lead to Skandia's purchase of Thule in 1963. The five merging company groups had roots in more than 50 Swedish insurance companies.

In 1964, the new group was launched as the Skandia Group. At that time the company adopted their current logotype, well known as Skandia umbrella.

Skandia worldwide. Since the beginning Skandia has been an international company. The merger gave Skandia one third of the Swedish insurance market. It was than decided to place more emphasis in the international arena. Between 1967 and 1983, premium insurance from the foreign market increased five fold. In 1983 Skandia transferred its international operations to its subsidiary , Skandia International. Operating from offices and subsidiaries in 25 countries, the company now could provide insurance coverage for over 100 countries. Income from foreign markets accounted to 70% of the gross Skandia's premium.

In early 1920's Skandia was established in Belgium. In post war era period the company became even more active internationally establishing locations in Australia (1952) , Colombia (1953) and India (1957) and followed by new markets operation in UK (1979—Skandia Life), USA (1987—American Skandia) focusing on fund related pension and saving schemes. Successful life insurance operation in UK and USA showed the way to the future.

In 1990's markets of Switzerland, Germany, Japan, Mexico, Austria, Spain, Italy, Poland, Chile, France, Portugal were added to Skandia's book of business. In all those markets Skandia was the pioneer in business model and product development. Green field operations required from Skandia Group management dedication to drive new ideas in new markets and patience in waiting from final results of investments. Courage and believe in the model was a very strong component of Skandia business culture. Appreciation of local differences and trust to skills and knowledge of local teams played enormous role is successful developments of new business units.

Skandia was praised for its ability to repeat entry model and build up of relationships with partners in business .

Women of Skandia. The first woman was employed in Skandia in 1857, when C.F.Kjelland was hired to examine reinsurance policies from foreign companies. From 1936 , married women were employed by Skandia. Before that time only unmarried women were accepted. For long period of time, women were relegated to the lower positions in the company. In 1970's a systematic equality program was initiated at Skandia. The first women director was Valborg Anderson who was named in 1979. In early 1990's Marie-Louise Wenander became the first women on the group's executive board. Since that time the role and positions of women in Skandia reflect their very strong presence in social and political life of Sweden.

Ideas for Life. In 1987 Skandia sent out an appeal to the Swedish people "Help us with ideas for a safer society". The response was enthusiastic and led to a book of named 2.293 Ideas for Life. The goal of the Ideas for Life is to develop and support projects for children and teenagers. The program drives other projects and stimulates people to contribute in various ways to better life for young people. Skandia's employees are also encouraged to take part in various projects , and can for that reason use a couple of hours per month on the company time.

Transformation to savings specialists. During the end of 1980's major world changes also led to major changes in the insurance industry. Within a decade, Skandia had transformed from a comprehensive insurance company to an international company specializing in long term savings products. One important challenge was the rapid development of information technology. Another was internationalization. These two challenges created new possibilities—as well as new competition—within the insurance industry. These factors also contributed to the revision of standing political rules and regulations. The strict boundaries between banks and insurance companies were less restricted as were establishments controls of the insurance industry.

The journey of the new Skandia started in Great Britain when Skandia Life began offering unit linked policies in 1979. Unit linked policies are insurance schemes in which the individual investor chooses their own portfolio of stock or investment funds. Skandia started unit linked operation in several countries under the name of Skandia Assurance and Financial Services founded in 1988. In 1987 American Skandia Life was founded and became very successful in driving Skandia to the world's no 1 position of long term savings solution in year 2000.

In Sweden , Skandia became the pioneer for unit linked policies when SkandiaLink began in 1990. Previously this type of insurance had not been allowed. After 1993 the premium volume of Skandia's life and fund insurance companies outgrew the casualty insurance operations.

In 1994 SkandiaBanken was founded as the first telephone bank and had enjoyed a great success. In 1995 Skandia launched its web page www.skandia.com becoming the first financial company in Europe to enter the online world. Following year SkandiaBanken started offering services on the internet. In year 2000 SkandiaBanken Norway was launched, followed by Denmark in year 2001.

By the end of year 2005 Skandia had operations in some 20 countries located on four continents, with Europe as the base. The principal markets are UK, Sweden and continental Europe. The company is also active on the markets of Asia, Latin America and Australia. The Skandia's goal is to become a leading supplier of long term savings programs.

In January 2006 Skandia was taken over by Old Mutual Group from South Africa after a fierce battle of managements , huge political and public debates of Swedish society and long hostile takeover process.

As result Skandia is now a part of much larger financial group operating in 48 countries and employing some 47.000 employees. But the core business of Skandia remains still the same. New ownership continues to drive company towards new challenges and opportunities of the insurance and financial markets.

Looking ahead—To be the premier open architecture investment provider in our chosen markets. This is the new vision of Skandia which will determine its future for the years to come and its next stage of journey.

The strength of diversity and the power of focus are the key components of new proposition to all stakeholders of Skandia. From Old Mutual roots in South Africa and from Skandia's people, scale and geographic diversity we have now resources to establish our presence on the world stage. The strategy is based on disciplined organic and acquisitive growth , building value through diversity. But despite our geographic and cultural diversity we are bound together by our Group's values. *Integrity, Respect, Accountability, Pushing beyond boundaries and Passion* will ensure that there will be One Time and One Skandia for the next decades to come.

Innovation is the minds and hearts of Skandia employees. Their know that changing global business environment, increasing competition from traditional and non-traditional providers of investment products and services, higher requirements from business partners and end customers , high expectations form all others stakeholder are the constant element of our daily business. Innovativeness and creativity are the core characteristics of processes and procedures that make operating units successful.

Business units management is charged with responsibility for innovativeness in all levels of the organization. At Skandia we believe that all of our employees have potential to innovate and our task and duty to the company is to release that intellectual capital and mix it with structural capital of the company.

With no doubt over 150 years of Skandia's history brings many fine examples of pioneering and innovative approach to insurance industry. Past successes and failures combined with ability to learn make Skandia extraordinary fit for future.

Part III:

The European Paradox —Knowledge Creation —European Research Programmes

ROMAN GALAR

WHAT IS BEHIND THE EUROPEAN PARADOX

Introduction

The message of globalization is clear: creativity is the sole competitive advantage of the affluent. Elites of the rich countries recognize that the rapid spread of technologies and the quadrupling of the world's markets can make their privileged consumption levels unsustainable. The usual policy might not suffice to uphold superior standards of living in direct competition with far away economies enjoying low labor costs, few regulations, abundance of human capital and huge inflows of financial capital. Hence the idea of preserving competitive advantages by securing a strong lead in the marketable creativity. Creativity, which, expressed in superior innovative products, used to provide bonuses of novelty and interests from intellectual property. The US is determined to follow this policy and the EU Lisbon Strategy was a declaration of will to take the same course.

Unfortunately, the implementation of the Lisbon Strategy is not going well. Radiating confidence that matters will soon improve might not help. The term "European Paradox" was coined to describe the discrepancy between the very high indicators attributed to the European research output and a moderate real life impact of the thus created knowledge[1]. As some say, Europe cannot transform knowledge into products.

Motivated by such perception, many people and institutions are trying to find methods of transforming the supposed overload of innovative ideas into profits. As it continues for a number of years and without visible success, it might be sensible to rethink the paradox itself. Might it be that the problem is not with "transformation", but with the innovative potential of the "top-level scientific output"? Best in benchmarks and unimpressive in effects—this might point to botched implementations, but it might also question the adequacy of benchmarking. The career of the World Wide Web and Nokia demonstrate that good ideas born in Europe might have no problems with realization...

The position of European creativeness is worrying not only in the horizontal plane, but also, and more so, in the vertical plane. Contemporary Europe visibly lags behind, when compared to the USA and Japan. It lags dramatically when compared to itself a century ago, when it was leading the world.

The possibility tackled in this paper is that behind the European Paradox is a serious European creativity crisis[2], which is rooted in the cultural shifts of the last century.

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[1] European Commission, *European Report on Science and Technology Indicators 1994*, Luxemburg 1994.

[2] R. J. Gordon, 2000, *Does the "New Economy" Measure up to the Great Inventions of the Past?* Journal of Economic Perspectives, Vol. 4, No 14, 2000.

Only a few generations ago most Europeans were still living quite holistic lives. There was a fair degree of natural economy, natural education, and natural vulnerability to challenges of the unexpected. A lot of individual cleverness was necessary to have some control over the whole and survive. Since then, as a result of the industrial revolution and other revolutions in its wake, the majority of Europeans have moved to safe and specialized lifestyles, with effects so well observed by Ortega y Gasset in his *The Revolt of the Masses*.

Most present day Europeans act as well defined modules of a complex techno-socio-economical machinery. This machinery is an extremely intelligent project. These acting within this project might be inclined to the feeling that also their particular roles demand a lot of intelligence, at least when compared to the humble tasks of ancient farmers and artisans.

The opposite might be true. Elements of machinery need not to be intelligent and creative; they have to be robust and predictable. The grand project demands obedience to the rules not fireworks of inventiveness. It pays for compliance with comfort and security. The value of reason and responsibility are depreciated. The holistic knowledge is waning in the maze of specializations.

The basic paradox is that the maintenance and functioning of the modern civilization demands procedural attitudes of all involved, while emergence of the Project itself was a feat of creative attitudes. These two attitudes become contradictory and under short term pressures the former is marginalizing the latter. The dramatic degradation of the once vibrant creative milieu of the West is visible; even in the domain of pop music. The European Paradox seems to be a symptom of much deeper malaise. This is most annoying, as the development, adaptation and ultimately the survival of the Grand Project are impossible without creativity.

Restarting European creativity seems to be the most urgent challenge of our times. Lisbon Strategy—imitative, uncooperative and based on false assumptions (New Economy) might not suffice. It seems necessary to go to the roots of the problem and confront some conceptual obstacles that make creative attitudes so difficult. I am pointing here to ten factors, selected in a rather haphazard manner, which seem to be obstructing the emergence of creative solutions in the present day Europe.

This text, written as a reaction to the Professor Kuklinski's initiative[3], is an extended version of the earlier conference paper[4].

1. Infantilization of Debates

Creativity is about solving problems and making changes. Making changes in a democracy demand public approval that is formed in appropriate debates. Unfortunately, the scope and potential of debating is seriously limited by the quasi-Victorian use of the language. Victorian language had its collection of taboo words concerned mostly with the intimate side of privacy. These limitations no longer exist, but political correctness has introduced new sets of taboos, which exclude whole spheres of reality from open considerations. Policy in this context may resemble a car with the steering wheel turning in one direction only.

Supposedly, political correctness was introduced from kindness to the underprivileged. Still, the belief that things not named are not existent, hardly belongs to the age of reason. As far as creativity is concerned, the politically correct refusal to address the topic of individuals' special talents is especially harmful, as creativity seems to be one of such talents. This is also illogical

[3] A. Kukliński, *Thirteen Notes*, The Warsaw Conference: *Towards a New Creative and Innovative Europe*, A contribution to the Pre-Conference Discussion, 2006.

[4] R. Galar, *Conceptual Barriers on the Path of European Creativeness*, In: Towards a New Creative and Innovative Europe, A. Kukliński, C. Lusiński, K. Pawłowski (Eds). Nowy Sącz, 2006.

for civilization based on specialization, in which contributions of talented people have proved to be the most efficient channel of taxation. This is also highly unjust, as most people have some talent, and the society bent on their identification and development would flourish. The exemptions from the philosophy of "equalizing chances" are very telling—societies readily grant special status to sportsmen and performers. It looks as if fun is the most serious thing around.

Other annoying aspects concern focus, objectivism and attention span of present debates. The times when developments of science and technology attracted attention of huge audiences (Great London Exhibition of 1851) are gone. Presently the European Commission runs special programs to convince citizens that science is important! Revolutions eat their children and the first casualty of the information revolution is curiosity. Everybody is expected to have his or her opinion in all matters, not many are ready to study any issue for more than a few minutes. Fast thinking joints are all over the place. Exclusive places of gourmet thinking are in retreat.

Creativeness has its apparent and its latent phase. They are different, like growing babies and making babies. Forty years after sexual revolution of 1960s it might be time to bring the issues of creative fertility into the open discussion.

2. Legal reductionism

Creativity is a specific product of the evolution of human intelligence. As every other inborn facility it needs care and an appropriately stimulating environment to be developed. Regrettably this aspect increasingly escapes attention, due to the modern tendency to treat people above all as legal beings.

Legal beings are defined here and now and for certain by their laws and duties. They are not supposed to be rooted in the past by biological evolution nor anchored in the future by moral visions, nor subject to the whims of chance. The world they live in is stiff, the undefined hardly exists, the space of events is closed, obedience of future generations is assumed, no place for the unexpected is left, convention has priority over experience, etc. Such constructs have great persuasive and manipulative valours, but are so alienated from reality and so poorly adaptable that they are bound to end in crisis.

Still, while they last, creativity is an endangered species, as its habitat is being destroyed. Creativity feeds on diversity and chance. Its trade is challenging accepted rules and learning from experiments rather than books. Its ultimate end is in some disruptive innovation that threatens existing authorities and influences. As McLuhan has said: *Innovation for holders of conventional wisdom is not novelty but annihilation.*

3. Magic Optimism

The profession of optimism has become a credo of our times. It escapes attention that the same word is used do describe two contradictory stances. Optimism as the brave attitude providing energy to face challenges and overcome obstacles has little in common with this gutless stance advising waiting passively until matters sort themselves out. After European experiences of the 20^{th} century the concept that everything turns well in the end is clearly a perspective of survivors forgetting their dead.

Expectation, that matters will sort themselves in the end, is true, but the price of such fatalism might be terrible for both descending and ascending generation. Demography e.g. will

certainly rebound in a few decades, yet the cultural heritage of future Europeans might be very different from the present. Also the gene pool of individuals who tend to prefer personal career over family and social interactions is going to be depleted.

Another justification for the magic optimism is the naive conviction that, in our times, all problems might be solved by competent specialists. Alas, the specialists, by definition, are good at solving typical problems, similar to the ones previously solved. In the face of new challenges a lot has to be learned first by trial and error, before the appropriate specialists emerge. The case of the botched modernization of Eastern Germany might serve as a good example. It is annoying that the lessons from this costly experience are so little diffused.

Concerns about the future of the EU tend to be classified as euro-enthusiastic or euro-skeptical, and easily labeled as optimistic or pessimistic. This attitude might turn out to be a recipe for troubles, as it makes constructive discussions difficult. While the EU remains a central hope for its inhabitants, and to some extent for its neighbors, there are evident degenerative trends, which leave little place for an easy optimism[5].

4. Narrowness of experiences

Creativity is based on diversity, and in this respect the countries of the "old EU" are not too well equipped. There have been two generations of peace, security, stability and predictability. Opinions were made uniform by standardized education and mass media. These societies treat ambient comfort, resulting from post WW2 prosperity, and post 1968 liberties, as a natural condition that may be taken for granted. They are also apt to assume that crises and disasters happen only to lesser people somewhere else.

This narrowness of experiences is aggravated by trivialization of history. The winners tend to look back to the beginnings of their victorious streak only, treating earlier times as irrational dark ages. In the USA and France it is usual to treat events from before their revolutions as prehistory. Subjects of the Soviet Union were made to believe that humanity started really in 1917. For the postmodern ones the genuine world was activated in the 1960s. Poles at the moment are more divided; for some history begins in 1989, for others in 1945, for a few it's still 1920.

The short term historical perspective trivializes the picture of the world. When history starts only with the "founding fathers" of the present system, its lessons are of little value. Within the memory span allowed, history seems to be equipped with the irresistible logic of everlasting progress (of communism, democracy, human rights, markets, religion, etc.). Also the forward projections seem obvious; the future is going to be formed by extrapolation of the existing trends. And naturally, in agreement with these internal experiences, the future is going to be better than the past.

It might be argued that this is understandable. Technological progress and fashions of the day make the past look irrelevant. Yet, the genetics that governs human behaviors and attitudes has not changed much since the beginning of the Neolithic revolution, and this makes a lot of past experience universal. Our hunter-gatherers' brains, evolved on the small scale interactions, tend to fail repetitively in some big scale situations. The especially illuminating part of this experience concerns these rare social and material circumstances in which bursts of creativity have taken place.

[5] For short enumeration of such trends see R. Galar, *How to Become an Optimistic Futurologist*, [in:] A. Kuklinski, B. Skuza (eds), *Turning Points in the Transformations of the Global Scene*, Warsaw 2006; and for criticism of their importance see L. Emmerij, *Has Europe a Splendid Future behind It?*, [in this Volume].

Within the short term "progressive histories" the big plan of the societal development is lost. The real history is about the rise and fall of such episodes of progressive certainty. Knowledge about factors correlated with historical ups, downs, and turnarounds could be helpful in avoiding crises. Alas, this kind of knowledge is not much used and this might explain why human progress is so erratic, and why Schumpeterian disasters are unavoidable.

5. Education of subordinates

Making university education available for every second young person might have become the greatest attainment of our times. Exposure of grownups to the wealth of the world's intellectual heritage would lead to the better understanding of diversity and individualization of choices. This could mean the advent of an intelligent and participating society and the demise of the Ortega y Gasset's masses. Such society would naturally foster and appreciate creativity. Unfortunately this opportunity is largely wasted by prevailing practices[6].

The great educational success is also a great disappointment, as the cultural option looses to the utilitarian option. Instead of developing horizons and adaptive abilities necessary in the flexible employment market, students are formed into narrow-minded specialists, allegedly tailored for the existing jobs. They might be ready to become efficient subordinates but they lack the capacity to grow up and become the leaders. This is reflected in the growing anxiety of global firms about finding a worthy replacement for their retiring executives[7].

The increased University output has largely an inflationary character. To provide for the politically correct expectations, academic standards have been lowered and diplomas are churned out much in excess of real needs. Worse still, many of the new specializations, especially in the domain of social sciences, are of the New Age variety. Introducing all kinds of relativisms they diminish the sphere of the common sense, where experimentally minded creativity has its roots.

Academic practices have been changed to conform better to the bureaucratic ideal of accountability: consistent curricula, standardized tests, and overwhelming procedures. In this way only explicit knowledge might be transferred efficiently. This is exactly the kind of knowledge, which due to the information technologies is readily available, and therefore competitively worthless. Transfer of tacit knowledge, this substratum of creativity and essence of the traditional student-master relationship, has been largely eliminated, as it cannot be benchmarked. For the real creative talents, studying becomes a waste of time.

6. Zeal for the Modern

Societies need creativity, as they yearn for these great waves of modernisation with the capacity to improve lives that only creativity can provide. Such waves are the manifestations of progress, and their dynamics and effects are well recognized. Unfortunately, the complex and capricious nature of creativity that initiates such Waves is still badly understood, especially by the people without personal creative experiences.

As the result, there is a tendency, natural among consumers, to assess creativity as the need fulfilling activity, and to hire creativity workers to provide solutions for the needs of the day. This

[6] A. H. Falkner, R. Galar: *An Evolutionary Viewpoint on the Reform of Universities*, Systems—Journal of Transdisciplinary Systems Science, 1, 1988.

[7] *The search for talent*, The Economist, Oct 5th 2006.

rarely happens except in trivial cases, when tuning or combining of the already known solutions is involved. As A.C. Kay has put it: *We don't get many new ideas out of that because if you ask most people what they want, they want just what they have now, 10 percent faster, 10 percent cheaper, with 10 percent more features.*[8] The real creative feats used to come from exploration of the unknown rather than from attacks on such preset targets. (Also, against expectations, such aims might be simply unattainable, as it was demonstrated by the failure of alchemy). Nevertheless, attempts to stimulate innovative efforts in directions which are recognized as desirable continue. These activities, based mostly on procedural manipulations with R&D indicators, resemble the *Cult of Cargo* in its basic assumption that effects will follow appearances.

Modernisation used to be a challenge. Only evident benefits were able to convince traditional societies to change their accustomed behaviors. In the "developed" societies, the general attitude gets reversed. Modernizations are now welcome by their own charm, even if they are produced by the passing fads of fashion only. In the absence of the improving changes the public goes for the new changes. Adulation of the modern has become quasi religious—it is good because it is new. Post-modern is naturally still better; what next?

The consequences of such enthusiasm might be negligible, but sometimes they turn out to be disastrous. The realization that something introduced as seemingly beneficial was in fact deeply wrong might take decades. Such was the case of educational reforms and of formula feeding frenzy in the 1960's. Yet, even reversals are usually sold to the public as the next steps of modernizations. In such an atmosphere the real creative feats are not easy to find among the multitude of the fake ones.

7. Ethos of Success

The present decline in creativeness correlates with the emergence of the ethos of the measurable individual success that replaces the more self-confident concepts of existence[9]. The push for success demands effects that are fast, certain and evident. This attraction of the short term challenges is fatal for creativity. It puts serious constraints on potentially innovative minds, as it deters from taking on challenges that are more risky, distant and vague. As the first hand evidence usually confirms, the greatest creative feats used to have relatively humble beginnings[10].

Creativity belongs to the space between toiling and being entertained, which is called leisure. This was already observed by Aristotle who maintained that: *The first principle of all action is leisure*[11]. Creativity manifests itself best in conditions that allow for following hunches under moderate competitive pressures, making long series of trials and errors possible. Unfortunately, the successful people of our times use leisure mostly to reload the energy needed for efficient realization of the strictly defined tasks.

Reintroduction of the more comprehensive modes of life seems indispensable to boost creativity. They must be more mature than "always successful" and "forever young", these trash substitutes for the real sense of existence. Emancipation of ingenious Europeans from rat races that are run in the vicious cycles of pressure and pleasure, might direct quite a few of them into creative endeavors.

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[8] A.C. Kay, *Predicting the Future*, Stanford Engineering, Vol. 1, No. 1, 1989.

[9] R. Galar, Conflicting visions: *Colas Breugnon versus Baron de Coubertin*, in: A. Kukliński, B. Skuza (eds.), *Europe in the Perspective of Global Change*, Warsaw 2003.

[10] W. Saxon, *Obituary: William B. Shockley, 79, Creator of Transistor and Theory on Race*, The New York Times, August 14, 1989.

[11] Aristotle, *Politics*, Bk VII, 3.

8. Blurred Vision

Creativity is addressed to the future and performs best when embedded in some open-ended vision that extends beyond practical considerations of the present; be it art, duty, freedom, science, truth, etc. This provides criteria, which creators might use to evaluate their progress.

Europe's consistent future might be projected forward as long as there is a consistent European identity. It must be something more important than comforts and obsessions of its present residents, rooted deeper than the current interests and noble enough to command loyalties. And so it was with the idea of pan-European solidarity that gave birth to the EU in the 1950s. Later such sentiments were played down. European identity had become one of the politically incorrect ideas. We have got close to the stage when the future of united Europe is identified with the expansion and domination of the EU regulations and the urge to get one over Americans.

The EU drifts, pushed by diverse internal bullying and milking attempts. The true-blue EU members seem to think in terms of extending their modern creeds and economic influences into the newly secured territories. The upstart EU members tend to think in terms of squeezing money from the rich by pleasing them in their fixations. Neither part is making a great deal of honest effort to define the common European values.

At the same time extensive regulations limit the space of creative freedom and efforts to chase the USA deprive Europe of strategic initiative. Declaration of the open competition with America, as expressed in the Lisbon Strategy, is tantamount to accepting America's aims and rules. This redirects creative efforts from improving the European model toward improving the American model. This seems hopeless, as it is hard to lead while following.

9. Institutional Paradigm and Procedural Allure

At the beginning of the 20^{th} century Whitehead had boasted: *The greatest invention of the 19^{th} century was the invention of invention itself*. Since then numerous attempts to institutionalize creativeness have followed. They were motivated by the implicit assumption of deterministic causality between innovative success and economical growth. The underlying assumption was that creativeness can be intensified within the paradigm of efficient management. The very low efficiency of this approach deserves reflection. The failure of innovations on demand is as typical as the unexpectedness of the highly successful innovations.

Efforts to control the economy in the way that research is now controlled were finally discredited in the 1980s. Managing by setting priorities, dividing tasks and allocating resources is the manner in which bureaucracy works and in which planned economies were supposed to work. It would have been better to imitate free market solutions. In markets, as in research, successes are based on information which is not obvious. It would be much better but not enough—market's perspectives and risk taking thresholds are too short and too low to enable the truly creative endeavors.

The professed aim of official innovative policies is to invest in domains, which are going to be very profitable. This is a short-term tactic, at best. Innovative economies seem to be ruled by the principle: *Once it is obvious what is very profitable; it is not longer profitable*. A number of so called high-technologies show profits only when localized in the cheap labor countries.

Institutions tend to see diverse problems using the same conceptual framework. It includes selection of targets, planning, assigning of responsibilities, monitoring, reporting on progress, etc. This is the "one size fits all" approach. It certainly doesn't fit creativity, where the aims are obscure, effects surprising and successes uncertain.

Institutions stick to procedures. Procedures are often indispensable but in repetitive situations only. Procedures are convenient, as they allow for the comforts of governing, without actually understanding or feeling responsible. Procedures might be deadly in emergencies that demand fast and intelligent reactions—they work as brain bypasses. Procedures go badly with creativity, as instances of creativity tend to be unique.

It is hard to imagine how to transform institutions to make them creativity boosters. Historically this role belonged rather to the individuals of influence. It is also not helpful that the important decision makers of our times are trapped by their earlier commitments.

10. Unreliable Model

It is obvious that Europe needs creativeness in order to secure further progress and a better competitive position. Undoubtedly great efforts are made to promote creativeness. Yet, the phenomenon of creativity itself remains obscure. As the result, important decisions are made without reference to any proved model.

Not so long ago the situation looked more promising. There was historical determinism that pretended to offer the necessary ideology. There was also less formalized and more attractive trust in the "Needs Fulfilling Nature" that promised to be a modern substitute for God. After the fall of communism and a long series of failures in commissioning creative solutions for the most important human needs (energy, environment, longevity) the focus is now on perfection. The "strive for perfection" seems to remain the sole rationale of the present model.

The subject of excellence is permeating discussion about the future of Europe and its organizations. It is assumed as obvious that the strive for perfection may assure competitive advantages in all domains of activity. This is a very misleading concept—mainly because it truly works in most cases.

Winning the quest for perfection in some domain is a sure formula for crushing competitors. At the same time it is also a recipe for the lasting stagnation in this domain. Stagnation that might be broken only by an external competitor who comes in with some "disruptive innovation". The disruptive innovation makes yesterdays perfection obsolete and brings "creative destruction" on the former leaders.

The factor that enables the realization of disruptive innovations is freedom, or more precisely, a proper compromise between freedom and perfection. Under such compromise not only can already recognized peaks of perfection be ascended but also long, haphazard exploratory ventures might be undertaken. Such ventures might eventually lead to the slopes of some higher peak of excellence[12].

Europe owed its historical prominence to the long series of formidable disruptive innovations it was able to breed during centuries. This capacity might be attributed to the fact that creative people in Europe used to have much more freedom then in the competitive cultures. Betting the future of Europe on excellence might be a poor idea, as in this respect the competitors from Asian look more formidable.

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[12] *R. Galar, *Freedom, Perfection and Adaptive Saddles*, in: S. Kwiatkowski, P. Houdayer (eds.) *Knowledge Café for Intellectual Entrepreneurship*, Warsaw 2004.

Conclusions

Many attempts to produce creativeness on demand have generally failed. Evident successes in fine tuning and combining of the innovations which already existed were misleading. The breakthrough inventions, with capacity to make a real difference, are of another breed.

For some time, huge financial and organizational inputs in European research have failed to provide an adequate economical output. Europe's creativity lag behind the US and East Asia would not be so galling, if not for the fact that just three generations ago Europe's amazing innovative flair was a beacon of progress on Earth.

Creativeness is a plant growing in the specific cultural soil and in the specific social and business climate. The key words are adaptation and social capital. Creativeness is a very subtle plant and cultivating it can be tricky. Imitation of general conditions, which prevail in the countries where it grows, leads nowhere; as it grows mostly in niches. Statistics are not very instructive, as the most important things happen within margins of errors.

The fixing of Europe's innovative drive has been put on the top of the EU political agenda. Understanding what has happened to the once superior mechanism might help to reach this goal. It might turn out that EU should look for inspiration in its cultural roots rather than in technocratic practices elsewhere[13].

Europe tries to create an R&D system that would be able to turn out breakthrough inventions again. This system takes a lot from the modern corporate culture and is equipped with an interface that makes it transparent and governable by procedural management[14]. It is a clever and imposing structure and the only question is: Will it work; will it make the right choices?

An established way of producing efficient decision algorithms with Neural Networks is to test how they perform on a training body of past situations, for which the right decisions are already known, and to tune them up accordingly.

In his Third Note[15] Professor Kuklinski formulates a broad methodological question: how to grasp the interaction on the axis: theoretical reflection versus empirical analysis. The practice described above might suggest an interesting research approach. Let's take a representative set of instances of proven innovative successes and analyze casual links leading to their emergence. Let's consider what would happen if their creators would have to work through the procedural filters of the EU Framework Programs? Would Copernicus, Faraday, Darwin, Shockley, Watson and Crick, Jobs and Wozniak and alike get their chances?

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[13] R. Galar: *Restarting the evolutionary drive*. In: European Vision for the Knowledge Age. P. T. Kidd (Ed.), Cheshire Henbury, 2007.

[14] European Commission, *Third European Report on Sciences and Technology Indicators—2003. Towards a knowledge—based economy*, Brussels 2003.

[15] A. Kukliński, *Thirteen Notes*, op.cit.

ANDRZEJ P. WIERZBICKI*
YOSHITERU NAKAMORI**

KNOWLEDGE SCIENCES, NEW EPISTEME AND *NANATSUDAKI* MODEL OF KNOWLEDGE CREATION PROCESSES

Abstract
The paper starts from a discussion of the diverging episteme of three cultural spheres (social sciences and humanities, hard and natural sciences, technology), concepts of knowledge management versus technology management, and the emergence of knowledge sciences. This is followed be a summary of recent results in the theory of knowledge creation. Most of them concern diverse spirals of creative interplay between rational (explicit) and intuitive or emotional (tacit) aspects of knowledge. Some of them concentrate on organizational (market or purpose-oriented) knowledge creation, other describe academic (research-oriented) knowledge creation. A prescriptive or exemplar model that would help to overcome the differences between organizational (market-oriented) and normal academic knowledge creation is proposed, called the *JAIST Nanatsudaki Model* of knowledge creation. It consists of seven spirals, known from other studies, but integrated in a sequence resulting from the experience of authors in practical management of research activities. The results of a survey of opinions about creativity conditions at JAIST indicate the importance of many spirals constituting the *Nanatsudaki Model.* Directions of further testing the *Nanatsudaki Model* are indicated and general conclusions are presented.

Keywords: episteme, knowledge creation, descriptive and prescriptive models, knowledge management

1. Knowledge Sciences and a New Episteme

The *episteme*—the way of constructing and justifying knowledge, characteristic for a given era or a cultural sphere, see (Foucault 1972)—of the industrial civilization, called sometimes the *modern* episteme, was subjected to a destruction process, particularly visible in the last fifty years. This has lead to a divergent development of separate episteme of three cultural spheres, see (Wierzbicki 2005): that of social sciences and humanities, that of hard and natural sciences, and that of technology. Thus, (Snow 1960) correctly pointed out the development of *two cultures,* but today we should rather speak about *three cultural spheres* and identify that their main

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differences are epistemic: they use different languages, but more important is the fact that they use different basic epistemic concepts and different ways of constructing knowledge. This leads to basic misunderstandings, visible particularly when social sciences speak about technology.

For example, (Latour 1992) writes about *technoscience*, treating technology as a mere application of hard and natural sciences. This indicates a deep lack of understanding that *technology is*—in its essence, see, e.g., (Heidegger 1954)—*an art of constructing tools and other artefacts needed by humans when dealing with nature*, and is a fundamental human faculty, defining humanity to the same degree as the faculty of discourse, of communicating by language. Moreover, *science* develops *paradigmatically* (see Kuhn 1962)—following singular paradigms treated as exemplars of theories in hard and natural sciences, or multiple and changing paradigms in social sciences. Contrariwise, *technology does not follow paradigms,* see, e.g., (Laudan 1984), (Wierzbicki 2005), only *falsificationism* of (Popper 1972), because in its everyday practice it needs destructive tests of artefacts and tools in order to improve their reliability (such as we must perform destructive tests on cars in order to improve their safety). Sociologists of science often ridicule falsificationism saying that scientists never try to disprove, they want rather to confirm their theories; this might be true, but they fail to notice that tools are different than theories and falsificationism is necessary in technological construction.

For these reasons, we need a reflection on the contemporary situation in *knowledge management*, *technology management,* and the emergence of *knowledge sciences* not only from sociological, but also from technological point of view—and these views should be treated equally, since both social discourse and technological tool-making equally define humanity. After presenting such background, we continue with a short review of recent results in the theory of knowledge creation and introduce a new *Nanatsudaki* model of creative activities, of a prescriptive exemplar character, aimed especially at organizing larger projects of technology creation.

Knowledge management has much popularity in management science, but its technological origins are often forgotten. This has led to two opposite views how to interpret this term, see, e.g. (Wiig 1997, Davenport and Prusak 1998):

- As *management of information relevant for knowledge-intensive activities*, with stress on information technology: databases, data warehouses, data mining, groupware, information systems, etc.
- As *management of knowledge related processes,* with stress on organizational theory, learning, types of knowledge and knowledge creation processes.

The first view is naturally represented by information technologists and hard scientists; the second by social scientists, philosophers, psychologists and is clearly dominating in management science. Representatives of the second view often accuse the first view of perceiving *knowledge to be an object* while it should be seen as *knowledge related to processes;* they stress that knowledge management should be *management of people*.

However, while it is correct that knowledge management cannot be reduced to management of information, such *a correct assessment is a pitfall of binary logic:* being sure that they are right, the representatives of the second view overlook both the complexity and the essence of the controversy. The complexity is that, historically, knowledge management has started with technology and cannot continue without technology; thus, both interpretations should be combined in adequate proportions. The essence of the controversy is that *management of people* should be also understood as *management of knowledge workers;* and knowledge workers are today often mostly information technologists, who should be well understood by managers. Thus, we believe that the two views listed above should be combined. Moreover, they incompletely describe what knowledge management is; there is a third, essential view, seeing knowledge management as the *management of human resources in knowledge civilization era*, concentrating on knowledge

workers, their education and qualities, assuming a proper understanding of their diverse character, including a proper understanding of technologists and technology.

This is particularly visible concerning the concepts of *technology management* versus *knowledge management.* Management science specialists in knowledge management often tend to assume that *technology management* is just a branch of *knowledge management;* technologists specializing in *technology management* stress two aspects. Firstly, we already observed that a proper, essential meaning of the word *technology* is *the art of designing and constructing tools or technological artefacts,* and in this sense it is used in the phrase *technology management.* Secondly, *technology management* might be counted as a kind of special *knowledge management,* but it is an older discipline, using well developed concepts and processes, such as *technology assessment, technology foresight* and *technology roadmapping.*

All the above discussion implies that we are observing now an emergence process of a new understanding of*knowledge sciences*—an interdisciplinary field that goes beyond the classical epistemology, includes also some aspects of *knowledge engineering* from information technology, some aspects of *knowledge management* from management and social science, some aspects of *interdisciplinary synthesis* and other techniques (such as decision analysis and support, multiple criteria analysis, etc.) from systems science. This emergence process is motivated primarily by the needs of an adequate education of *knowledge workers* and *knowledge managers and coordinators;* however, also the research on knowledge and technology management and creation needs such interdisciplinary support.

To summarize, we should thus require that knowledge sciences gives home to several disciplines:

- Epistemology,
- Knowledge engineering,
- Management science,
- Sociological and soft systems science,
- Technological and hard systems science,

on equal footing, with a requirement of mutual information and understanding.

To our knowledge, only one university in the world, the Japan Advanced Institute of Science and technology, founded—already in 1998—the School of Knowledge Science, while the field is understood similarly as described above. The university supports only graduate education, for master and doctoral degrees; in knowledge science, three types of graduates are typical:

- Specialists in management, with understanding of knowledge engineering and systems science;
- Specialists in systemic knowledge coordination, with understanding of knowledge engineering and management;
- Specialists in knowledge engineering, with understanding of management and systems science.

Gradually, the emergence of knowledge sciences will motivate also the emergence of a new episteme characteristic for the new era of knowledge civilization, but this will take longer time—see (Wierzbicki and Nakamori 2007).

2. Micro-Theories of Knowledge Creation

Knowledge creation and justification has been the domain of philosophy—epistemology, phenomenology, ontology[1]—for thousands of years. However, knowledge economy and knowledge

[1] In its classical, deeper meaning of *theory of being;* contemporary use of this word in information technology refers to the meaning of an *enhanced taxonomy.*

management created a new situation in this respect. Philosophy treats knowledge creation in a long historical perspective, which gives good background knowledge, but does not (with a few notable exceptions) provide suggestions how to create knowledge for the needs of today and tomorrow. Thus, we might say that philosophy provides *macro-theories of knowledge creation* or *theories of historical scientific change* on a long historical scale, while knowledge economy and knowledge civilization today create demand for *micro-theories of knowledge creation* for today and tomorrow.

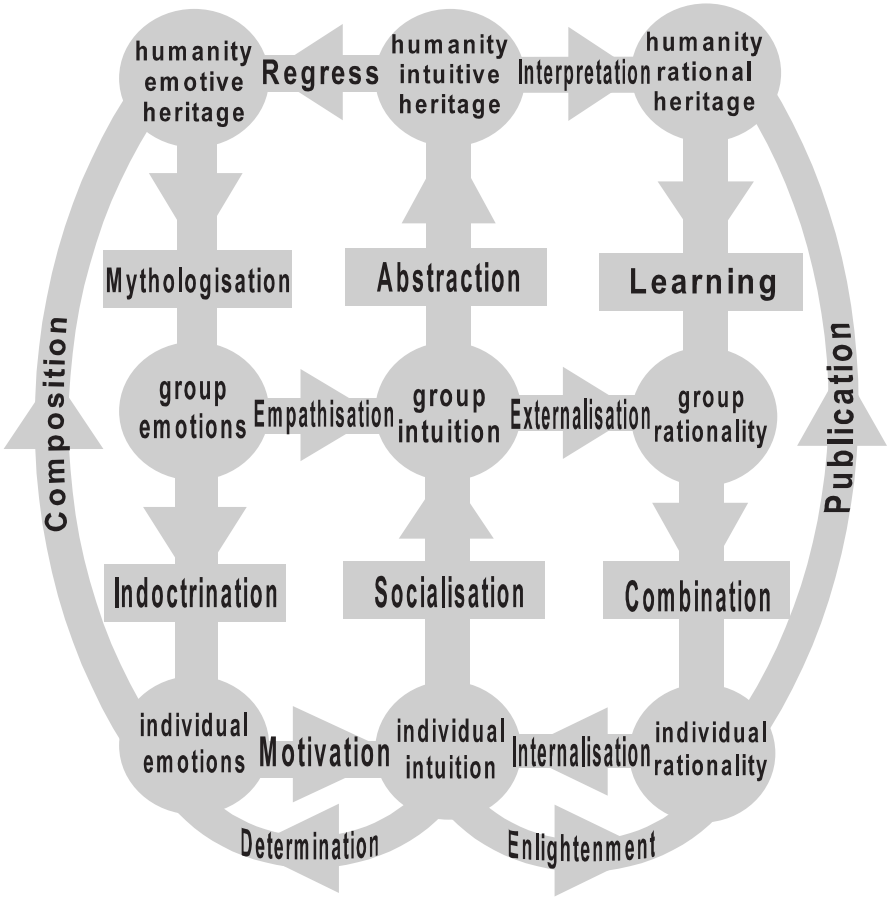

Fig. 1 Basic dimensions of *Creative Space*

This need for a better, more detailed understanding of knowledge creation processes in the knowledge based economy resulted recently in the emergence of many such *micro-theories of knowledge creation*. Historically, we could count the concept of *brainstorming* (see Osborn 1957, Clark 1958) as first of such micro-theories. However, since 1990 we observe many such new micro-theories originating in systems science, management science and information science, beginning with the *Shinayakana Systems Approach* (Nakamori and Sawaragi 1990), the *Knowledge Creating Company* and the *SECI Spiral* (Nonaka and Takeuchi 1995), the *Rational Theory of Intuition* (Wierzbicki 1997), the I^5 *(Pentagram) System* (Nakamori 2000), the *OPEC Spiral* (Gasson 2004) and several others. This can be counted as a recent revolution in knowledge creation theories, because all of them—including also an exceptional recent macro-theory of revolutionary changes

in science by (Motycka 1998) that can be also interpreted as a micro-theory, see (Wierzbicki and Nakamori 2006)—take explicitly into account an interplay of *tacit, intuitive, emotive,* and *preverbal* aspects with *explicit* or *rational* aspects of knowledge creation.

We shall not discuss here in detail the rational evolutionary *theory of powerful but fallible intuition,* see (Wierzbicki 1997, 2005), (Wierzbicki and Nakamori 2006). The introduction of a three-by three matrix *rational-intuitive-emotive* and *individual-group-humanity* knowledge used by (Wierzbicki and Nakamori 2006) instead of two-by-two *explicit-tacit* and *individual-group* used as the basis of the *SECI Spiral* by (Nonaka and Takeuchi 1995) makes it possible to generalize the *SECI Spiral* into a network-like model of creative processes, called *Creative Space,* see Fig.1. The model of *Creative Space* consists of *nodes*—such as *individual rationality* or individual rational knowledge—and *transitions*[2] between the nodes—such as *Internalisation* from *individual rationality* to *individual intuition.* Note that the *SECI (Socialisation-Externalisation-Combination-Internalisation) Spiral* of (Nonaka and Takeuchi 1995) is essentially preserved in the lower right- hand corner of Fig. 1; but *Creative Space* involves also many other transitions. For example, the upper left- hand corner of Fig. 1 represents the (Motycka 1998) theory of revolutionary scientific change in the form of the *ARME (Abstraction-Regress-Mythologisation-Emphatisation) Spiral*, see (Wierzbicki and Nakamori 2006) for a more detailed discussion.

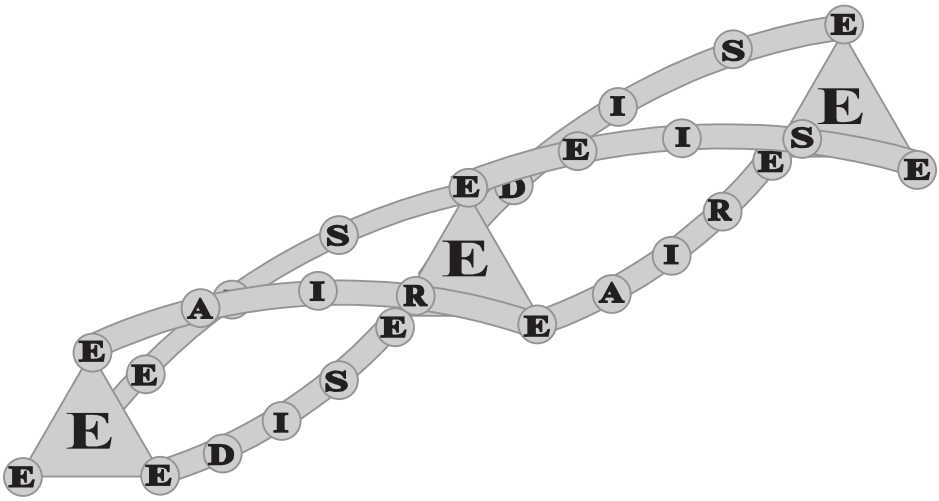

Fig. 2 The *Triple Helix* of normal academic knowledge creation

Other dimensions can be added to the model of *Creative Space* and many other knowledge creation processes can be represented in the model. Knowledge management is naturally more interested in the processes of *normal* knowledge creation (as opposed to *revolutionary;* this distinction is due to Kuhn 1962). In (Wierzbicki and Nakamori 2006), two types of normal knowledge creation processes are distinguished:

- *Organizational* processes in market or purpose-oriented knowledge creation, such as the *SECI Spiral* of Nonaka and Takeuchi. Such processes are motivated mostly by the interests of a group and two other spirals of this type can be also represented in *Creative Space;* these are the *Brainstorming DCCV (Divergence-Convergence-Crystallisation-Verification) Spiral*

[2] Originally called conversions by (Nonaka and Takeuchi 1995), but knowledge is not lost when used, hence it cannot be converted; thus we prefer the more neutral term *transitions.*

(Kunifuji 2004) and the Occidental counterpart of *SECI Spiral*, the *OPEC (Objectives-Process-Expansion-Closure) Spiral* of (Gasson 2004). We shall describe them in some detail in the next section.

- *Academic* processes of normal knowledge creation, in universities and research institutes. Such processes are motivated mostly by the interests of an individual researcher. Three typical spirals of this type are distinguished as parts of *Creative Space* in (Wierzbicki and Nakamori 2006): the *Hermeneutic (Enlightenment-Analysis-Hermeneutic Immersion-Reflection) EAIR Spiral* of reading and interpreting scientific literature, the *Debating EDIS (Enlightenment-Debate-Immersion-Selection) Spiral* of scientific discussions and the *Experimental EEIS (Enlightenment-Experiment-Interpretation-Selection) Spiral* of performing experiments and interpreting their results. We shall also describe them in some more detail in the next section. Here, however, we should note that all these three spirals begin with the transition *Enlightenment* from *individual intuition* to *individual rationality* (called also variously *aha, eureka, illumination*—simply having an idea—and indicated in the bottom right- hand part of Fig. 1). Because of that, we can switch between these three spirals or perform them parallel. This is indicated in Fig. 2, where these three spirals are presented together as a *Triple Helix* of normal academic knowledge creation.

Thus, academic knowledge creation processes are quite different than organizational knowledge creation; understanding their differences might help in overcoming the difficulty of cooperation between academia and industry. Alternatively, we could try to combine them, see next section.

3. The JAIST Nanatsudaki Model of Knowledge Creation Processes.

The three spirals contained in the *Triple Helix* do not exhaustively describe all what occurs in academic knowledge creation, but they describe most essential elements of academic research: gathering and interpreting information and knowledge, debating and experimenting. In fact, recent research including a questionnaire on creativity conditions in JAIST supported, both directly and indirectly, the conclusion that these elements are very important for academic knowledge creation, see (Tian et al. 2006, Wierzbicki et al. 2006). However, these spirals are *individually oriented*, even if a university and a laboratory should support them; e.g., the motivation for and the actual research on preparing a doctoral thesis is mostly individual. Moreover, the *Triple Helix* only describes what researchers actually do, it is thus a *descriptive* model. Obviously, the model helps in a better understanding of some intuitive transitions in these spirals and makes possible testing, which parts of these spirals are well supported in academic practice and which require more support; but it does not give clear conclusions *how to organize research.*

(*Septagram of Creative Spirals*)

However, the three spirals of organizational knowledge creation mentioned before are important for practical knowledge creation, for innovations, particularly in industry and other purpose-oriented organizations. Unfortunately, they cannot be easily combined into a multiple helix like the *Triple Helix*, because they do not share the same elements. However, the main challenge is not only to combine these spirals between themselves, but also with the spirals of academic knowledge creation. This general challenge is difficult, but such a combination would be important for several reasons:

- Combining these spirals might strengthen academic knowledge creation, because it would increase the role of the group supporting the individual research;

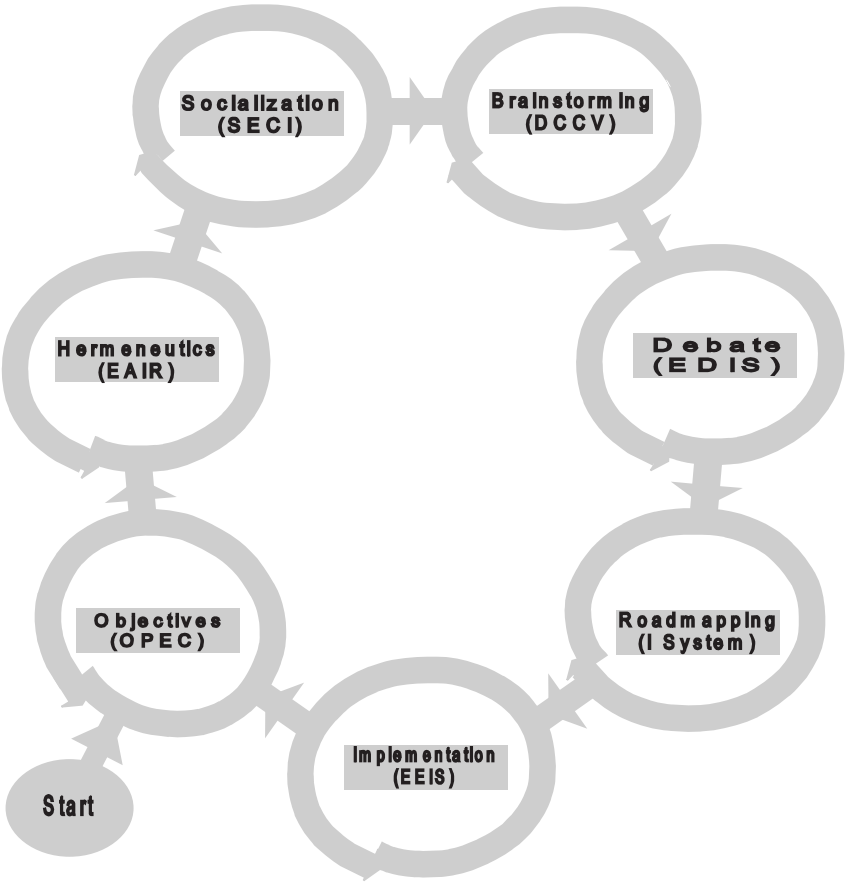

Fig. 3 Diagram of *JAIST Nanatsudaki Model*

- Combining these spirals might strengthen also industrial innovation and knowledge creation, because it always contains also some individual elements that should be explicitly accounted for;
- Combining these spirals might help in the cooperation of industry with academic institutions in producing innovations, because it could bridge the gap between the different ways of conducting research in academia and in industry.

With these purposes, we developed the *JAIST Nanatsudaki Model*, see Fig. 3—an exemplar (serving as an example to follow, a prescriptive or normative model) of a process of knowledge and technology creation. It consists of seven creative spirals; and each of these spirals might be as beautiful and unpredictable in its creativity, as water whirls in the seven waterfalls (nanatsudaki) on Asahidai close to JAIST. The seven spirals include the three academic and the three organizational mentioned above, but are supplemented by a planning *roadmapping spiral* based on the *I-System* (the pentagram of Nakamori 2000), which also was found empirically to be essential for normal academic knowledge creation, see (Wierzbicki et al. 2006). The model is build following the assumption that its applications will concern technology creation or material science development, thus the application phase consists of experimental work.

These seven spirals correspond to the following sequence of actions: discuss and set objectives; gather and interpret relevant literature; socialize; brainstorm; crystallize the ideas by a critical

debate; plan (roadmap) the detailed research activities; implement experimental research; close by repeating whatever necessary. See (Wierzbicki and Nakamori 2007) for a more detailed description.

4. Validation and Conclusions

A question might be asked: why did we select precisely these creative spirals and this particular order of them? We can answer that we did it on the basis of our intuitive, tacit knowledge, resulting from many years of our experience in the management of research activities, and that the validation of any prescriptive model requires its application. However, even if such response gives some justification to the *Nanatsudaki Model*, it does not provide its full substantiation.

Therefore, we intend to validate the *Nanatsudaki Model* in several stages. One is already started; it consisted in a survey of opinions about creativity conditions between young researchers—master students, doctoral students and research associates—at JAIST. The fuller report of the results of this survey is given in (Wierzbicki et al. 2006), see also (Tian et al. 2006); here we indicate shortly its main conclusions with regard to the elements of the *Nanatsudaki Model*.

One of conclusions from this survey is an empirical support—not for the theory of the *Triple Helix*, because this just describes how academics normally create knowledge while stressing the importance of intuitive, emotional, tacit aspects of knowledge creation, but for the essential importance of the three spirals of normal academic knowledge creation contained in the *Triple Helix*: the *Intersubjective EDIS Spiral*, the *Experimental EEIS Spiral*, and the *Hermeneutic EAIR Spiral*. Such a support results both from direct questions about the importance of diverse aspects of creative processes and, more significantly, indirectly from questions about the assessment of actual conditions of creativity: most critical assessments of actual drawbacks in creativity conditions indicate the importance of improving conditions of diverse elements of these three spirals. Similarly, this survey stressed also—both directly and indirectly—the importance of the *Roadmapping* (*I-System*) *Spiral* of planning knowledge creation processes. Naturally, such a support is not full confirmation—as concerns any empirical support for a theory—can be only partial; a theory can be only falsified by empirical results, never fully confirmed, see (Popper 1972). For example, the theory of the *Triple Helix* could be falsified by an example of a university where knowledge creation proceeds without reading and interpreting scientific literature, experimenting or debating, or proceeds using only rational, not intuitive and emotional aspects of knowledge creation—which, we believe, is barely possible. But the critical importance of the elements of the *Triple Helix* could be falsified, if other aspects of knowledge creation would turn out more important in many universities—which is possible, even if not very probable. Thus, further surveys are planned.

Another stage is intended and consists in an application of the full cycle of the *Nanatsudaki Model* in a research project; but we encourage also other researchers to try this normative model.

The general conclusion concerning the emergence of the knowledge sciences and of a new episteme is that the cultural cleft that developed between three distinct cultural spheres—of social sciences and humanities, of hard and natural sciences, and of technology—is very deep, but the emergence of knowledge sciences might help in bridging this cleft and in a slow development of a new episteme of the knowledge era.

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SIMONE ARNALDI

A NEWCOMER'S VIEW ON SOCIAL SCIENCES, INTERDISCIPLINARITY, AND CONVERGING TECHNOLOGIES*

1. Introduction: why converging technologies

Converging Technologies (CT), the synergistic application of nano-, bio-, information technologies and cognitive sciences (NBIC), is regarded by many as the forefront of technological development and innovation in the next decades. Their promises in terms of explanatory and transformative potential generated a widespread euphoria on CT, which have been considered also as a grand project for both the unity of science and for the transformation of society.

The call for the unity of scientific knowledge and the ambition of provoking a profound mutation of our societies, demand social sciences to confront seriously with NBIC in order to contribute to the investigation, assessment, interpretation, and to the public understanding and debate on CT and the social changes which they are expected to bring about. Creative and effective interaction within the research community in Europe to cope with this stream in science and technology confronts social scientists with a double challenge.

This challenge is both epistemic, i.e. regarding the building of sufficient interdisciplinary knowledge to interact with natural sciences and engineering disciplines which are involved in the NBIC scientific venture, and social, i.e. concerning the creation of institutional patterns of collaboration among disciplines and of path of interdisciplinary training of young scientists. This paper attempts to discuss some aspects of this challenging collaboration between social sciences and Converging Technologies. However, as a preliminary remark, it is worth of mentioning that the writer has mainly a sociological background and his image of social sciences is surely indebted to sociology, no matter how "interdisciplinary" he attempts to think.

The first step in this discussion is to consider the image of social science which emerges from the internal narratives of CT researchers. Furthermore, the article refers also to the social studies of nanotechnology for discussing the role and status of social sciences in the NBIC field. The appropriateness of such a reference has a general and a specific motivation. In general, technologies are not developed in a "a-temporal" vacuum and lessons can be learnt from earlier experiences (e.g. Mehta on bio- and nano-technologies [1]). More specifically, nanotechnology and NBIC are linked by a special relationship, as the former is a constituent of CT and it is widely

* An earlier draft of this text was presented at the conference "Towards a new creative Europe" (Warsaw, December 1–2, 2006).

acknowledged as the "engine" of convergence, whose base is considered the material unity at the nanoscale and technology integration from that scale [e.g. 2, 3, 4, 5]. In this view, nanotechnology is the key enabling technology of the overall NBIC convergence.[1]

The next section of the article offers a short outlook of NBIC. Then, a closer attention is dedicated to social sciences and a few images of social sciences emerging from the internal narratives of CT are considered. After presenting such images, the remaining sections of the article propose some comments on the conditions of such collaboration. As a first step, three epistemic conditions are considered. Condition one regards the acknowledgement of the internal and external diversity of CT field, which obliges to a specific and issue-related interaction. Condition two concerns the necessity to engage with cross-cutting concepts which structure the field. Condition three is preliminary to the former two and considers the need for social scientists to have an expertise which is sufficient to interact interestingly with NBIC scientists. As a second step, a social condition for promoting the creation of such expertise and, then, collaboration in the field of converging technologies is presented, through introducing the concept of "trading zone", with some final tentative considerations about universities as an institutional setting for the creation of such zones.

2. Converging technologies: a preliminary outline of the field

The concept of convergent nano-, bio-, info- technologies and cognitive sciences (NBIC) was firstly proposed in a US National Science Foundation and Department of Commerce sponsored report on "Converging Technologies for improving human performance". The report called for

> *the synergistic combination of four major "NBIC" (nano-bio-info-cogno) provinces of science and technology, each of which is currently progressing at a rapid rate: (a) nanoscience and nanotechnology; (b) biotechnology and biomedicine, including genetic engineering; (c) information technology, including advanced computing and communications; (d) cognitive science, including cognitive neuroscience. [2, p. 1–2]*

Among NBIC sciences, the report assumed that the driver of convergence is nanoscience and nanotechnology, as it is based on "*material unity at the nanoscale and on technology integration from that scale*". From the very beginning, the report makes clear what are the expectations from Converging Technologies and how far reaching they are:

> *We stand at the threshold of a new renaissance in science and technology, based on a comprehensive understanding of the structure and behavior of matter from the nanoscale up to the most complex system yet discovered, the human brain. Unification of science based on unity in nature and its holistic investigation will lead to technological convergence and a more efficient societal structure for reaching human goals. In the early decades of the twenty-first century, concentrated effort*

[1] All the components of NBIC convergence are correctly understood as mutually enabling. Nordmann and his colleagues of the HLEG on "Foresighting the New Technology Wave" [4] propose the following description of the enabling function of NBIC: "[c]onceptually, nanotechnology enables other technologies by providing a common framework for all hardware-level engineering problems. [...] Conceptually, biotechnology enables other technologies by identifying chemical-phisical processes and algorithmic structures in living systems that are traced to their material basis in cellular and genetic organization. [...] Conceptually, information technology enables other technologies through its ability to represent ever more physical states as information and model processes with a variety of computational methods." Cognitive sciences, which are acknowledged, as an "enabling knowledge system", do not complete the list. For a broad account of current and potential contribution of cognitive sciences to enabling convergent technologies, see Andler and Pargade [6].

> *can bring together nanotechnology, biotechnology, information technology, and new technologies based in cognitive science. [...]*
>
> *Rapid advances in convergent technologies have the potential to enhance both human performance and the nation's productivity. Examples of payoffs will include improving work efficiency and learning, enhancing individual sensory and cognitive capabilities, fundamentally new manufacturing processes and improved products, revolutionary changes in healthcare, improving both individual and group efficiency, highly effective communication techniques including brain-to-brain interaction, perfecting human-machine interfaces including neuromorphic engineering for industrial and personal use, enhancing human capabilities for defense purposes, reaching sustainable development using NBIC tools, and ameliorating the physical and cognitive decline that is common to the aging mind. [2, p. 1]*

The report envisages five broad areas of relevance in which research on CT and their application may increase nowadays and in the next decades: human cognition and communication, human health and human physical capabilities, national security, science and education. For each of these areas, both state-of-the-art statements and "visionary projects" are presented by several scholars and experts.

The excerpt confirms what is already clear from the title of the report: the concept of convergence is twofold and, aside a descriptive dimension (technologies are converging in research and engineering practice), a clear and strong normative emphasis (technological convergence is to be encouraged as either a tool or a condition to achieve broader social goals) is introduced. As Banbridge and Roco briefly outline in a more recent work:

> *First, the NBIC fields are in fact progressively merging, step by step, and apparently at an accelerating rate. Second, the unification of the great realms of technology will promote human progress, if they are applied creatively to problems of great human need. [3, p. 2]*

This partition outlines a duality of a top-down and normative approach to convergence, and a bottom-up and descriptive perspective. This duality appears still unresolved [7] and it has been noticed that such a view acquired in some cases the connotations of a technological reductionism, whose ambition is to offer the ultimate explanation of nature and society:

> *"the first view refers to a normal feature of disciplinary science. Every now and then, disciplines coalesce for heuristic reasons. In the first view heuristics refer solely to growth of knowledge and new technological perspectives. The second view on convergence is one that does not consider the heuristics solely as an intrinsic and neutral feature of nanosciences. In this view convergence refers to a technological concept of human and nature." [8, p.2]*

A second milestone in defining convergence is an European Commission sponsored report on "Converging technologies. Shaping the future of European societies", which is the result of a collective effort by a High Level Expert Group established by the Commission [4]. The report is referred here to define the general features of CT, which are constitutive of their transformative potential. Such features are the following [4]:

- **Embeddedness**: the drive to the "bottom" guided by nanotechnologies makes CT able to produce "spatially distributed, pervasive and inconspicuous" artefacts, which can be placed inside our body or surround it. "The better they work, the less we will notice our dependence on them or even their presence";

- **Unlimited reach**: CT pushes the engineering paradigm and capacity into areas that were not even thought to be subject to engineering. "Following upon nanotechnology's dream to control everything molecular and information technology's increasing ability to transform everything into information, it would appear that nothing can escape the reach of CT and that the mind, social interactions, communication, and emotional states can all be engineered";
- **Engineering (for) the mind and the body**: CT place the human body at the centre of a network of artefacts which may recover, expand, and alter its functions and form to reach a desired goal, no matter whether from an "hardware", i.e. implemented at the level of molecular design, microscale engineering and bio-chemical regularity, or a "software" approach, i.e. realised through the "soft" interface of information processing and cognitive processes between the body and technological artefacts and devices. In both cases, "the body will be an explicit or implicit target of converging technologies";
- **Specificity**: generally speaking, "the convergence of enabling technologies and technology-enabling sciences can be geared to address very specific tasks". For example, "research on the interface between nano- and biotechnology allows for the targeted delivery of designer pharmaceuticals that are tailored to an individual's genome in order to affect a cure without side effects"[2].

The combined promises of such features nurture the expectations for CT contribution to knowledge unification and growth on the one hand, and for NBIC capacity to change our societies, either for the better according to their advocates or for the worse according to their critics.

The shift from acknowledging such an explanatory and transformative to the Such an emphasis on a prescriptive interpretation of convergence is the basis of what the introduction of this paper defined as a "grand project" for science and society, whose implications and assumptions are relevant also in shaping the image and the role of social sciences in convergence.

3. Insiders' tales of social sciences, convergence and enhancement

Social and ethical aspects are a part of the NBIC discourse from the very beginning. From a purely descriptive point of view, NBIC reports and documents present dozens of technological devices and artefacts, which are likely to affect our understanding of the world and our capacity to shape it. However, the NBIC narratives appear not to have developed extensively an image of social sciences and of their relation with CT, which is consistent with the image of social change and the project for knowledge unification of the latter.

The following paragraphs attempt to present the image of social science as developed in the CT discourse, by referring to some examples of the literature. This short review may outline four "models" of social science and of its relation with NBIC.

The first one may be labelled as an "impact perspective", which assumes the leading role of technology in general, and CT specifically, in provoking and orienting social change. From this point of view, NBIC's transformative power is expected to radically alter our societies and, as a consequence of this change, it is likely to make our current social science concepts, methods and standards largely or completely inadequate to explain and understanding a radically new social context:

[2] Though these concepts are obviously developed through the entire report, citations are from pages 20–22 and 32–36.

> *"new technologies will lead to revolutionary changes in society that will call into question the value and usefulness of many fundamental social science paradigms, theories, and models that underpin several social science fields" [9, p. 309].*

According to this perspective, social scientists are entering a time which will witness a paradigmatic change and they will be forced in the near future to elaborate new and more comprehensive approaches. A constitutive part of this new approach is anticipation, which should rely on more advanced and sophisticated modelling and simulations supported by the enormous computational power provided by CT:

> *Often it appears, and especially with respect to topics related to technology, that social scientists are constantly collecting data simply to keep up with changes in society. Theories may follow, but by the time they are fully conceptualized and tested, they may be obsolete for application in the newly evolved societal contexts. Thus, to some degree, changes in society being wrought by changes in technology are proceeding without the input of social science and therefore, it can be argued, without appropriate reflection and deliberation. [...] Not only will social science have to coevolve with technology, but in order to be of use to society, social science will have to become more prospective and future-oriented rather that reflective and reactive [9, p. 313].*

A second approach may be defined as an "engineering perspective", as it emphasises the possibility offered to social design by the exponentially increased quantities of data which CT allow to collect, maintain and analyse.

This increased capacity enables to socially engineer "teams and groups to meet the demands of new tasks, missions, etc." [10, p. 311] and, in the future, this capacity is thought even to increasingly augment.

Eventually, in addition to radically improved quantity and quality of information available to structure networks and tasks, this perspective envisages a dramatic expansion of the distribution of intentional and intelligent social agency: humans, webbots, robots and other intelligent agents are foreseen to interact in new organisational patterns which are to be developed [10].

A third approach pushes to the extreme the future-oriented emphasis which was highlighted by the description of the impact perspective and stresses the predictive capacity which social sciences are likely to gain by using in their analysis the tools provided by CT. Thanks to the improved "accumulation, manipulation, and integration of data from the life, social, and behavioural sciences, using tools and approaches provided by science and technology" [11, p.160], even a new science, which is called socio-tech, may be created.

This "predictive science of societal behaviour" is expected to use "the tremendous computing power we now have" to integrate data across fields and disciplines to create new interdisciplinary models and hence new understanding of human behaviour. This perspective is explicitly presented as an integration of the two cultures of social science and humanities on the one hand and of technology and natural sciences on the other.

The new socio-tech may result a "qualitatively new science", where technology is used "to leverage the behavioural and social sciences and leads to a predictive science of behaviour", while traditional social sciences will be left to deal with the simple description of societal dynamics.

The three examples seem to share some common features, which are worth of highlighting. First, they establish an unilinear relation between CT and social sciences, both directly at the epistemic level (social sciences have to use tools and concepts developed by to produce valuable knowledge), and indirectly by NBIC, as CT alter radically the object of social sciences. Null or little emphasis is paid to the existence of an influence of current social sciences on knowledge

produced by NBIC. Second, the examples consider accumulation of knowledge driven by CT as both epistemically and socially unproblematic: after the adoption of the NBIC perspective, the knowledge of the social will increase up to the full mastery of society.

These remarks are useful to better outline a divergent fourth approach, which does not frame either the social dimension in terms of either an "impacted object". Furthermore, this approach does not focus narrowly on technologies as tools for predicting social dynamics and fully master them.

On the contrary, this point of view acknowledges the social as a constituent part of technology and the latter as a source of social complexity, by rejecting a narrative which attempts to reduce society to its representation provided by technology and natural sciences and by making explicit the values and social representations which are constitutive of the technological venture.

Such a work has overt and implicit references in broader science and technology studies (e.g. in risk and technology assessment [12], public controversies on technology [13] and also technology design and development [14]). In Brian Wynne's words:

> *By a reflexive approach I emphasise technology as a social vehicle that already represents, and tacitly reproduces, social commitments; not as a social entity which only has post-hoc social impacts. That is, we need to pay attention to what technology embodies, reflects and reproduces by way of prior values, identities, cultural forms, and social relations. [12, p. 20–21]*

In the NBIC arena, an example of such a "reflexive perspective", as it is labelled here, is offered by Khushf's proposal of a systemic framework for ethically assessing human enhancement [15].

The model provides a flexible and comprehensive framework to explore and assess alternative proposed interventions to deal with enhancement-related issues, like individual and herd immunity, team performance, environmental sustainability. The Author propose to integrate three heuristic dimensions:

- a scale of intervention axis, which outlines the relevant level for the functioning of the proposed artefact, e.g. sub-system (molecular, tissue, cellular, ...), system (personal interaction) and environment (organisations, policy design and regulations...);
- a system axis, which defines the system object of intervention, both individual and collective (person, group, organisation, society);
- a well-being axis, which outlines the level of systemic integration targeted by the intervention (e.g. part-function, system integrity, integration in environment).

To pick up one of Khushf's examples about framing the discussion on the "immune response of an individual":

> *This [...] involves the system 'individual', but it can be at the part-function or system integrity levels of well-being, depending on whether the enhancement is by an inoculation (e.g. a vaccine) or by means of a broader psychoneuroimmunological effect (e.g. mood, seen as strengthening immune response). [15, p. 144]*

Alternatives are hence analysed and assessed according to these three axes, from a multiple level perspective, which integrates technical and social considerations, thus providing

> *"a framework for specifying the ends of NBIC convergence efforts, and for debating the tradeoffs and values differences associated with specific accounts of human flourishing. [15, p. 144]*

This section of the presentation was aimed to highlight some features of the image of social sciences as emerging in the internal discourse of NBIC convergence. One can see how in the CT community coexist both examples of reductionist approaches, which see NBIC's paradigms and tools to change social sciences, and more complex approaches, which frames a context for the collaboration of NBIC and social sciences.

The following sections of the article propose some comments on the conditions of such a collaboration. As a first step, three epistemic conditions are considered. Condition one regards the acknowledgement of the internal and external diversity of CT field, which obliges to a specific and issue-related interaction. Condition two concerns the necessity to engage with cross-cutting concepts which structure the field. Condition three is preliminary to the former two and considers the need for social scientists to have an expertise, which is sufficient to interact interestingly with NBIC natural scientists and engineers.

4. The first condition: specificity and issue-related interaction

The first epistemic condition the article envisages, is the acknowledgement of the internal diversity of NBIC and, hence, the specific and issue-related interaction between social sciences and CT. As stated beforehand, a reference to nanotechnology may be of help for introducing the discussion.

4.1. Internal diversity

Nanotechnology is internally plural. This plurality is not simply contingent, though some commentators [16] point out that diversity is probably increasing partly for the current favourable institutional conditions for "nano" research which are an incentive to re-label diverse researches to benefit from policy priorities. Rather, plurality appears intrinsic and constitutive.

For instance, 23 European experts in the "emerging field of nanotechnology" were surveyed in the spring of 1997 to elicit their views on which research topics were to be included under the label of "nanotechnology" [17] and which were the relations among these subfields. More than half of the respondents agreed in including a wide range of topics from electronics, physics, and chemistry, and namely: nano & quantumelectronics, nanostructured materials, scanning probe techniques, molecular (materials for) electronics, molecular nanotechnology, computer modelling, mesoscopic physics/technology, supramolecular chemistry, cluster/mesoscience.

Five years later, Mehta, who was dealing with the features of emerging innovations in nanoscience and nanotechnology, still affirms that "nanotechnology is an umbrella term for a wide range of technologies" [18] and presents a sample of expected applications of nanoscience which ranges from the environmental, to medical, electronic, and materials fields (Tab. 1).

In 2006, Schummer [16] proposes the adoption of what he calls a "real definition" of nanotechnology, i.e. the complex of "particular research topics that usually appear under the umbrella of nanotechnology in governmental research programs, in nanotechnology research centers, in nanotechnology journals, and at nanotechnology conferences" (Tab. 2). Again, diversity seems the major common feature of such fields.

This diversity **within the field** is challenging for the identification of emerging social issues and the opportunities and forms of social sciences engagement with the field. This is not to say that subfields are not coupled or that relations do not exist, but they have some specificities and such specific features have to be taken into account.

Table 1.

A Sample of Applications Expected to Emerge From Advances in Nanoscienoe

Environmental	Remediate contaminated soil and water
	Reduce use of raw materials through improvements in manufacturing
	Rebuild the stratospheric ozooe layer with the assistance of nanobots
Medical	Improve the delivery of drugs
	Develop techniques in nanosurgery
	Repair defective DNA
	Improve diagnostic procedures
Electronic	Develop molecular circuit boards
	Improve storage of data
	Develop molecular computers
Materials	Increase die strength of industrially valuable fibers
	Replicate valuable products (e.g., food, diamonds)
	Improve the quality aod reliability of metals and plastics
	Manufacture "smart" materials

Source: Mehta [18]

Table 2.

Research fields that are usually related to nanotechnology

• scanning probe microscopy	• quantum computing
• nanoparticle research	• MEMS (micro-electro-mechanical systems)
• nanostructured materials, polymers and composites	• liquid crystals
	• small LEDs (light emitting diodes)
• ultra-thin coating	• solar cells
• heterogeneous catalysis	• hydrogen storage systems
• supramolecular chemistry	• biochemical sensors
• molecular electronics	• targeted drug delivery
• molecular modeling	• molecular biotechnology
• lithography in the production of ITs (integrated circuits)	• genetic engineering
	• neurophysiology
• semiconductor research and quantum dots	• tissue engineering

Source: Schummer [16]

NBICs multiply diversity, in terms of research areas (some of the topics in Table 2 may be framed as convergent technologies) and in terms of potential innovative devices and artefacts. For instance, considering this second aspect by using the inside/outside framework proposed by Spohrer [19], we can distinguish four categories and some sub-categories of technological devices and artefacts:

(1.) outside the body and environmental: new materials, new agents, new places, new mediators (tools and artefacts);
(2.) outside the body and personal: new mediators (tools and artefacts);
(3.) inside the body and temporary: new ingestibles;

(4.) inside the body and permanent: new organs, new skills, new genes.

Without entering the questions of ethical and social assessment and technical feasibility of the devices included by Spoher and other Authors in some of these subcategories, it seems reasonable to concede that such a complex technological framework will challenge social sciences with diverse and specific questions.

Let us consider this news:

> *Growing concerns about the safety of school children in Japan has led a primary school in Wakayama Prefecture to initiate a project using RFID to track them. Since November 2004, GPS-embedded backpacks are available for about $350. RFID tag data can be transmitted to central databases by wireless connections and tagged items can be tracked in real or near-real time. [20, p. 129]*

Apart of the ethical concerns that such a project may raise, a technical response to a community problem (safety of school children) has different social implication and assumptions according to the level we move along the outside/inside framework. For instance, one could imagine an "environmental solution" by increasing the number of video monitoring devices in the territory of the Prefecture, or an "inside the body and permanent" one by implanting a permanent subdermal RFID tag in the children. No matter the technical solution we adopt, data collected can be managed at a community level (e.g. by the police) or at an individual one, e.g. by the parents who will be directly responsible for caring about their children's position. In case of a community organisation collecting data, this can be private or public, the service may be commercial or not, some children may be excluded (let's say those attending private schools), etc. (these comments may be framed also in Khushf's systemic perspective).

This simple "thought experiment" is to show how issues arising are so vast and varied that engagement is likely to be issue-specific to be effective and meaningful.

4.2. External diversity

The preceding section was focused on diversity within the field. The current one focuses on diversity **between fields**. As new technologies do not emerge in a social and historical vacuum, some of the issues at stake with CT are not completely new and they present in a new fashion what was debated for earlier technologies.

Let us think to public engagement in S&T policy and technology assessment. While the object of the public debate changes, as values and policy options involved, it is reasonable to consider the institutional conditions for effective participation to have a structural character rather than shaped by the novel technologies at stake. From this point of view, for instance, the criteria set by Rowe and Freeware for assessing the quality of participation processes, in terms of "acceptance criteria" (the features of a method that make those processes acceptable to the wider public), and "process criteria" (the features of the process that are liable to ensure that it takes place in an effective manner) [21] appear useful for dealing with CT.

Similar comments may be addressed to the issues related to global inequality. Taking again nanotechnology as an example, one can surely consider how such technologies may influence existing inequalities or, vice versa, how the current state-of-affairs impedes a fair access to emerging technologies [e.g. 22, 23]. However, the issue of building a broad international framework which enables technological advances to reduce and not to increase the gap between rich and poor countries is surely a prior and more general issue.

On the other hand, some social issues emerging are fairly specifically connected with new technologies. Let us think of a device like the cochlear implant. The cochlear implant differs from

the hearing aid in that it does not amplify sound and it bypasses the damaged part to send sound signals directly to the auditory nerve. Therefore, strictly speaking, the implant does not substitute or replace the damaged part of the ear and it does not eliminate deafness [20]. Though, again, some general issues may emerge also in this case, some very specific social issues are at stake: the implant may affect the self-representation of the implanted individual (the deaf person), it can alter the representations which impaired individuals have of the implanted individuals (the deaf community) and the ones not impaired people have. Furthermore, one the one hand, it alters the definition of deafness and, on the other, it supports a clearly defined view of normality.

5. The second epistemic condition: cross-cutting structuring concepts

Though specificity and issue-relatedness are presented as a first condition for meaningful interaction of social sciences with NBIC, a second condition is to critically and constructively engage with the basic concepts and definitions that structure the NBIC field.

To introduce the discussion, we refer again to Schummer and to its foundational work on the social study of nanotechnology [16]. The German scholar distinguishes three types of definitions:

- the "nominal one", which describes the "necessary and sufficient conditions" to define an object;
- the "teleological one", which defines nanotechnology by its future goal;
- the "real definition" of nanotechnology which was mentioned in the previous section and refers to how the field is defined in research practice and policy design.

Such a distinction is developed in the framework of a strong critique of "nano-hype" and the related "social immaturity" of nanotechnology, which is reflected in the prevalence of visionary/teleological definitions.

> *Teleological definitions of nanotechnology have come in the particular form of visions about a future technology to be developed that will radically change everything, from industrial production to the physical, mental, and social conditions of human life. [16, p.3]*

Convergence is assumed to be an example of visionary definition:

> *US agencies have assumed their own nanotechnology visions, from the Drexler-like "shaping-the-world-atom-by-atom" to tranhumanist-like vision of a "convergence of nanotechnology with biotechnology, information technology, and cognitive science" for the "enhancement of human performance. [16, p. 3]*

According to Schummer, this approach impedes to reach social maturity and concerned social understanding of, and engagement with, nanotechnology:

> *Hype is the enemy of deliberate technology assessment and governance. In many developed countries the nano hype has generated uncritical attitudes, blind support of any research that bears the nano label, and exaggerated public hopes and fears that draw on science fiction rather than on the actual R&D projects. If developing countries copy the nano hype, there is the additional danger that "nanotechnology" becomes a symbol of modernism, such that the assessment of nanotechnologies turns into a symbolic debate on modernism versus traditionalism. [16, p. 11]*

While it is unquestionable that a major stream of NBIC narratives is an example of hype, which by the way is surely not limited to nano-hype [25], and that the very idea of "Converging technologies **for** improving human performance" (emphasis added) is constitutively a teleological definition, a closer look to the enhancement issue shows a varied and fragmented range of perspective (transhumanist-like ones, but also much more moderate) and the integration of several dimensions (individual, collective, environmental) without an exclusive focus on body engineering and modification. Therefore, it is proposed here a more modest stance of engaging to critically observe such a key concept structuring the NBIC field rather than dismiss it as "confusing".

As an example of such a critical engagement, I refer here to Khushf's analysis of the concept of "human enhancement" [25]. First of all, the Author notices that two narratives may be considered, and namely an internal and an external one to the NBIC research community, each with a different core:

> *"There is thus a major difference between the internal reflection of NBIC convergence, which focuses upon the science and the institutional and economic means for sustaining that science, and the external debate, which focuses upon the ethical issues". [25, pp. 265–266]*

Such an encounter of insiders and outsiders' tales is a source of controversy. Such a controversy is (at least partly) nurtured by the different representations of the concept of "enhancement" which the two groups have:

> *There are several areas of NBIC convergence that are clearly associated with what critics call 'enhancements.' These include radical extension of aging, brain/machine interfaces, surgical or pharmaceutical enhancement of beauty, cognitive ability, and genetic modifications of animals and agriculture, just to mention a few examples. [...] However, there are also many areas that, although associated with the 'enhancement of human performance,' are not very controversial, and that many would not even call 'enhancements.' These include the development of new medical therapies—a prominent area of the NBIC initiative—organizational enhancements for more productive teams and companies, new forms of energy, and environmental sustainability and remediation. [25, p. 268]*

Behind the diversity of controversial issues, Khushf suggests that a common way to frame the overall discussion, and the enhancement concept itself, is based on the opposition of therapy and enhancement:

> *Presupposed by the therapy/enhancement distinction embodied in much of medicine and the law is the assumption that science and technology enable us to overcome threats to the natural form and function but that they can also be a threat to such natural form and function. The idea is that there is some biologically based and discerned "human nature," and that when we try to alter this by technological means, there is actually a distortion and disruption of the individual and society, and a delicate complex balance necessary for flourishing is undermined." [25, p. 267]*

In this case, the use of the therapy/enhancement distinction for framing the CT discourse and the normative assumption that therapeutic goals, i.e. the cure of diseases, are the only legitimate goals to be pursued, have consequences on our understanding of NBIC social, ethical and policy open questions.

For example, Schummer's cursory discussion of enhancement [16] seems to adopt this approach, as he affirms strongly that "if regulations allow for some other 'enhancement' treatment, it should be ensured that this does not absorb capacities from the health care system" and "it is questionable that [...] 'human enhancement' is more important than the medical treatment of serious diseases".

Notwithstanding the applicability of such distinction to some issues, following Khushf, it is argued that such an opposition may be misleading in several cases. For instance, it misses to frame important sets of applications, which are part of the enhancement discourse (e.g. groups and organisational performance), and also, partly, the issues of body implants, which is generally considered as a primary source of concern when "enhancement" is discussed. Regarding this, as it seems in the above-mentioned example of cochlear implants, the borders between therapy and enhancement do not seem so clear.

6. The third epistemic condition: interactional expertise

A preliminary requirement for the two of preceding epistemic conditions is the development of a sufficient expertise both for engaging with specific issues and cross-cutting structuring concepts, and to collaborate interestingly with natural scientists working in the NBIC domains. In a broad sense, this discussion may be hence framed in the wider picture of the epistemic conditions of multi- and inter-disciplinarity.

Acknowledging the need of sufficient expertise to interact is, probably, a platitude, but a discussion about what "sufficient" means may be of some interest.

6.1. Levels of expertise and relations within the scientific community

The argument developed in this session moves from Collins and Evans proposal for a model of multi-disciplinary interactions in the scientific community [26]. While the focus of the original model is far broader (it is both an attempt of reorienting STS towards researching expertise and experience, and of applying this novel perspective to technical decision making), following Gorman, it is here applied to delineate some considerations on the engagement of social sciences in NBIC.

Collins and Evans suggest an outline of the relations between the community of experts in a certain scientific domain or in a certain scientific controversy (called the core-set of scientists) and the other groups of outsiders. According to the Authors [26, p. 242], "a core-set has been defined as being made up of those scientists deeply involved in experimentations or theorization which is directly relevant to a scientific controversy or debate" and "a core-group is the much more solidaristic group of scientists which emerges after a controversy has been settled for all practical purposes".

Then, with regard to a specific field, the scientific community can be divided between insiders and outsiders to the field. The former are the members either of the core-set or even the core group of scientists, the latter do not belong to both. The relations between insiders and outsiders may be framed in terms of differential expertise about the field.

The two Authors apply this insider/outsider distinction to the analysis of the practice of sociologists of scientific knowledge, who, typically, enter scientific fields which they do not know and try to learn enough about them to do sociological analysis. Moving from this case, three levels of expertise can be distinguished [26, p. 254]:

> *(1.) no expertise: that is the degree of expertise with which the fieldworker sets out; it is insufficient to conduct a sociological analysis or do quasi-participatory field-work;*

(2) interactional expertise: this means enough expertise to interact interestingly with participants and carry out a sociological analysis;
(3) contributory expertise: This means enough expertise to contribute to the science of the field being analysed.

This model, which can be applied to the general problem of multi-disciplinary collaboration, fits nicely with the issue of social sciences engagement with converging technologies.

6.2. Level of expertise and boundary work: the concept of trading

Referring to Peter Galison's work on the collaboration between physicists and engineers at MIT Radiation Laboratory during WWII, Michael Gorman introduces the metaphor of "trading" in cooperative work at disciplinary boundaries in nanotechnology [27]. Gorman's argument is that scientists from different disciplines and traditions can "trade" disciplinary concepts or meanings and succeed in coordinate their research practices and representations to carry out cooperative research work. A "trading zone" is the social space where experts communicate and trading happens. To enable people trading, participants to a trading zone have to develop a "creole language" [28], which is both a result and condition of trading. Creole is not a new artificial language, rather the result of an ongoing process of sharing meanings from their respective domains.

In a comment to Collins and Evans article, Gorman suggests a relationship between the three level of expertise and three different forms of institutionalisation of the scientific community and three different trading zones [29], which describe such interaction and sharing of expertise among different cultures at disciplinary boundaries. Combining these insights with a later work [28], the following description of three types of trading zones may be outlined:
(1.) a top-down trading zone: an elite-controlled zone where the expertise of such an elite is not accessible to other participants in interaction. Those who are not part of the elite have no influence on setting the boundaries of relevant expertise;
(2.) a relatively equal trading zone, which may include a boundary object representing technological possibilities, where experts from different fields interact around the development of such a technology or system;
(3.) a shared mental model zone, in which participants share a dynamic, evolving representation of the mission, the object of common work and the boundaries of collaboration.

A different degree of expertise corresponds to each of this trading zone:
(1.) no expertise: this happens in top-down trading zones, where "the elite can be a group of experts who use their specialised knowledge to dictate how a socio-technical system will function" and trade does not actually occur;
(2.) interactional expertise: this happens in boundary object trading zones, where experts from different fields interact around the development of a technology or system and create creoles around such boundary-objects representing technological possibilities. The figure of "interactional experts", who can communicate across disciplines, may facilitate this collaboration;
(3.) contributory expertise: this happens in "shared mental model zones", as experts from different areas engage each other deeply, learning how to contribute jointly and develop a new technological system.

6.3. Trading zones and interactional expertise: a goal for social sciences in NBIC?

Applying the trading zones metaphor and the expertise differential model to the boundary work of NBIC and social sciences, we can outline three degrees of integration between these two scientific cultures:
(1.) top-down trading zones/no expertise: NBIC scientists guide the "convergence" with social sciences, social issues are framed in terms of impacts and social sciences are required to adopt paradigms and methods (e.g. computational and simulation models) developed by the NBIC core to produce reliable knowledge; influence is unilinear;
(2.) boundary objects/interactional expertise: NBIC and social scientists engage in interaction about boundary objects (i.e. specific technologies and innovations) and they can participate to the negotiation of meanings and representations of devices and their potential uses; recursive relations are established between NBIC and social sciences and between their respective cultures;
(3.) shared mental model/contributory expertise: social scientists are able to contribute to the joint development of the core NBIC.

The first degree of integration appears near to the relational patterns between NBIC and social sciences outlined in the engineering, impact and predictive perspectives described in section 3. In this case, the NBIC insiders will dictate how the socio-technical system will function and the choice of outsiders (social scientists) is to adapt or to be ignored.

The second degree of integration is the pre-requisite for social sciences engagement with CT. An interactional creole is both a pre-requisite and the result emerging from boundary work around specific devices/applications (issue-relatedness) and around key concepts. The examples of the "framing perspective" may be appropriately included in this second degree of integration.

The third degree of integration is probably beyond the scope of NBIC and social sciences collaboration: the development of technological possibilities (directions of research, design solutions, users representations, etc.) may be from the very beginning influenced by the social sciences discourse, but core research paradigms and practices are likely to be incommensurable.

7. Some tentative remarks on the institutional conditions of trading zones: notes about university practice

The last section of the presentation deals with some possible institutional arrangements that can foster the creation of trading zones and, through them, the emergence of interactional (or contributory expertise, apart from the preceding *caveat*) in social sciences.

There is a widespread awareness that education of young scientists and engineers plays a key role for including ethical and social considerations in the NBIC agenda with an emphasis on initiatives and projects which support ethics and social science education for scientists and engineers.

Here, the relevant aspect is the opposite, i.e. how social scientists can include in their discourse the basic elements of a creole shared with NBIC researchers. With regard to this, it appears relevant to discuss the enabling institutional conditions for making this dialogue emerge. In these short comments, I will follow again Michael Gorman's work, which is the primary source of this section.

Though the introduction of multi-and inter-disciplinary collaboration in the curriculum is better considered at multiple levels (tertiary but also secondary and primary education [28, 31],

with different teaching and learning goal), higher education has evidently the major responsibility for training social scientists who are able to engage with Converging Technologies.

In an education system oriented towards specialisation and disciplinary separation, the specificity of such training could be the purpose of helping students to "acquire the interactional expertise necessary to facilitate collaboration across interdisciplinary trading zones" [28, p. 83]. After this strategic decision, it is a matter of tactics if such a training is to be delivered to the generality of the students or to some of them who can then act as "interaction-facilitating experts", as Gorman proposes.

At the graduate level, students should have a core area but could be required to gain interactional expertise in at least one other area. This can be applied to the NBIC core, but also to the relation between NBIC on the one side and social sciences on the other. Furthermore, cross-cutting multi-and inter-disciplinary seminars can be organised for all the students.

At the undergraduate level, some integrative seminars can be implemented with the same criteria. Moreover, simulations and role-playing can be organised for achieving such an integration. They can be run as a course or as a separate, informal education activity.

Similar thoughts may be proposed for research. Gorman retails of a project [30] leading to an engineering graduate thesis on biomedical application of self-assembly of metal oxide nanodots which incorporates from the outset the social dimension in its account of nanotechnology thanks to the creation of a trading zone whose members were a social scientist, a material scientist, a biomedical engineer and an undergraduate student.

Following this example, graduate thesis can be an opportunity for creating iterative processes of collaboration between social sciences students, young researcher and natural scientists and engineers working in the NBIC fields. The appropriate institutional setting to stimulate such experimental work may be research organisations or programmes which have in their mission the promotion of interdisciplinary natural and social sciences research in the NBIC field [27].

Eventually, a final remark is worth about the communication processes which can make the "creole" emerge. It was mentioned above how this concept is a key aspect of Gorman's trading zones, as it is considered by the Author simultaneously as the result and the condition of progressing dialogue among different disciplinary culture.

Gorman's thought is very clear in keeping a bottom up approach, as creole should emerge from everyday social interaction and practice, while a top-down perspective is mentioned only concerning the creation of a broad institutional framework (i.e. research centres, training opportunities, etc.) enabling the progressive formation of a common understanding of the field.

To further stimulate dialogue and sharing, it is here suggested the usefulness of specific networking activities focused on the creation of a "glossary", as a tool for negotiating language and practice across disciplines.

Such a "glossary" is not to be considered as a static product, but as an ongoing dynamic discussion about the main issues and concepts involved in the NBIC discourse and in its social and ethical aspects. A transnational networking activity gathering the most directly concerned disciplinary cultures, may be helpful in supporting the functioning of research and training trading zones, their sustainability over time, their medium-long term achievement and their transferability and replicability. Furthermore, this kind of activity itself promises to work as a trading zone.

Such an effort may be arranged according to the specificity/integration paradigm outlined above: groups working on single device or technology areas and, emerging from cross-cutting bottom-up collaboration, a parallel engagement with the key organising concepts and definitions of the field.

8. Conclusions

Perhaps, technological innovations driven by NBIC are going to keep all their promises: the convergence of NBIC may actually represent a radical turn in our knowledge of the world and our capacity to shape it; it may represent a new unifying principle of science and a grand project for the future of our societies; it may challenge all our present beliefs and values.

More modestly, CT will represent surely a major stream in science and technologies in the next decades and they are going to further reinforce the role of technology in mediating our identity and our relation with nature [31].

In both cases, social sciences are challenged by this emerging field. They are called to assess the values behind technologies, the implicit and explicit representations of users which orient technological design, the consequences on our societies, cultures, and ethics.

To meet this challenge, social sciences have to develop an expertise, which is consistent with the tasks of such an engagement, and appropriate institutional conditions in our university system may be helpful to create the conditions for accomplishing this task.

No matter how uncertain the actual reach of CT research, application and discourse will be, it is our present challenge to create the conditions for coping.

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JEAN-MARIE ROUSSEAU

THE INNOVATION THEATER

While observing that the whole world yet entered into a new knowledge era and all the local partners share a knowledge area, such a metaphorical aphorism proves to stage actors for playing in a threshold "***Innovation Theater***" that I hereby will try to demonstrate the progress in seven Acts, from a commitment to the Lisbon Agenda in ***Act 1***, up to a ***2nd Act*** by looking forward to achieving a higher extent of awareness within the ***First Part of the play***.

The Second Part of the play, which is dedicated more specifically to comparison between regions, will help understand the competition and the best ways to gain and maintain global competitiveness, with three Acts, all related to the coherence of knowledge and growth within the entrepreneurial milieu. ***Act 3*** allows re-driving people to be eager for creativity, as today's advanced economies are knowledge-based and the relevance of R&D at regional levels doesn't need anymore to be stressed. Fast growing accumulation of knowledge affects all sectors of the economy, with ever S&T content embedded in products. But, by contrast, while most European regions have a long tradition of breakthrough inventions, they often fail to turn the acquired knowledge into marketable products and services and bright ideas into brisk business. ***Act 4*** aims at pointing out the importance of irrigating territories and SMEs with technology and at the same time improving their absorptive capacity, while Act 5 attempts to let understand why main European actors fear to be creative.

With the ***Third Part of the play***, it is possible to consider re-starting the construction of a regional advantage by generating a creative tension between learning behaviours identified as so-called "cooperformance" in ***Act 6***, and exploration and re-appropriation of the future in ***Act 7***.

Part 1: Yet entered into a new Knowledge era

Act 1. Committing the Lisbon Agenda

Starting from the ***Lisbon European Council*** of March 2000, a wide mobilisation of the European member states was considered in order to transform the whole Union into "***the most competitive and dynamic knowledge-based in the world by 2010***". At mid-term, in 2005, the process was re-launched by attempt to re-vitalising the European economy with three main areas, which are distributed in the so-called report—"*A new start for the Lisbon Strategy*" as follows:

- Making a more attractive place to invest and work;
- Targeting and creating more and better jobs;
- Leveraging knowledge and innovation for growth;

Considering, beyond the *Wim Kok* report, a series of surveys stated that not only the US still outperformed the European average on the eight main axis of development—*1) Building network industries; 2) Developing a European area for Innovation and R&D, 3) Liberalisation, 4) Improving the enterprise environment, 5) Increasing social inclusion, 6) Enhancing sustainable development, 7) Creating efficient and integrated financial services, 8) Creating an information society for all*—but this gap was in divers extents widening year after year (refer to "*the Lisbon Review 2004*" from the *World Economic Forum—Evaluation of reforms and policies in Europe*, J. Blanke and A. Lopez-Claros). This report also stressed that some countries, particularly the Nordic ones, however receive high scores in all areas, while others, particularly those in Southern Europe, trail behind. Such an observation related to high scores in Northern European regions and poor performances in Southern European regions, let us know that European Union's average is still far from achieving the Lisbon Agenda target, especially according to the ***World Competitiveness Knowledge Index*** (*Benchmarking the leading knowledge Economy Regions*), with a similar benchmarking exercise in four axis which are:

- Human Capital Components (Number of managers per 1000 inhabitants, number of employees per 1000 inhabitants in five strategic sectors);
- Knowledge Sustainability (Per capita expenditures in 1^{st} an 2^{nd} Education, per capita expenditures in Higher Education, secure servers per 1 million inhabitants, Internet hosts per 1000 inhabitants);
- Knowledge Capital Components (Per capita expenditures on R&D performed by government and by business, number of patents registered per 1 million inhabitants);
- Knowledge Economy Outputs (Labour productivity, mean gross monthly earnings, employment rates);

As the R&D expenditures compared to GDP is more or less around 2%, whatever UE15 or EU25, huge gaps are observed (less than 1% in the peripheral regions and more than 4% in the Northern regions, sometimes up to 6%) and 28 regions out of 211 invest in R&D more than half the European expenditures.

Act 2. Is it no more sufficient to rely on competitive advantage?

Beyond the need of improving the knowledge capacity of the regions, strong entrepreneurial spirit proves to be vital in this knowledge-based economy of Europe. A positive climate is crucial which can be favored by a responsive public policy and the cooperation between public and private sectors, as well as the academic sphere (universities and research centres), the entrepreneurial milieu and the public support of the local and national administrations, but anyway the central point is defined around the activities and the creativity forces of entrepreneurs and human

resources... winners who don't fear to blaze new trials and create and form a future that will support an integrated scheme.

Creatives start with an idea of what is needed by a society or a market. As inventors, they create—but they also manage sometimes to apply their creations, fuelling wealth and even generating high-value, higher-paying jobs, not just for direct beneficiaries of those new jobs, but also for other people touched by the knowledge process. Such a process should be seen not as a linear process, but as a continual interaction among many aspects of our economy and society. But one-track thinking is an obstacle to recognising new ideas and creating innovation. It is often needed demolish ossified thinking and seek examples or inspiration from surprising environments, as a trailblazer territory in associating in such an attitude as many partners as possible.

In fact, scientific research is implied in social reflexivity. In this science-technical society that we all nowadays tend to, widespread scepticism regarding scientific knowledge releases the scientific company of its infinite claims with knowledge. The "knowledge" becomes a natural need for the society, comparable with the needs to eat, drink, sleep, that is to say a never-ending project. Sciences show its modesty regarding knowledge and create in same time a never-ending market for its provisions of services. Recipients of sciences can come from the administration, politics, and business and, as a whole, the public sphere. As a result, this iterative process becomes collaboration or confrontation with "co-producers of knowledge" and has a social impact.

Political decision-making and the opinion of the society influence research. It is obvious that human decisions that will be made will depend, at least, in part, on the kind of anticipation of the future of the system, this anticipation being made public. And this future will depend, in turn, on the decisions that will be made.

A causal loop appears here, that prohibits us from treating human action as an independent variable. Thus, research and technology are systems in which society is a participant. The push and pull of supply and demand don't occur in a vacuum. Taken together, the policy and infrastructure environments create a local platform that can accelerate—or impede—the pace and quality of innovation.

With respect to similar observations, the most common conception of knowledge is still too many times a linear progression from research to invention and from invention to commercialisation. But this framework makes it clear that the dynamics of innovation are a lot more complex. It is not just the sum of knowledge inputs. And although Europe has made progress in encouraging a more favourable culture and environment for entrepreneurship, much remains to be done to make this a reality both on the regulatory and the educational side. However, the usual and still most common process consists of starting from a willingness to animate and foster the R&D base, by developing the S&T know-how of a territory to a "commercialisation of such a science base, by transferring this know-how. According to the linear process we just (above) talked about, the public authorities which, in a first step of R&D base, limit their support to measures as public funding of universities and research laboratories, investments in science parks or divers subsidies and taw breaks of industrial research, by contrast in the second step of commercialisation of the science base, will invest in technology transfers and technology offers, improvement of university/industry partnerships or in cooperative initiatives from R&D centres.

However, the technology and knowledge irrigation of the whole territory which allows a broad association of the maximum of sub-contractants and complementary can prove to be crucial in reinforce local growth and employments, and consequently re-enhancing the resilience and the competitiveness of the regional economy. This process can be achieved with new measures mainly dedicated to local SMEs, as inter-firm initiatives within clusters, business and knowledge intermediaries brokers' activities, technology audits from chambers of commerce and industrial associations and all other direct and practical added value brought to SMEs. As a matter of

facts, it is hereby important to remind an eye-opening study—conducted in 2003 by the European Commission—on entrepreneurial values, which stated that while two out of every three Americans preferred to be self-employed, half of all EU citizens preferred to work as an employee for someone else; even more interesting is how Americans handle personal risk, versus Europeans; while two out of three Americans say they would start a business even if there was a risk it may fail, nearly one in two Europeans say they would not take the risk, if the business might fail.

Part 2: Comparison, competition and competitiveness

Act 3. Re-driving people to be eager for creativity

Advocating a more important involvement of SMEs and the whole regional networked fabric, aims at favouring complementary skills (to melt the performance challenge it faces), common purpose as a consortium of local actors; common performance targets with the inspiration and emotional energy needed to perform, common agreed methods with defined and allocated tasks and works, and a joint responsibility for these purposes, targets, and methods. While in the industrial age, machines and physical plants were the core assets of most companies, in the knowledge economy, intellectual capital is the engine that drives economic growth and prosperity.

So, with respect to such an evolution of the economy, high consideration of the whole human resources is needed, and going far beyond the Lisbon Agenda by focusing two major priorities: energising the entrepreneurial economy and reinforcing risk-taking and long-term investment. Crossed fertilisation within the territory between all the business ad knowledge actors lead to build on cutting-edge and multidisciplinary research, while providing the training ground for next-generation innovators and facilitating access to incubating services, including early-stage funding. By contrast, investing in knowledge demands adherence to accept risk and to expect the return on investment, i.e. three areas of a great concern:

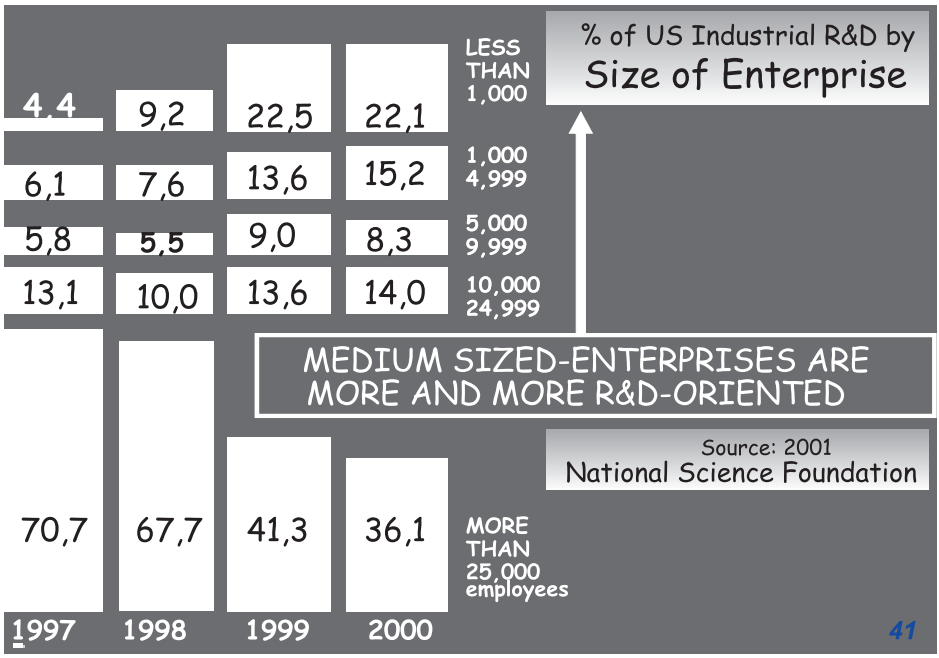
- hyperfocus on short-term results, due to short investment supply and horizon; smooth earnings preferred to long-term value creation;
- under-evaluation of intangibles, because 99% of the accounting are centred on the top of the iceberg;
- and then, regulatory deterrents to risk, since companies with lots of cash are afraid to invest in anything... including their own future!

Yes, too many European companies and European actors nowadays are afraid to invest in anything, including their own future! Thus, the question is consequently how to prevent from looming creativity crisis? Economies are fluid and people move, while leaderships are easily gained and lost. Creativity is an asset to be constantly cultivated and renewed. But, wherever creativity goes, growth is sure to follow...

Act 4. Not only irrigating SMEs, but also improving their absorptive capacity

Actually, the Europe's largest weakness compared to the US lies at the door of their SMEs, while increasing the Innovative strength of such a category is the key to qualitative growth and new jobs. In fact, Europe needs a new initiative to turn its SMEs into high-innovative companies.

According to the US *National Science Foundation* report (2001), the small industry in the US is more and more R&D oriented, since it is advocated that late 1990s the pictures related to the percentage of US industrial R&D by size of enterprises changed a lot, chiefly for firm-based

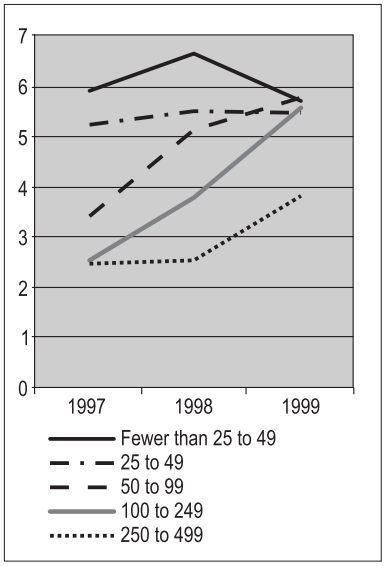


research. Of importance is the switch from large to smaller firms R&D incumbents, as stated in the following framework (below):

Furthermore, while comparing the R&D expenditures by small US companies in million $ (source National Science Foundation), we can see a remarkable growth in the late 1990s in share of R&D being conducted by smaller grade US businesses. Particularly striking is the manner in which the smallest category (less than 25 workers) rose in significance to reach comparable overall shares to firms ten times that employment size.

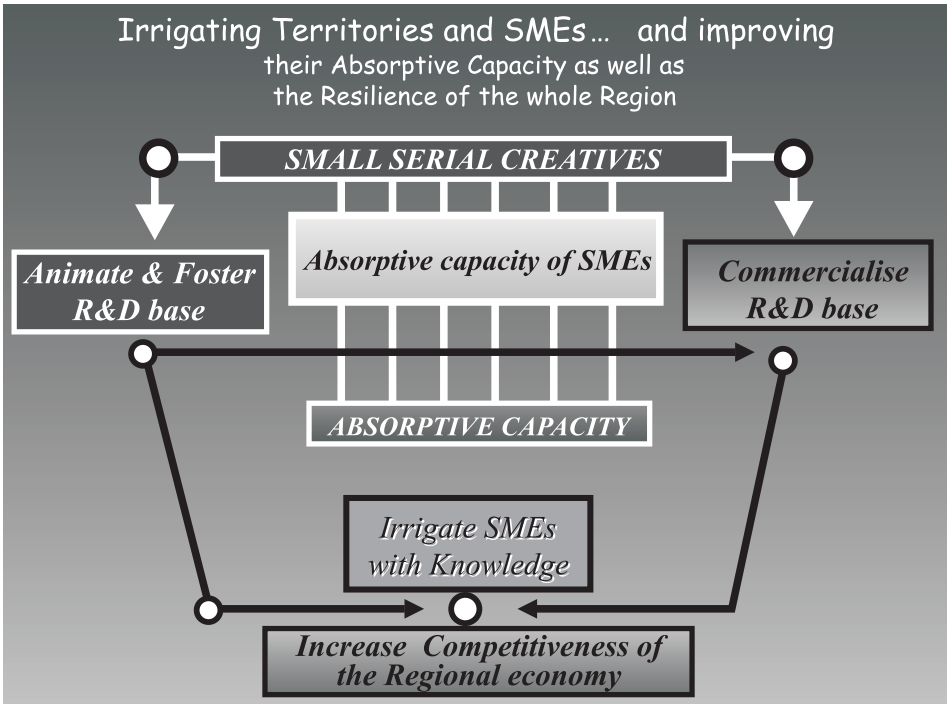
SIZE OF FIRMES / M. $	*1997*	*1998*	*1999*	
LESS THAN 25 employees	2,536	3,804	5,579	**120%**
25 to 49	2,455	2,535	3,824	**56%**
50 to 99	3,415	5,155	5,779	**69%**
100 to 249	5,907	6,622	5,707	**-3%**
250 to 499	5,229	5,522	5,463	**24%**

R&D Expenditures by Small US companies - $ Mo



From 1992 to 2000, in real terms, the US GDP grew by 36% compared to 19% for the European Union average. While the US remained the world leader in tech and its ability to attract top talents, few European countries appear to have similar competitive assets. However, according to Richard Florida and Irene Tinagli (*Europe in the Creative Age*, February 2004), Ireland demonstrated the greatest growth (7,6%) in creative occupations as an average since 1995, while Portugal had experienced negative growth in creative occupation. It is certain that the US, as well as Ireland, can't be due only to large companies in terms of R&D performances. If you compare large European and American companies, one will be struck by the fact that the amount of research they do is more or less equivalent. But, by contrast, in the case of SMEs, the ration is 1 to 3, sometimes 1 to 8 depending on the sectors and the comparative indicators, that is to say that American SMEs—which stand for 45% of the national GDP—have an average between 3 and 8 times more resources available to them for R&D than their European competitors, whereby however SMEs account for 65% of GDP.

Dr. Luc Soete, from *MERIT* (*Maastricht University*) also witnessed some peculiar performance of Ireland in terms of "Absorptive capacity" with moderate performance in terms of "Human capital", "Innovation and technical performance", and "research capacity", while it is observed that this country which was a "cohesion" country of the ERDF scheme up to now, scores nowadays the higher GDP in Europe.



As a result, this "Absorptive capacity" can generate a new type of entrepreneurs, who are representing a new dynamic in the competitive economical landscape: the "Small Serial Creatives", who are able to multiply creations of small enterprises and micro projects, from their lab. Those entrepreneurs are eager to commercialise outsourced inventions from large enterprises, as well as invest in mass in R&D base and provide lots of patents. Eventually, scientific research is implied in social reflexivity, as social and dynamic societal environments become decisive for research.

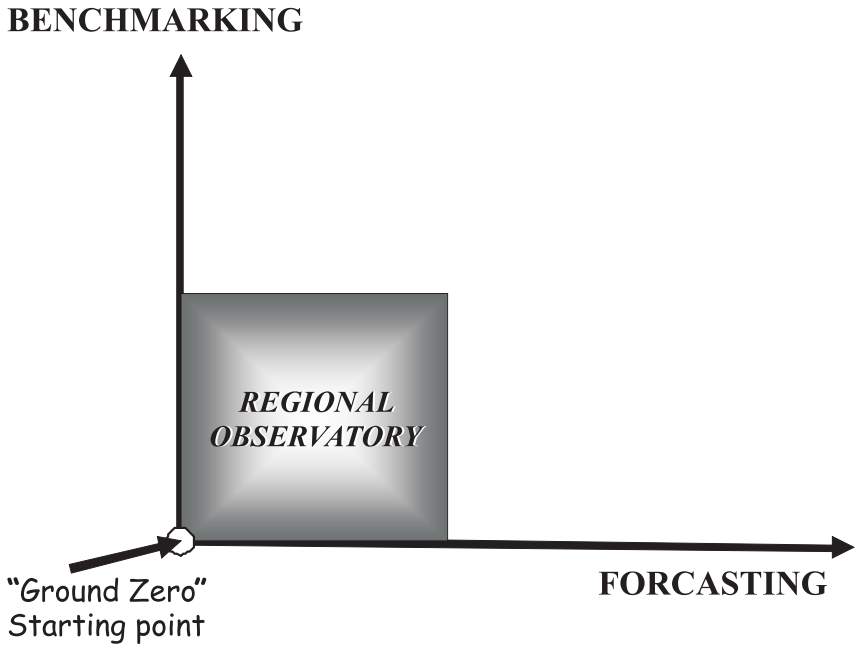
Beyond the world of enterprises, whatever small or large enterprises, recipients of sciences can come from adminsitration, politics, business, that is, the whole territorial sphere? As a result, the iterative process between all the actors, from different spheres, becomes collaboration or a confrontation with "Co-Creatives", since research and technology are systems in which the whole society is a participant, provided each actor is concerned and concerted.

Part 3: Creative actors within Smart territories

Act 5. Re-starting from Bench-Marking 'Plus' to the Regional Resilience!

Benchmarking is usually known as a comparative and useful exercise for learning from good examples, by marking indicators and ranking compared areas. Starting from scratch, some regional policies might emerge as a—late, but—necessary means to prevent from the regional sclerosis.

As a matter of facts, the *Kok* report (2005) witnessed that this benchmarking spirit could "*prevent Lisbon from becoming a synonym for missed objectives and failed promises*." Coupled with forecasting studies—analysis of strong trends and weak signs, plus extrapolations—this concept gives place to the creation of a ***Regional Observatory*** in a top-down process. Sometimes, there also is a real 'investment willingness' with an 'investment readiness', but most often, we must fear the syndrome of the '*Cathedral in the desert*' that Kevin Morgan used to blame.



But, by contrast, moving in a given territory, from pure comparison—which is hereby called "Bench-Marking"—to benefit from the knowledge and experience of the others, can helpfully contribute to create a real learning climate which we will consider as the impressive concept of "***Bench-Learning***".

Furthermore, Bench-Learning, by drawing lessons and trying to adapt good practices to the local context, facilitates a reinforcement of the local identity and an enhancement of the

attractiveness of talents, while blowing into a dynamic open and learning society. As businesses as well as organisations cannot always plan long term, instead they must shift to a more flexible 'anticipation-of-the surprises' model. Bench-Learning aims not only at comparing with others and finding ideas for development, but also at translating and converting those ideas into new types of behaviour in one's own organisation. The primary purpose of Bench-Learning is to influence the attitudes of peoples to combat smugness and as a proven recipe for organisational success.

Thus, as Mikel Landabaso and Nicola Bellini ("*Learning about innovation in Europe's regional policy*", 2005) recently stated, an attractive regional image "pays in the global economy, especially when it 'sells' both the quality of life and the social commitment". In parallel, instead of fearing the future, it is possible to explore an idealistic world.

While forecasting aims at merely anticipating the future, the motion of what we hereby call the "***Iterspective***" in the thoughts follows a reverse way: from the wished future towards the complex present. Preventing from looming any "Creativity crisis", choosing a "preferred future" in order to understand blockages for achieving it, it is offered to explore iteratively times and contexts.

For understanding what affects our society and our very near environment, at a very local level, it is useful to avoid to be stuck—quite buried—within the present, which is already a for of the past. In fact, as yet stated Edward Cornish (*World Future Society*), "*we psychology live within a past world, as the present is utterly different from the one we think about*."

Trying desperately to bet on the future, we actually are stopped and come up against this utmost obstacle, which is the understanding of changes: mega-changes and slight signals, whatever linear or discontinuous, whatever the speed of such current changes. By contrast, we need to jump over the "Cassandra" barriers as pessimism, scepticism, resistance to innovation, sclerosis, ossification of our thoughts and behaviours...

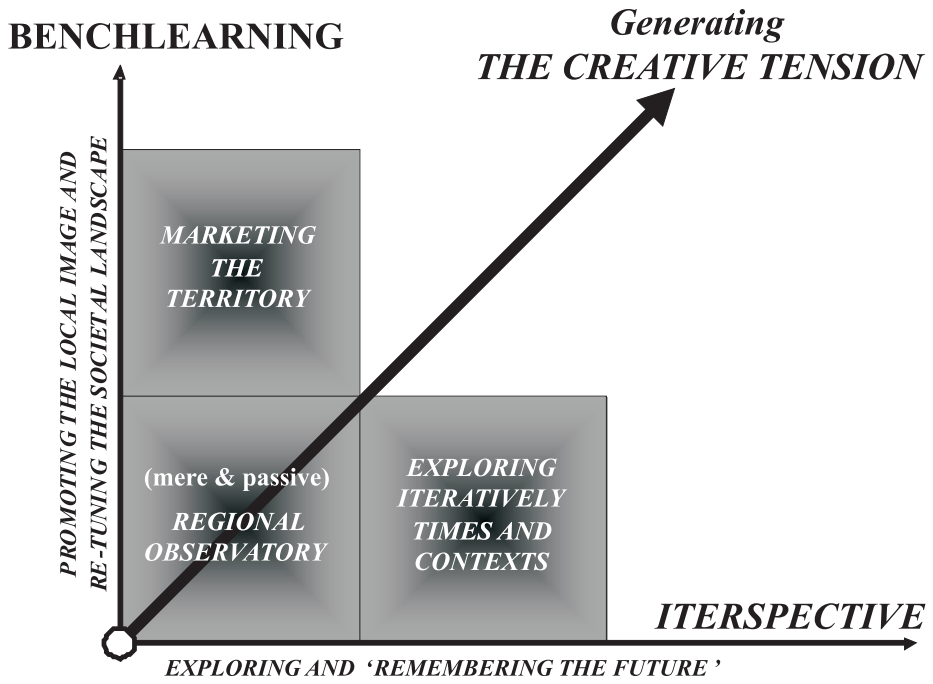
Since Iterspective helps explore understand those blockages for achieving the preferred future that we continuously visit, the motion of the thoughts follows a reverse way, from this wished future towards our complex present. The final goal—somewhere in the Bible it is reminded the relevance to "remember the future!"—is to make preferable or desirable some most probable futures, by 'visiting' and thus clearly visualising what we want to create, including the values that we want to be based on, and then committing energy, resources, time, and our lives to creating that future world.

From one side which represented by the Bench-Learning axis—promoting the local image and re-tuning the societal landscape—and the other one axis which is called Iterspective for exploring and "remembering the future", it is possible to generate a "***Creative tension***" between a current position and where it is wanted to be in the future!

In a spaced-temporal conception of the regional competitiveness, it might be conceived that the Region is not the mere outcome of as hoc activities, but it translates in strategic terms both the actual achievements and the predominant preparation and vision of the future.

Thanks to this behaviour and openness to other experimentations, in space and time, and ability to learn from the other territories, but also thanks to a real willingness of cooperating with the whole population within the territory, the regional competitiveness can be reinforced and propose a resistance to centrifuge socio-economical forces, such as brain-drain, capital-drain, so-called "délocalisations", industrial disinvestments, students' disaffection...

Such an ability to resume a new socio-economical vitality and launch an internal dynamic, capable to turn risks into opportunities, the region and its population can benefit from a "***Resilience***" factor, which is similar to either the ability in physics to resist to external pressures and resuming its original structure or the capacity in psychology to successfully face risks and setbacks of the life. This concept is also recognised in computering as insensitiveness of a system



to elements' lapses, while it can demonstrate in terms of sustainable development, a large capacity to resist to extremely severe and continuous chocks in order to escape disasters. This former acceptation of resilience's meaning could be associated to all kinds of resistance within a territory to sane counterattack to a rough course of social and economic disasters leading to a recovery and new creation of health and sustainable employment. It is the best way for merge the advantages of competitiveness and attractiveness.

Act 6. Coherence between outward image and mobilisation of internal resources

Nowadays, great emphasis is placed on attractiveness of the regions vis-à-vis potential foreign students, congress and business tourism, new entrepreneurs and executives' families... according to a pleasant local combination of cultural and natural environments. But, meanwhile, the populations who yet live and 'coexist' in the region need to be associated to the promotion of their land. There is a huge need of broad involvement of local actors. While group-based of complementary actors might capture opportunities for throwing light on the promotion of the region from several angles, learning processes reinforce the cohesion of such consortia of diversified groups.

Very aware of this need of learning culture within the territories, the US's ***Career Advancement Accounts'*** initiative has been providing flexibility for Governors and States to design service delivery systems that best serve their citizens. They decided to offer to them many chances of internal performance improvement and organisational learning by:

- empowering individuals by significantly increasing workers' choices in the job training and employment services they need to get back to work, in order to offer them the opportunity of longer-term training that leads to higher-paying jobs;
- increasing training opportunities by eliminating duplicative training and employment programmes and unnecessary overlaps;

- increasing flexibility by allowing individuals to use their accounts for training and other services to help them advance their careers;

The principle could sound simplistic but proved efficient while generating not only a new generation of innovative and creative citizens but a whole and cohesive regional fabric and set of constructive networks. It is facilitated by additional measures as creating a business climate that allows innovators to pursue their ideas with adapted policies on taxes, trade, intellectual propriety, patents, etc., and supporting advanced infrastructures needed to encourage innovation through investments in R&D, broadband, etc. Education, training, re-training, life-long-learning provide individuals with better career options, opportunities for promotion, and the ability to contribute to the region's innovation initiatives. Training and development programmes are critical to maintaining a skilled workforce capable of making efficient use of cutting-edge technologies, as well as greater access to these programmes is critically important for the region's competitiveness. At the same time, past experiences, concrete cases, theories and models represent the collective background which policy makers should work with in order to find their own regional osculation, rather than the exact replication or "cloning" of more or less successful examples of regional policies from elsewhere... often from places with very different economical and socio-institutional environments.

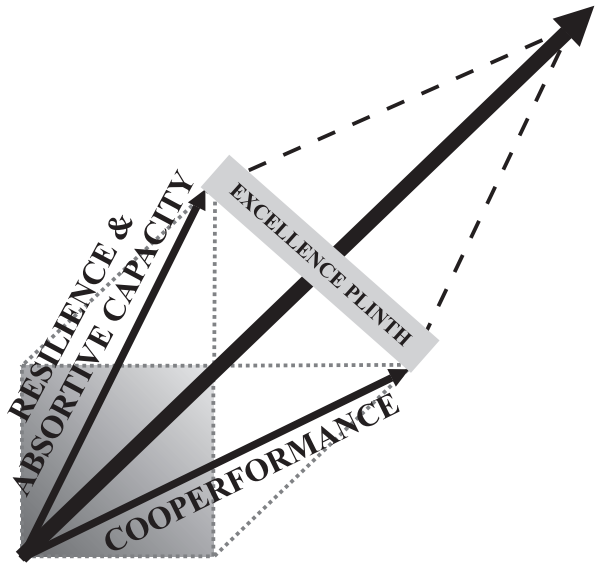
A collective vision and mutual learning platform is the key for achieving ***Performance*** in the improvement of the regional economy.

Cooperation and cohesive willingness to learn from others and learn together among the local actors and within the strategic intra-regional partnership generate a broad move toward the knowledge of the regional destiny.

Formative experience and learning attitudes with involvement of an optimal number of people under a governance model within a given homogeneous territory lead to what could be considered as an open and associative concept of ***'Formance'***.

Such a vector of regional enhancement refers to knowledge acquired through practical and cohesive experiences of various groups and clusters. Summarised under a form of transferable to others and improvement from learning together, it consists of more than a combination of competition and cooperation, known under the term of ***Coopetition***. *Cooperation*, governance of learning process defined as *Formance* and the purpose of regional *Performance* conduct the regional actors to successfully practice the most efficient synergy with "***Cooperformance***".

Such a conjunction of a ***Resilience*** vector and a ***Cooperformance*** vector could be the key of regional development which aims at redesigning of the territorial fabric, by territorial intelligence. Enhancement of attractiveness to exogenous resources as companies, talents, funds, tourists, cultural events, business congresses, but also to indigenous resources, as local companies and students, which may be tempted to move away. Managements of societal contexts could permit to re-tune and restructure the socio-economical landscape, as well as the local labour-market, but mainly give a chance to re-appropriate their future and construct the regional advantage. With such a scheme, yet implemented systems, previous and pre-existing institutions must subsist but need adapt themselves to the new context and go from a fragile position of obsolescence and overlapping (redundancy and duplication) towards "an excellence plinth" from where a strategy could be launched.



Act 7. Constructing the Regional Advantage for rising knowledge markets...

When local actors and policy makers can re-appropriate their future with structural sensing skills, they all should not be passive recipient of the context. The key competitiveness skill in our global world refers to the ability to observe and understand existing situations and new trends at the source of the technology that is within the society.

These actors can translate external pressure into constructive internal creative tension? The good news is that, although it could be instinct, within an over-changing context, this skill can be learnt and fully digested.

In fact, it is very dangerous to consider "one-size-fits-all" process and all these best practice models that used to be recommended to any enterprise or territory, whatever its size and its content in terms of human resources, industrial sector and economy; since "there is no structure which is better, but rather several and different structures which are the best in different conditions", as stated Paul Lawrence and Jay W. Lorsh (Adapt the structures to the enterprise). The key factors to be successful, universal and useful in any conditions actually never existed. The "contingency" principle is much more relevant, within many human, organizational, technical and financial combinations which are efficient for a specifically given territory but not in the others. Such combinations also are multiple and changing with the time.

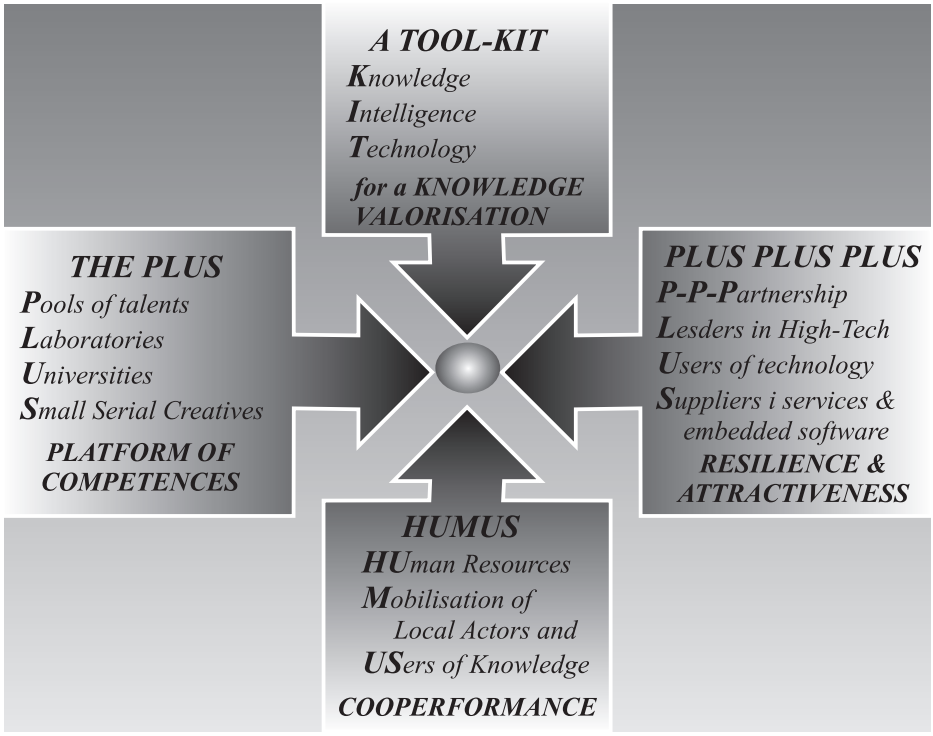
In terms of strategy and public policy, with a top-down process, there is a crucial need of "***Knowledge valorisation***" in order to put into motion a learning process with a validation of new ideas and face with skepticism and resistance to innovation. This is the "***Tool Kit***", with a "***K***" as "*knowledge*", a "***I***" as "*intelligence*" and a "***T***" as "*technology*".

In addition, it is necessary to take into account the whole population of social and economical actors living and working within this territory and able, by a bottom-up process, to mobilize the energies and actively participate in the territorial strategy in terms of common values, common objectives, and common projects for general interests, that is "***Cooperformance***". This will be called the "***Humus***" of the land, with a "***HU***" as "*human resources*", a "***M***" as "*mobilisation*" and a "***US***" as "*users of knowledge*".

A complementary ingredient is needed with a "***Platform of competencies***", by irrigating the local enterprises with technology and improving their absorptive capacity, with an internal

cross-fertilised, built-up lot of spontaneous partnerships and interpersonal relationships. This is a genuine "***PLUS***", with a "***P***" as "*pool of talents*", a "***L***" as "*laboratories*", a "***U***" as "*university*" and an "***S***" as all the "*small serial creatives*"...

An avoidable "***PLUS PLUS PLUS***" ("***+P***") motion is to be added with all kinds of Public-Private Partnerships in the global technology competition, which will allow territories to keep the technology-edge, thanks to a multiple series of sets of cooperation and collaborations among "*Leaders in high-tech industries and services*" ("***L***"), "*users of technology*" ("***U***") and all sorts of "*suppliers in services and embedded software-solutions*" ("***S***").



THE CONTINGENCY PRINCIPLE

DANIELE IETRI
FRANCESCA SILVIA ROTA

THE UNEVEN GEOGRAPHIES OF INTER-URBAN RELATIONSHIPS IN EUROPE: EVIDENCES FROM CITIES' PARTICIPATION TO EC FRAMEWORK PROGRAMMES

Introduction[1]

In recent decades global economic, social, and cultural transformations have contributed to bringing about significant changes in the way cities are conceptualized and represented. In such a framework, this paper investigates two issues characterizing current theorization on urban processes: geographical scales and networks. In particular, we address the implications—both conceptual and practical—of adopting a scalar network-based approach to the analysis of the European urban system.

Paragraph 1 presents a brief review of recent theories on *inter-urban interactions* in Europe, focusing on the spatial structure of supra-local cooperative relationships. In paragraph 2, the topic of *geographical scale* is introduced as a crucial issue in the analysis of urban functions, from both the analytical and project-oriented standpoints. More specifically, a number of major interpretations dealing with the *urban-scale issue* are discussed. Paragraph 3 presents some insights into the concept of *transcalarity*, defined as reliance on different geographical scales at the same time. Starting from this definition, a *transcalar approach* to urban networks is then formalised and applied (in paragraph 4) to the analysis of the network of relationships developed by actors from the metropolitan area of Turin. More precisely, the number of copartnerships in European Community research and technological development (RTD) projects are taken as a measure of inter-urban ties at both the European and regional scales. In paragraph 5, some tentative conclusions of this exercise are drawn, outlining the strengths and weaknesses of *network analysis* and *graph representations* as compared to current applications in urban studies.

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[1] Despite the paper results from the work of both the authors, the writing of the introduction and paragraphs 1, 2.2, 3.1, and 5 are to be attributed to Daniele Ietri; while paragraphs 2.1, 3.2, 4, and 6 are due to Francesca Silvia Rota.

1. Trends in the theorization of the city

In the last decades, we have moved away from the idea of the city mere "*locus* of agglomeration", seeing it as an increasingly complex actor on the global scene. Urban scholars and geographers have explained this shift as part of the gradual erosion of the state's power to influence national and world economies (see, for example: Camagni, 2002). As a result, national governments can no longer guarantee support for domestic economies in the international division of labour, and cities and regions are increasingly exposed to international competition in their efforts to attract investments and economic activities.

Starting in the Nineties, the geographical literature began to show a widespread recognition that, under certain conditions, regions and cities tend to construct their competitive advantage on the basis of local performance, economic as well as non-economic (Camagni, 2002; Boschma, 2004). In other words, the city is no longer seen simply as a physical entity, which inertly occupies a well-defined portion of space, but as a collective actor developing relations and functions at different geographical scales (Smith and Timberlake, 1995; Smith, 2003a and 2003b). A new centrality of the city thus emerged in the economic discourse. In addition, several important changes have recently taken place in the way urban systems and, above all, their supra-local relationships are theorized and represented. Globalization, for example, is playing a dramatic role (thanks to advances in ICTs and transport systems) in increasing capital and information mobility, eventually transforming cities into *nodes of global networks* (Castells, 2000). At the same time, major economic actors such as MNCs and international financial and governmental headquarters are generally located in metropolitan contexts, where they attract a growing number of flows, both tangible and intangible (Sassen, 2001).

On the one hand, this astonishing increase in spatial interconnectivity has been interpreted by some scholars as indicating the rise of a new *hyperspace* or *cyberspace* (Burgin, 1996; Crang, Crang and May, 1999), where cities are taken to be *deterritorialised units*. On the other hand, authors such as Bagnasco and Le Galés (2000), and Dematteis (2000) affirm that global-scale actors still depend on interactions with local societies. In a metaphoric network representation of flows, actors operating on the global scale are conceptualized as "nodes of nodes", supra-local hubs to which local nodes are connected when operating in a global scale.

There is little doubt that such an interpretation of cities and their relationships has a major impact, especially when a scalar discourse is applied to the analysis of urban systems. From the literature we can point out at least three main "lines/streams of investigation" (Table 1), each of them focusing on specific issues and employing distinctive approaches to the definition of the *urban scale*.

From a political-economy or "global cities" approach, Sassen emphasises the city as the research focus of social life in relation to globalisation and the ongoing time-space compression. In particular, according to Sassen, the city reflects "concrete, localised processes through which globalisation exist" (1996, p. 206): despite the claims for global economic decentralisation and flexible production, in which placeless logic of market economy prevails, Sassen affirms the inherited place dependency of globalisation process (Brenner, 1999). In short, Sassen has a scalar view of globalisation so that when scales (national, local) meet, they 'overlap' producing 'borderland zones' that are in need of research (Sassen, 2000, p. 216). From the point of view of industrial geography research, this approach emphasizes the role of cities as nodes of accumulation, where actors of post-Fordist industrialization (MNCs or top financial organizations) find suitable condition to locate production, circulation of capital, output markets.

From a different perspective, scholars as Graham and Marvin, face the urban issue by adopting a *relational approach* (Graham, 1998; Graham and Marvin, 2001) offering a critical

Table 1

Some main approaches to the urban-scale issue

Literature	*Observed phenomena*	*The city as...*
Political-economy approach[2] (see: Sassen, 1996, 2000, and 2001)	The global economic order involves both centrifugal and centripetal forces, that wouldn't have taken the shape they now have without the global city	...a place (global city) of articulation, which coordinates and organises dispersed production sites, enabling the functioning of global economy
Relational approach (see: Graham, 1995 and 1998; Graham and Marvin, 2001)	Intensification and consolidation of relationships (hierarchies, competition/cooperation) and connecting infrastructures (transport, telecommunications, energy, etc.)	...a 'hotspot' of demand and exchange within international flows ...dominant site of global circulation and production ...primary centre of transnational exchange and distribution of products and commodities
Evolutionist/regulationist approach (see: MacLeod, 1999; MacLeod and Goodwin, 1999; Moulaert, 2005)	*Decline of national regulatory level in favour of supranational and subnational governance systems*	...an historically, institutionally and territorially embedded node ...a strategic regulatory actor in the reconfiguration*of formal institutions*

focus on networked infrastructures—transport, telecommunications, energy, water, and streets—as a powerful and dynamic way of seeing contemporary cities and urban regions. "Contemporary urban life is revealed as a ceaseless and mobile interplay between many different scales, from the body to the globe" (Graham and Marvin, 2001, p. 116). In this perspective, mobile interactions across distances and between scales, mediated by different networks, are the driving connective forces of processes of globalisation, and cities become nodes of infrastructurally-mediated flows, movements and exchanges.

A third recognisable approach is the *evolutionist/regulationist approach*. defined by Moulaert (2005) as the most structural, among all economic institutional theories, in recognizing the necessity to define a broader world of regulatory dynamics interfering with the urban local space. The evolutionist/regulationist approach "underlines the diversity in the economic activities of the city, the role of learning and innovation in development, and, utilizing regulation and state theory, it instructs us on the strategic impact of power strategies and relations on the development trajectories of the cities. In addition, the evolutionist/regulationist new institutionalism fully recognizes the organizational and material reality of the urban production system" (Moulaert, 2005, pp.7–8). Scholars adhering to this branch of literature explain the competitiveness of successful urban systems with emphasis not only on local (tangible and intangible) assets but also place-specific relations or "un-traded interdependencies" that are unlikely to be reproduced elsewhere (Storper, 1997). This suggests a hierarchical approach in which the urban scale is assumed as a peculiar local level, in relation with supralocal networks.

In this paper, cities are conceptualized as networks with a twofold geographical nature: local urban networks (i.e., urban actors interacting locally according to their different urban functions), but also nodes of a wider network of interactions among the cities in a given region or country (Bonavero, 2005). The *network metaphor* as an analytical and descriptive tool can be applied at the same time within the borders of an urban agglomeration or with respect to the relationships developed among cities on a wider geographical scale. Thus, when the network metaphor is used

to investigate the urban phenomena, a crucial question of scale arises that calls for appropriate analytical approaches.

2. A question of scales

2.1 Space and scale

A critical contribution to city network theorizing consists in the shift from an *absolute* (or Euclidean) perspective of space, where space is considered independently of the phenomena occurring in it (i.e., space is a container, and the geographical locality is defined only in terms of latitude and longitude) to a *relative* one, where space is defined by the observed processes (Harvey, 1969). The shift to this relative conceptualization of space makes it possible to recognize and posit the existence of a multiplicity of interdependent geographical scales, corresponding to the different levels in which processes take place: migrations, commuting, information and knowledge flows define spatial interactions that could be described through more appropriate topologies than Euclidean distances alone.

Actually, in the tradition of geographical studies, the issue of scale has long been taken for granted: specific scales of social activity are assumed as givens in the distinction between urban, regional, national and global events and processes. It is only since the 90s that geographers have started to investigate the meaning of scales as geographical entities and their socio-cultural and historical origin. However, there is a sizeable literature (whose origins can be traced back to Smith) arguing that geographical scale is both a social product and the context of certain kind of social activity (see also Marston, 2000). "Far from neutral and fixed [...] geographical scales are the product of economic, political, and social activities and relationships; as such they are as changeable as those relationships themselves [...] scale is the geographical organizer and expression of collective social action" (Smith, 1950; quoted in Brenner, 2000, p.367).

From a comparison of these approaches, we begin to get a grasp of the importance of the "scale question" (Brenner, 2001) in geographical analysis. Additionally, as suggested by Richard Howitt (1998, 2002), we can distinguish at least three facets of geographical scales: scale as *size*, scale as *level* and scale as *relation*. At the basis of Howitt's theorization is the idea that scales, whatever their nature, do not correspond to real entities, but rather to analytical tools for shedding a different light on the nature of the analyzed phenomena. Starting from this concept, Howitt also introduces several original insights into the way scales are conceptualized and investigated. Many problems, in particular, arise according to how the boundaries between local and global are defined as geographical scales. For example, if scales are a matter of *size*, the global has to be considered as 'large' and the local as 'small'. But this would be tantamount to saying that any place that is *larger* than another implies a *more global* scale of organization (Cox, 1998). Alternatively, the global might be defined as the largest scale encompassing the *whole world*, and the local as the smallest one corresponding to a *geographical societal reality* (Lévy and Lussault, 2003). From a different perspective, if the scale issue involves different *levels of action*, differences between scales imply a hierarchical ordering: the local is thus the lowest scale, the global the highest (i.e., worldwide international organizations).

Here we focus on the notion of scales as *relations,* shedding light on their mutually constitutive character: extra-local relations contribute to defining the local and *vice versa* so that scales are always constructed in relation to each other. From a very similar perspective, Dematteis affirms that "those that seem to be original properties of places, have their only origin in the network of social relationships within which properties (and places) are delivered up" (1995, p. 52). This

means that cities will assume specific characteristics according to the overlapping and unfolding of the various relations they are involved in. Every territorial actor (a firm as well as a city, a region or a nation) belongs to various networks: this implies that in urban and regional studies, different scales should be considered with respect to their "embeddedness or positionality within a broader scalar hierarchy" (Brenner, 2001, p. 600).

2.2 Transcalarity and multiscalarity

Despite the variety of different definitions revolving around the concept of scale, what characterizes the geographical approach to urban analysis is the assumption that scale *does* matter. This means that any given process will produce qualitatively different results when analyzed at different geographical scales. For example, migration flows analyzed within the bounds of a metropolitan context will differ significantly from international migrations. But this issue is problematic from at least two standpoints. First, thresholds between scales are not easy to delimit. For example, it is very hard to define which municipalities are to be considered in a study dealing with the process of urban sprawl: those immediately around the core? Those constituting the metropolitan area? Or a larger area which also includes cities outside the metropolitan context?. Second, certain phenomena should be analyzed at different scales. As we stated earlier, a phenomenon can assume spatial organization and effects that vary greatly according to the considered scale, to the point that assuming a single scale of analysis may be inappropriate. In the field of environmental justice, for example, scale frames are key factors in defining problems and possible solutions (Kurtz, 2002 and 2003), as well as clashes between competing claims (Williams, 1999; Swyngedouw and Heynen, 2003; Jepson, 2002).

From these theoretical foundations, we will introduce an operational definition of transcalarity at this point, which will be then used to proceed to the empirical part of our analysis. Following Bonavero (2005), we give two different (but related) connotations to the concept of transcalarity.

In the first of these connotations, we are dealing with transcalarity when we adopt concepts and analytical tools that can be implemented at different geographical scales: we define this as *weak transcalarity* or *multiscalarity*. This is the case when an interpretation of a phenomenon is given in terms of centre-periphery relationships: conditions of centrality and periphery may both apply when observing the population dynamics in a urban area, the urbanization of a region or country, or the GDP of the European union, without regard to any correspondence between the urban level and the continental one.

In the second connotation, we introduce a transcalar discourse when we adopt concepts and empirical tools that consider different scales and their reciprocal relations*at the same time*: in this case, we are dealing with transcalarity *in strictu sensu*, or *strong transcalarity*. This is especially the case of the network approach to urban systems we explained above.

As to the praxis, introducing scalar reflections to urban theorization entails several crucial problems. In particular, we wonder *if* and *to what extent* this *scalar perspective* can be combined with the new view of urban phenomenon as being ever more reliant on inter-urban networks (see paragraph 1). As we have already explained, a major challenge in current urban studies is in fact the analysis of urban systems and hierarchies considering relational rather than 'traditional' statistical data. Recent empirical analyses dealing with inter-urban relationships, and urban networks particularly, clearly show how problematic measuring urban connectivity can be. Not only is there is a lack of flow data, especially at the sub-national levels (cit. Beaverstock, Smith and Taylor, 2000), and both analytical and representation tools are poor (Besussi and Alves, 2005), but the theoretical and analytical framework also does not seem to develop properly. In particular, we focus on a number of 'open' questions concerning the scalar nature of networks.

What does it mean to analyze networks at different geographical scales? Does the city's relational attitude vary according to the scale considered?

To summarize, there is a clear need for an effective methodology for analyzing urban networks at different scales. More precisely, we believe that a transcalar approach is required, where the shift from one level to another does not simply consist of broadening (or narrowing) the geographical context of analysis (e.g., from European samples of cities to national ones). Rather, as we will argue later, such an approach must adopt selection criteria and data sources that differ according to the different geographical scales.

3. The transcalar approach

3.1 Present and past methodologies

In general, territorial studies are showing a growing attention to multiscalar analysis, focusing on one process (or actor) but scrutinizing it on multiple geographical scales (see paragraph 2.2). For example, McGuirk (2003) assesses urban governance in Sydney, explicitly examining policies at different scalar levels; Gough (2004) examines both downward and upward shifts in the governance of capital and labor projects in Europe. Some authors analyze city networks (Leitner and Sheppard, 1997; Leitner, Pavlik and Sheppard, 2002) or territorial orders (Mamadouh, 2001; Mamadouh, Kramsch and Van der Velde, 2004), examining their configurations at different scalar levels. Others account for global processes, and globalization in particular, as a challenge to existing local institutional setups, especially with respect to the progressive erosion of the power of national states. A new vocabulary is emerging, with terms such as *global-local nexus* (Alger, 1988), *scale jumping* (Smith, 1992), *glocalisation* (Swyngedouw, 1997), *glurbanisation* (Jessop and Sum, 2000), *grobalisation* (Ritzer, 2003) and *scale politics* or *politics of scale* (Jonas, 1994; Swyngedouw, 1997), which are intended to convey the need to address multiple scales simultaneously.

Despite these attempts to investigate geographical scales and their permutations, urban research has not yet succeeded in being truly transcalar. Almost invariably, attention is in fact directed to just one geographical scale (that which is thought to be most appropriate for the phenomenon in question), and fails to consider the inherently transcalar nature of urban processes. Even in studies where detailed considerations applying to specific scales are added in order to overcome to the limits of "one-scale analysis", the approach remains multiscalar rather than transcalar: though different scales are considered, their reciprocal relations are ignored[3]. For example, in the yearly reports published by Eurostat (based on the *Regio* database), the unit of analysis is the region (corresponding to the NUTS-2 level), while the geographical area considered is the European Union. Quite often, macroregional (NUTS-1) or national (NUTS-0) data are substituted for regional data ones. Since 2003, moreover, variables at the urban scale (the *urban audit*) have also been introduced in order to effectively evaluate the strengths and weaknesses of the Community territory. We also have examples of a strong transcalar approach—for instance, in the framework of the ESPON project (the EU spatial planning observatory on spatial processes and strategies developed within and outside Europe), transcalar territorial analyses are pursued by comparing divergences between regional variables (NUTS-2) to both national and Community averages (Grasland and Lizzi, 2003) —, but they are quite rare. There are at least two reasons for this.

[3] Data-sets are usually constructed starting from a particular scale, as it is intuitively obvious that the same variable cannot be used to investigate all levels: if it is, there is a risk of ignoring the complexity of the analysed relationships, or of increasing this complexity unnecessarily.

First, a transcalar approach entails a hard-to-manage *over-complexification* of the analysis: practical considerations such as the availability of data, time and analytical tools tend to encourage investigators to focus on a single scale. Second, no accepted methodology for studying transcalar phenomena has yet been developed: on the topic of urban networks, a large body of *arguments* and *praxis* has emerged which is quite difficult to bring into a consistent framework.

Thus, we propose a tentative *transcalar approach* to the analysis of urban networks, taking the case of *European research networks*[4]. In the literature, research relationships—originating from the participation of urban actors in research and technological projects—are in fact considered at many different scales (global, national, regional). Since the work of Bunnell and Coe (2001), moreover, their cross-scalar nature has also been recognized: research copartnerships may be pursued between firms and organizations belonging to the same geographical context (local innovation policies, for instance, favour this kind of agreement, especially between firms and universities), or between global actors throughout the world.

3.2 Transcalar analysis of inter-urban research networks

Accordingly, our analysis focuses on the network of relationships that arise when different organizations (research centres, university departments, etc.), located in a selected group of cities participate in European research and technological development (RTD) projects. Rather than considering the relationships between individual actors, we group the actors according to the larger metropolitan urban area they belong to. In other words, we assume that two cities establish a research relationship or inter-urban copartnership when actors from the first city take part in a research project together with actors from the second city. The copartnership is thus regarded as a *vector* characterized by *intensity* (given by the sum of the shared projects) and *direction* (defined by the relative position of the cities), but with no *orientation*. Unlike other kinds of inter-urban relationships (import/export or flight connections, for example), there is no point in determining where in fact the relationship involved in a research copartnership originates. Copartnerships can be then analyzed via a *graph representation* of the network, where cities are *nodes* whose size is proportional to the number of projects they are involved in, and research relations are *ties* whose thickness is proportional to the number of copartnerships. Finally, we assume that the *relational attitude* of a city defines, in a very general way, recognized tendencies of the city itself (in terms of intensity, direction and logic) in establishing relationships with other cities in the sample considered.

To investigate the geography of inter-urban copartnerships, we developed a two-step analysis which takes both quantitative network analysis metrics and qualitative graph analysis methods into consideration. Specifically, the two steps focus on the following:

a) *Project masses*. The number of research projects each city is involved in. In other words, this step does not provide information about the actual relationships of the city (the intensity and direction of the *inter-urban copartnerships*), but gives an idea of the *size* (the importance of the city), which is one of the facets of scales emphasized by the literature (see paragraph 2.1);
b) *Network analysis metrics*. Variables in this case are the centrality of a node and its betweenness (Borgatti, Everett and Freeman, 2002; Wassermann and Faust, 1994)[5]. *Centrality* expresses the importance of the city in the network, according to its networking capacity.

[4] Generally speaking, it is easier to obtain data on aerial phenomena, such as GDP or unemployment. It would be more interesting to focus on relational phenomena, learning from well-known statistics on flows, such as those involved in migrations, freight and transportation in general. RTD projects are just one step towards a more in-depth consideration of relationships and flows that are intangible in nature.

[5] To quote Besussi and Alves (2005), "considering a matrix = (;), where is the set of nodes (vertices), and is a set of undirected edges, degree centrality is [...]: ( ) = { ∈ ( ) : ( ) ∈ ( )} and is

More specifically, it consists of the relations a single node intercepts (the sum of the values of the ties converging on a node). *Betweenness* expresses the contribution of a vertex to all possible maximum flows: given all the shortest paths connecting a pair of nodes in a graph, the fraction of them passing through a selected node is its betweenness. From a geographical perspective, it reflects the spatial organization of the network: the higher the betweenness, the more interconnected the network will be.

This analytical approach is then implemented for networks originating from the metropolitan area of Turin, in Italy, using two different geographical scales: the European (EU-25) level and the regional level (NUTS-2). From our perspective, different network structures—i.e., different power (hierarchy, centre-periphery) and spatial (polycentrism, concentration) logics—are likely to emerge for each of these scales [6]. The transcalar approach as defined earlier was then applied, assigning a different data-base (research variables) and a different context of analysis (set of cities forming the network) for each scale:

I) *European scale*. Our data source was the Cordis database, the *European portal on research and development* (R&D), set up by the European Commission (EC) in order to provide easy access to R&D and innovation information. In particular, we restricted ourselves to R&D projects financed by the EC during the 6^{th} (2002–2006)—and part of the 5^{th} (1998–2002)—Framework Programme[7]. Analysis at this scale considers a set of 48 cities participating in over 20 projects.

II) *Regional scale.* The source at this scale was the portal of the *Italian network for the diffusion of innovation and technological transfer* (RIDITT), which provides information about innovation actors and opportunities[8] . Actors were grouped according to the metropolitan area in which they are located, reconstructing their RTD relations[9] through direct interviews or by inspecting documents and websites.

For each scale, a different network will result from the analysis. Transcalar considerations can be then be traced from the cross-consideration of divergences and analogies between the results.

Graph/network analysis is a highly adaptable tool for investigating transcalar phenomena. Graphs force us to focus on relationships, not only in terms of presence/absence, but also as regards the nature of the relationship between actors. Moreover, networks are readily represented with reference to the geographical space, and progresses are even if integration between network analysis software and geographical information systems simplify the map-making process.

4. The European RTD network

At the European scale, the analysis considers a set of 48 European cities participating in EC RTD projects. Main figures for these variables are summarized in Table 2.

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usually normalised by the total number of possible incident edges. [Instead,] betweenness centrality can be written as: ( ) = ∑ : ≠ ≠ ≠ — where are the shortest paths from to through " (p. 177).

[6] Recent trends in empirical studies have included the use of social network analysis (SNA) techniques to provide insights into the spatial structure of the European urban system. For similar attempts/methodologies, see also: Cattan, 1995; Ietri and Rota, 2005; Besussi and Alves, 2005; Maggioni and Uberti, 2005; Rota 2006).

[7] EC RTD projects are organised in Framework Programmes (FPs) according to the EU funding period and are available *on-line*.

[8] RIDITT (www.riditt.it), identifies both innovation and technology transfer networks (list of projects involving both public and private actors at the national scale) and innovative actors (universities, research centres etc.).

[9] In selecting partnerships, we also considered financing relationships. Conversely, relationships with firms are not considered at this stage of the investigation.

Table 2.

Projects, centrality and betweenness of European cities (2005)

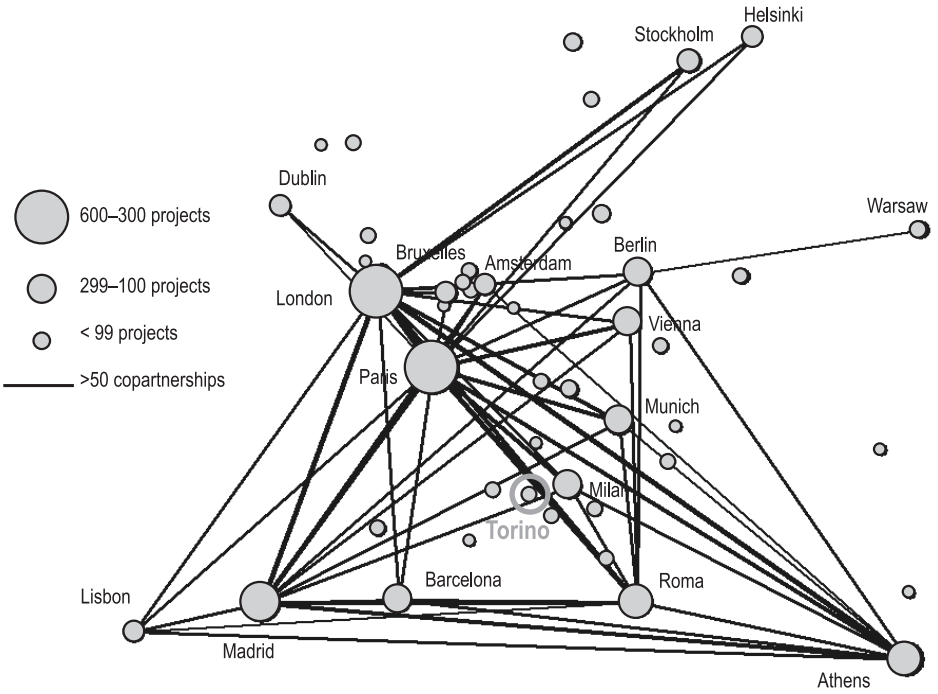
CITIES	Projects	*Rank*	Var. (2002–2005)	Centrality	*Rank*	Var. (2002–2005)	Betweenness	*Rank*	Var. (2002–2005)
Paris	615	*1*	0	3,94	*1*	0	*0,00*	19	11
London	378	*2*	0	2,45	*3*	1	*0,00*	19	11
Madrid	351	*3*	0	2,46	*2*	-1	*0,00*	19	11
München	316	*4*	-2	2,44	*4*	-4	*0,00*	19	11
Roma	260	*5*	0	2,13	*5*	0	*0,00*	19	11
Athens	221	*6*	2	1,71	*7*	3	*0,00*	19	11
Stockholm	203	*7*	-4	1,77	*6*	-5	*0,00*	19	11
Milan	168	*8*	1	1,42	*8*	1	*0,00*	19	11
Barcelona	159	*9*	1	1,26	*11*	2	*0,00*	19	11
Budapest	157	*10*	-10	1,36	*10*	-7	*0,16*	14	9
Vienna	153	*11*	2	1,36	*9*	3	*0,00*	19	11
Berlin	152	*12*	2	1,25	*12*	2	*0,00*	19	11
Bruxelles	152	*13*	1	1,25	*13*	0	*0,00*	19	11
Leuven	135	*14*	-19	0,98	*19*	-16	*1,65*	3	0
Stuttgart	131	*15*	-3	1,1	*15*	-4	*0,11*	15	10
Amsterdam	122	*16*	2	1,04	*16*	2	*0,00*	19	11
Delft	120	*17*	-5	0,98	*18*	-3	*0,16*	14	11
Cambridge	119	*18*	3	0,74	*25*	2	*0,05*	18	10
Lisboa	114	*19*	6	1,1	*14*	2	*0,00*	19	11
Helsinki	109	*20*	4	0,99	*17*	2	*0,11*	15	10
Dublin	100	*21*	4	0,81	*21*	5	*0,11*	15	10
Oslo	99	*22*	3	0,9	*20*	2	*0,08*	16	11
Lund	84	*23*	-19	0,72	*26*	-20	*0,07*	17	11
Ljubljana	83	*25*	-9	0,63	*31*	5	*1,65*	3	0
Praha	83	*24*	0	0,8	*23*	1	*0,25*	10	9
Turin	81	*26*	-5	0,81	*22*	-3	*0,34*	9	6
Karlsruhe	77	*27*	-9	0,63	*30*	-4	*0,17*	13	9
Utrecht	76	*28*	1	0,59	*34*	7	*0,21*	12	10
Köln	75	*29*	-18	0,72	*27*	-14	*0,00*	19	12
Graz	74	*31*	-12	0,7	*28*	-16	*3,01*	1	-7
Thessaloniki	74	*30*	-10	0,75	*24*	-18	*0,07*	17	11
Oxford	73	*32*	6	0,51	*41*	9	*0,17*	13	5
Genoa	70	*33*	3	0,62	*32*	8	*0,24*	11	8
Hamburg	68	*34*	13	0,53	*38*	18	*0,16*	14	6
Florence	68	*36*	7	0,56	*37*	4	*0,07*	17	14
Toulouse	68	*35*	12	0,56	*36*	8	*0,08*	16	8
Edinburgh	66	*37*	5	0,63	*29*	-1	*0,62*	6	3
Sofia	61	*39*	-6	0,5	*43*	7	*0,42*	7	0
Manchester	61	*38*	1	0,52	*40*	3	*0,17*	13	9
Zurich	59	*40*	-1	0,59	*35*	4	*2,01*	2	-4
Southampton	56	*41*	-7	0,53	*39*	-4	*0,00*	19	11
Göteborg	55	*42*	14	0,59	*33*	4	*0,21*	12	4
Glasgow	53	*43*	-3	0,4	*44*	4	*0,38*	8	1
Varsaw	51	*44*	19	0,38	*45*	-3	*0,17*	13	5
Bologna	50	*45*	6	0,5	*42*	3	*1,51*	4	-4
Grenoble	49	*46*	11	0,35	*46*	1	*0,17*	13	5
Bremen	38	*47*	9	0,31	*47*	9	*1,34*	5	1
Montpellier	20	*48*	4	0,13	*48*	1	*0,00*	19	11

As regards network participation, in general we notice that cities' *size* influences project participation. Not surprisingly, the strongest values were found for mega-cities such as Paris and London, followed by important national capitals such as Athens and Madrid, where major actors and assets are concentrated (national research centres and funds, for example). Nevertheless, participation in projects is also high in certain major European cities, such as Munich and Milan, where place-specific endowments are probably key factors in explaining city networking. In the case of Milan, for example, most of the projects are developed by private and public universities. In Munich, on the contrary, a particularly varied local innovative milieu (made up of many research centres and technopoles) is responsible for most of the RTD projects the city is involved in. These results are what we would expect intuitively. Moreover, they find, in a sense, a theoretical counterpart in those structuralist approaches that—as explained in paragraph 1, attribute to cities the role of places where supra-local actors (in this case European actors), find suitable conditions to set and develop their world-wide businesses. As many other economic activities, research activities, including research networking, are in fact dependent on the critical mass of tangible and intangible assets that are traditionally concentrated in the largest economic and financial metropolitan centres, where universities, headquarters of banks and big financial and corporate groups are located. The administrative role of cities seems to be less important as national capitals such as Oslo, Prague and Warsaw participate in fewer projects than non-capitals such as Milan and Munich. Traditional urban hierarchies would thus appear to be confirmed in the configuration of the European research network. From a geographical perspective (Figure 1), however, what we see is an image of the European urban system that is rather different from those proposed by classical centre-periphery models: besides the well-known areas of the *Blue banana* (from London to Milan) and Paris (which participates in 10% of the projects considered), a third area of concentration emerges along the corridor connecting the cities of Lisbon, Madrid, Barcelona, Roma and Athens. These, in particular, develop many projects despite the fact that they occupy a quite peripheral position compared to the rest of the sample.

As for centrality, the data in Table 2 show that this metric is correlated to project masses only in certain cases. For example, Barcelona, Leuven and Cambridge show less centrality than would be expected from their project masses, which encourages us to formulate the hypothesis that they establish relationships with cities that are not included in the data-set (as they do not reach the quota of 20 projects).

Similarly, betweenness and project size are not correlated: the largest cities with highest masses (Paris, London and Madrid) have betweenness values that are null, while cities with lower project masses such as Graz, Zurich, Leuven and Ljubljana act as network gateways—i.e. nodes connecting other nodes otherwise wholly or partly isolated from the rest of the network. This is probably related to the fact that Paris, London and Madrid are European hubs intercepting research relationships from all the cities in the sample; while Graz, Zurich, Leuven and Ljubljana attract relations with specific groups of cities, not necessary peripheral respect to the "European core". Ljubljana in particular has intense ties with Eastern cities such as Warsaw, Prague, and Sofia. Graz has main relationships with cities from the Benelux area as Leuven, Delft and Bruxelles

This seems to confirm the thesis that, especially in the case of non-capital cities, relational factors enhance (or impede) the capacity of cities to establish supra-local relationships, regardless of the number of contracted projects. If confirmed by further analysis, this result claims for a critical approach to traditional hierarchical models (emerging, for example, from the analysis of cities' participation to projects), shedding some light on the importance of a *relational approach*, rather that a structuralist one, in studying the spatial organization of European cities. Moreover, via the investigation of the geography of research agreements, linking together dispersed cities,



Source: Cordis data processed with the graph visualization software NetDraw 2.3

Fig. 1 Main research copartnerships in Europe (6^{th} FP)

more attention can be paid to the very transcalar nature of urban relationships. Nevertheless, also regulationists analysis may furnish important elements in the explanation of the structure of interurban networks, suggesting to focus the analysis not only on 'technological masses' or flows assets, but on national and local *enabling* conditions as well, such as economic specialization, real estate markets, power strategies and relations, functional governance and development trajectories.

As regards to this last element, tracking the development of Framework Programmes provides an opportunity to reflect on the dynamism of the urban system.

From 2002 to 2005, for example, Graz showed an evident increase in centrality (from position 44 to 28) that corresponded to an analogous increase in its participation to FP projects (from position 43 to 31). Correspondence between centrality and projects mass characterises also the cases of Leuven, moving from position 35 to 19; and Lund, from 46 to 26. But the contrary is true as well. London, for instance, while maintaining the 2nd position (after Paris) according to project participation, its centrality diminished declining from the 2^{nd} to the 3^{rd} position. Warsaw, on the contrary, slightly improved its centrality (from position 48 to 45), notwithstanding the dramatic loss of 19 positions in the participation to projects.

In the same period, betweenness varied even more significantly, as demonstrated by the cases of Graz (rising from the 9^{th} position to the 1^{st}), and Zurich (from the 6^{th} to the 2^{nd}). Florence, on the contrary, fell from the 3^{rd} position to the 17th, as well as Koln slide from the position 7 to the 19.

Reasons for the dynamics of the network may be manifold. Certainly, a direct positive correspondence with traditional variables, such as urban population and GDP, seems unlikely. This is very important, as it means that the cities' aptitude for entering into partnerships varies

significantly (at least in the medium term) in large as well as medium-sized cities, supporting the idea that cities can strengthen their role as network gateways (eventually building their competitive advantage on this capacity) independently of the number of projects they participate in, simply by varying the group of cities they interact with. Moreover, this variable is crucial in evaluating the network's polycentrism: as there were fewer cities with positive betweenness in 2002 than in 2005, this means that the number of gateway-cities increased, paving the way to a more polycentric organization of the network.

As for the distribution of copartnerships, what we see at this scale is a quite complex georeferenced representation of the network (Figure 1), in which the strongest ties tend to focus on the nodes with most projects. The main inter-urban networks of research co-partnerships (50 co-partnerships and more) show that Paris and London emerge as structuring poles of the research network, together with a number of other cities—all national capitals—such as Athens, Rome and Madrid. These cities can be regarded as important attractors in research copartnership networking. This spatial organization of research copartnerships underscores our contention that the hierarchical approach describes the European urban network better than the centre-periphery model. This result, however, must be treated with a certain amount of caution inasmuch as it probably suffers the limits of an over-simplified representation, given that only a selection of relationships (the research relationships among a predetermined set of cities) were considered.

5. The Piedmont system

Piedmont region represents an important part of the old Italian industrial core, historically led by the manufacturing plants of Italy's biggest automotive company, Fiat, traditionally localised in the region. Anyway, beside this system based on a hierarchical organization of many small specialised suppliers working for the same client, the regional economy of Piedmont has been also characterized by the presence of a number of productive local systems, the Italian industrial districts of SMEs, specialized in textile, jewellery, metal machinery, and electronic manufacturing.

Located in the North-Western part of the country, Piedmont it is administratively divided into eight provinces (NUTS-3) taking the name from their main urban centres: Turin—which is also the regional capital —, Alessandria, Asti, Biella, Cuneo, Novara, Verbania, and Vercelli. These cities, together with Ivrea—belonging to the province of Turin—are also the nodes among which the regional research network develops.

As regards the distribution of nodes and relationships, we have a rather highly articulated network, where the metropolitan area of Turin is not the only area of concentration, as there are also several secondary poles. In Ivrea (Colleretto Giacosa to be more precise), in particular, there is an important concentration of projects, most of which originated from (or linked with) the activities of the Bioindustry Park, a regional technopole for the biosciences. The Bioindustry Park provides services of various kinds (infrastructure, financing, incubation, consultancy, laboratories, etc.) to firms that decide to locate in it; in addition, it establishes interesting copartnerships with other regional institutions (largely in Turin but also in Novara, Vercelli, Verbania and Alessandria) as well as supralocal actors. Another important research node is Vercelli, site of the main campus of the region's second university (Università del Piemonte Orientale). Biella (networking in the textile industrial district) and Alessandria (chiefly plastic and materials research) are also quite important. Nevertheless, these nodes do not have sufficient mass to emerge independently: apart from certain major relationships (between Alessandria and Vercelli, for example), all the other partnerships centre on Turin. Novara, notwithstanding the presence of important research centres, university departments and European-level transport hubs and accessibility, is very poorly

integrated in the regional network. This is probably due to centripetal forces that push it towards the research system of Lombardy.

For the Piedmont scale, as the database is rather different from the others, project masses as well as centrality and betweenness are shown in Table 3.

Table 3.

Project, centrality and betweenness of Piedmont's cities

CITIES	Projects	*Rank*	Centrality	*Rank*	Betweenness	*Rank*
Torino	53	1	0,39	1	13,33	1
Cuneo	23	2	0,04	6	0,00	3
Vercelli	22	3	0,17	2	5,83	2
Ivrea	12	4	0,16	3	5,83	2
Biella	11	5	0,09	4	0,00	3
Alessandria	5	6	0,08	5	0,00	3
Verbania	4	7	0,03	7	0,00	3
Asti	2	9	0,02	8	0,00	3
Novara	2	8	0,02	8	0,00	3

Source: Cordis (years: 2002, 2005)

As we saw for the European scale, a large number of projects originating in a city is not always correlated with its centrality. For Piedmont, however, this applies only to the case of Cuneo, which ranks second in degree but only sixth in centrality. All but three cities in the region have a betweenness index of zero. This is due to the peculiar structure of the network, in which the main metropolitan area of Turin captures the majority of the relationships, while links connecting smaller cities are less frequent.

We can summarize the regional framework thus described by adapting to our case the taxonomy developed by Markusen (1994) to describe industrial clusters. At the regional level, we found that the Piedmont research network shows a "*Hub and Spoke*" configuration with a single major hub in Turin. In a "Hub and Spoke" structure, one or a few units gather the relationships developed by smaller and less important actors: the dynamics of the network thus depends exclusively on the power exercised by those main actors (hubs).

Nevertheless, if we go into further detail, we see that in the metropolitan system, the actors participating in the research networks are more similar to "*satellite platforms*" following individualistic approaches with a hierarchical or systemic organization.

6. Conclusions

As suggested by recent work in urban studies, the paper proposes a transcalar approach to analyzing research copartnerships in Europe which is based on the adoption of an innovative database (Cordis, years: 2002 and 2005) and methodology (*network analysis* metrics and georeferenced *graph* techniques). In particular, the number of projects a city is involved in as *partner* or *prime contractor* is taken as a measure of its participation/involvement in the network, while inter-urban copartnerships, quantified via social network analysis variables of centrality and betweenness, describe its capacity for establishing relationships with the other cities in the sample. This analytical approach is then implemented for two geographical scales (the European and the regional), and different network structures are analyzed for each.

Source: survey data processed with the graph visualization software NetDraw 2.3

Fig. 2 Main research copartnerships in Piedmont (6^{th} FP)

The conclusions we draw from this experiment deal in particular with the different power (hierarchy, centre-periphery) and spatial (polycentrism, concentration) logics characterizing the two considered scales of analysis:

— The analysis on Turin's research networks, conducted according to a strong transcalar approach, i.e. analyzing inter-city relationships both at the European and regional scale, shows clearly the fact that the influence of nation states has been progressively eroded by decentralized sub-national authorities and supra-national organizations, allowing the continuous growing of the role of cities in defining of competences and powers at the different levels of territorial. As demonstrated by the graphs we proposed, it emerges in fact that European cities as Turin are at the same time nationally rooted (as nodes of the state's territorial organisation at the local and regional level) and involved in multiple networks at different spatial scales;

— Moreover, from the analysis we detect some interesting hints to confirm the tendency of networks to reveal different spatial logics according to the considered geographical scale. In particular, when a distinction is made between local and continental scales, important differences emerge in both the network structure (i.e., its spatial organization) and in the relative position of cities. At the European scale, for instance, Turin emerges as a quite marginal node, excluded from the most intense research relationships. In contrast, at the regional scale, it emerges as a structuring pole of the whole regional network. Moreover, despite the position occupied by Turin, the networks themselves are different at the different scales: hyperconnected an hierarchically organized the European one; more polycentric but still polarized the regional one;

— Finally, from the dynamic analysis of cities' participation to the Framework programmes, it appears that network hierarchies are not as fixed as "traditional" urban analysis would suggest. In particular, the sub-network formed by non-capital cities is characterized by a degree of dynamism that far exceeds that of the capitals

Reasons for this may be different and we do not have enough information to construct models or solid theoretical framework. Nevertheless an important result to be underlined here is the potential confutation of structuralist theories, giving importance just to assets and hierarchies, in favor to relational and evolutionary perspectives shedding some light on the significance of relations (as attracting elements: the more you are connected the more you will be in the future) and local un-tradable assets such as competences and local governance practices.

From a practical point of view these results might be thus translated in to suggestion addressing the current research on European space development and planning. In particular, the unevenness in the spatial organisation of research relationships would imply several important consequences in territorial praxis.

(i) First, there is clearly a need for a more critical approach to "classical" spatial models and hierarchies. By considering different geographical scales, the exercise shows how the research network assumes different spatial models (core-periphery, gravitational etc.) according to the selected level of analysis and, likewise, according to the sample of cities and variables taken into consideration;

(ii) Secondly, it suggests that supra-local territorial policies should focus on regional cities, rather than capitals. Even if cities such as Berlin and Vienna (favoured by their position as well as by past and present development paths) may be important gateways for their hinterlands, capitals are rather static in their networking.

Consequently, the European Commission's intention of pursuing polycentrism by concentrating decentralised activities and encouraging a network of centres of excellence as "catalysts for backward areas" is potentially more effective than the hypothesis of the *diffusion* of research functions from congested capitals to corridors and gateways. The analysis shows such polarisation in Paris and London, for example. To counter this trend, medium-sized cities (which, it is hoped, will be favoured by national and communitarian policies) could exploit their intrinsic dynamism to put forward competitive strategies and select their partners strategically. This policy could have positive repercussions at both the continental and regional level.

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DIMITRIOS KONSTADAKOPULOS

THE ORGANISATIONAL RESTRUCTURING OF HIGHER EDUCATION IN EUROPE: IMPLICATIONS FOR CREATIVITY AND INNOVATION

Abstract

The continuous growth of the knowledge-based economy and society implies that higher education organisations in Europe should be restructured for the twenty-first century. One of the main challenges of the 'new higher education organisation' is to lead, motivate and retain the knowledge workers who are essential to its operation. The aim of this paper is to discuss the implications of the new organisational structure for academic staff. Such a structure moves away from the classic command-and-control type of management towards a style that postulates self-direction and self-control, creativity and innovation, and provision of resources for intellectual activity, which connects academics with the wider knowledge economy.

Introduction

The way that academics work has significantly changed during the last two decades, but their institutions have fallen far behind in terms of organisation. This has brought about a number of changes in which higher institutions operate, particularly in communication technologies (i.e. the use of the internet as a means of delivering tuition), and in the globalisation of the student market. As the number of students studying abroad has doubled over the last twenty years, higher education institutions have started to open campuses all around the world, encouraged by the fact that many developing countries are welcoming foreign universities to come and operate from their territories, rather than sending their students abroad. Moreover, a number of countries (e.g. the United States, Australia, the United Kingdom, Germany and the Netherlands) have identified higher education as an export industry and an important source of additional income (Wende, 2003: 195). The importance of higher education can be illustrated by the sheer size of global spending on higher education, which, according the World Bank, amounts to $300 billion per year, or 1% of global output (The Economist, 2005).

An important development that is currently reinforcing the role of higher education institutions is the rise of the so-called knowledge-based economy[1] . Universities are seen as the primary producers of knowledge, and as important actors in strengthening technology-transfer and encouraging university-industry partnerships. They also develop specific educational curricula to meet the demand of skills required by knowledge-based industries (Goldstein and Drucker, 2006: 22). At the same time, many social scientists have paid particular attention to the so-called 'learning-society' and 'learning organisations' (or 'knowledge society' and 'knowledge-workers') which accompanies such a knowledge-based economy. An essential requirement for the transition to a dynamic knowledge-based economy is the need for education, lifelong learning and training programmes (Cassey, 2004). More importantly, working is becoming tantamount to learning (Hanna and Latchem, 2002: 115). Learning institutions in general, and universities in particular, are well-placed for facilitating the transition towards a knowledge-based economy. Not only they do supply the knowledge workers who manage such economies, but they also provide many of the facilities and the infrastructure needed. However, it is important to note here that universities are no longer regarded as having monopolistic powers over knowledge, as evidenced from the proliferation of corporate 'universities' and 'academies', such as those of corporate behemoths *Axa* and *Unilever*.

The process of profound change in the higher education system does have an impact on the configuration of its principal workers. The academic, an example of a knowledge worker, is being transformed into a 'networked person', who communicates through the internet to a far greater number of colleagues and students alike than ever before. As Rumble notes (1998: 139), quoting Hechscher (1994), the highly bureaucratised world of the late-twentieth-century university has given way to a new organisational framework in which academics now operate. The old world—in which knowledge was power, hierarchy was preferred, and the office was synonymous to work—is being transformed by the new technologies. A new kind of 'interactive university' is emerging, Rumble adds, built on 'traditional academic values that mesh well with the values of post-bureaucratic organisations'.

Central to the transformation of higher education in the twenty-first century is its knowledge-workers: that is, its community of 'networked' scholars who combine teaching with research and view the whole world as their stage (The Economist, 2005). The new kind of university requires a new organisational structure away from the classic command-and-control type of management, towards an organisation whose employees are self-motivating, self-directing, creative, and innovative in the diffusion of knowledge. In order for this structure to develop, an understanding of the fundamental logics governing organisational design of the interactive university will be required. The ideas and examples discussed in the following sections aim to increase this understanding.

This paper is organised as follows: firstly, it discusses the urgent need for reforms that European universities need to undertake in order to help the European Union become the world's pre-eminent knowledge-based economy; secondly, it elaborates on the success of the American system of higher education and considers whether European universities can learn from it; and

[1] The term *'knowledge-based economy'* was first used at the end of the 1960s. The term became popular during the late 1990s with the belief that knowledge is replacing the natural wealth or production industry of a nation. The main driver, therefore, of economic growth is the ability to produce, exchange and transform knowledge, rather than producing physical products or commodities. Many governments have been enthusiastic about the knowledge-based economy and higher educations' crucial role in fostering the economic competitiveness necessary for expanding social economic mobility and further reducing class inequality. In the UK, for instance, the Labour government has issued a series of policy documents affirming its belief that we are entering a new phase of economic development based on knowledge, to which the education system must properly address itself (DTI, 1998). For a critical analysis of the knowledge-based economy and its effect on organisations and changing patterns on work, see, for instance, Cassey (2004). For its relationship with education, see, for instance, Tilak (2002).

finally, it examines how globalisation and 'massification' of higher education is driving change and how such change is affecting the academic profession.

European Higher Education: Issues and Dilemmas

There is little doubt that most European universities are in urgent need of reform. Traditionally, they have been dependent on the state for funding. They have also been closely controlled by government authorities, who not only have gradually reduced funding but have also prohibited the imposition of fees and interfered in the management of many aspects of academic life (Pritchard, 2005: 433). As Lambert notes (2004), Europe's 4,000 higher education institutions[2] are 'under-funded, poorly organised, over-centralised and subjected to severe political constraints. And, as European governments are already discovering, making the necessary reforms will prove both economically and politically costly.' Nevertheless, during the last few years, universities in many European countries, such as Finland, Norway and the UK, have acquired more freedom and flexibility, especially in relation to funding, although the increase in their independence has been marginal (Sotirakou, 2004: 356; Kuoppala, 2005: 347–8). The increase of such reforms coincides with the so-called Bologna process, although it is open to question whether participation in this process will result in substantive reforms in the operation of universities.

The support of Europe's higher education institutions is essential in achieving the aims of the Bologna Declaration of June 1999[3]. This declaration put in motion a number of reforms needed to make European universities more competitive, acknowledging that Europe is lagging behind other educational systems in the world, notably that of the United States (Jacobs and van der Ploeg, 2006; Kwiek, 2004). The Bologna process also fits within the wider European Union's Lisbon strategy. In the EU's summit in Lisbon in March 2000, European leaders expressed the aspiration of Europe becoming the world's most competitive knowledge-based economy by 2010. In March 2005, in Brussels, the European heads of government re-launched the Lisbon strategy, confirming once again the importance of knowledge for advancing Europe's economic growth and providing much-needed employment (European Commission, 2005).

However, in Europe comparatively fewer people receive higher education (see Tables 1 and 2). In the United States, one third of the economically active population has a university degree, whereas in Europe only one fifth of population has graduated from a higher institution (Dion, 2005: 298). Moreover, European countries spend much less per student in tertiary education than does the United States[4]. It is not surprising, therefore, that American universities are recruiting

[2] European universities have 17 million students, 1.5 million staff and 435,000 researchers.

[3] The Bologna Declaration, signed by 29 countries in 1999, envisages the creation of a single European higher education space, with the introduction of comparable qualifications and transferable credits. Increased transparency and mobility is expected to promote competition among European universities. One of the most successful European initiatives is apparently the Erasmus programme, which, since 1987, has benefited more than 1 million students. http://europa.eu.int/comm/education/archive/million/facts_en.html accessed 11/5/06/.
With the creation of the *European Research Area* within Framework Programme VI in 2002, the European Union is aspiring to Europeanise higher education. However, student mobility is still marginal, with only 2.3 per cent of European students studying in another European Union country (Lambert, 2004). Neave, (2003: 161), in examining the changes in higher education in Western Europe in terms of the Bologna declaration, notes that the power of both a 'superordinate community and of subnational units is growing', while that of the 'monolithic, territorially defined referential community—the nation-state' is diminishing. Such changes are mainly the result of Europe's adjustment to globalisation, Neave adds, although they are not totally bereft of historical and cultural influences.

[4] For instance, in 2002 the United Kingdom spent US$10,753 per student in tertiary education, France and Germany US$8,837 and US$10,504 respectively; in contrast, the United States spent US$22,234 per student (OECD, Indicators 2004). See also Figure 1. This high expenditure in the US translates into smaller classes, better-paid

growing numbers of EU researchers. The European Commission, in a press release in 2003, suggested that 75 per cent of EU-born US doctorate recipients (approximately 40,000 individuals) graduating between 1991 and 2000 had no plans to return to Europe. In a recent working paper from the European University Institute, Philippe Moguérou (2006) suggests that the unequal flow of Ph.D. students and researchers between Europe and the United States is an overestimated, although he acknowledges that the attraction of the US might have negative consequences on the future growth and innovation capacity of many European countries.

Funding constraints have led to universities avoiding resolution of long-standing inadequacies in their educational systems. In many European universities, drop-out rates from higher education are extremely high. For example, in Italy only 42 per cent of those enrolling at university go on to obtain a degree, though this is partly because completion often takes five years or more. At the same time, the funding gap is widening, and this encourages a greater degree of selectivity in the allocation of funds for research and teaching, while the spreading of resources evenly across the system limits academic freedom and neglects the needs of different disciplines (Lambert, 2004).

Table 1.

Tertiary Education

	EU 25*	EU 15*	USA**	Japan**
Percentage of population aged 25–64 with tertiary education *Year 2004 **Year 2003	21.9%	23.1%	38.4%	37.4%

Source: EUROSTAT, OECD data

Table 2.

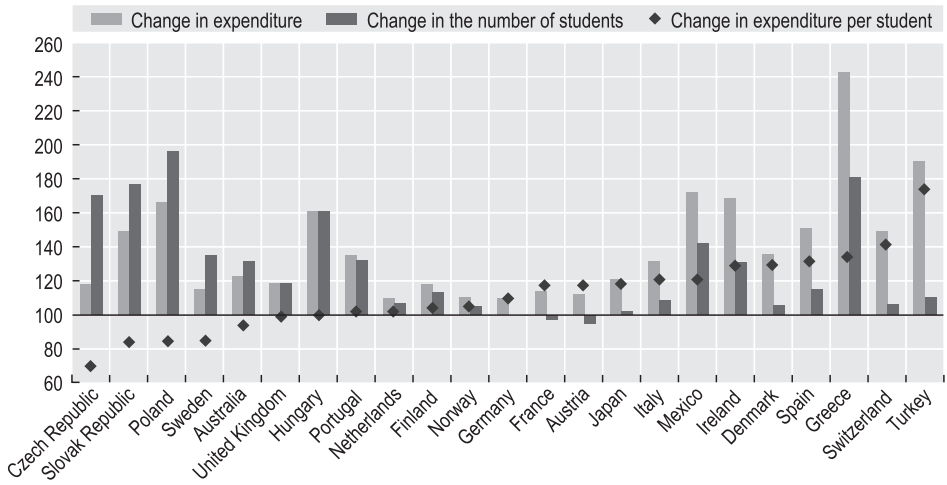
Enrolment Rates for Adults in Higher Education

	EU 25	USA	Japan
Percentage of population aged 30–39 in higher education Year 2004	30–34: 4.1% 35–39: 1.8%	30–34 : 7.0% 35–39: 4.9%	*n.a.*

Source: EUROSTAT

However, all European governments are embarking on reforming the allocation of resources to their higher institutions, with a view to better use of public funds. Various options are being considered, such as output-based funding, supply-driven contracting, and 'student vouchers' (Jacobs and van der Ploeg, 2006; ESIB, 2005: 4; Weiler, 2000: 336–7). In the UK, the Labour government introduced a new Graduate Contribution Scheme in the autumn of 2006, under which universities are allowed to charge top-up fees of up to £3,000 per year. Currently, all of the United Kingdom's 110 research universities are competing for inadequate funds, which the Labour government admits is resulting in 'unacceptable levels of mediocrity'. The government's response has been to introduce differentiation of funding, in order to foster high-quality institutions; however, the majority of universities in England are sceptical about this approach, and uncertain about what level of fees to charge their students (Douglas, 2003). In Germany, Italy, Sweden and France,

academic staff and higher-quality research (The Economist, 2005). Private finance in the US is also significant, whereas the private contribution in European universities is modest.



Source: OECD Factbook 2006.

Fig. 1. Changes in real expenditure on educational institutions providing tertiary education (2002). Year 1995 = 100

where tuition is free or, at least, inexpensive, governments are undertaking modernisation reforms and are trying to make universities more competitive. They are also planning to concentrate funding on a group of elite institutions.

However, it is debatable whether all national governments in Europe will have the courage to introduce the sweeping reforms that are now required, and whether individual universities will have the resolve to support them. National governments, such that of the United Kingdom, erroneously perceive the conservatism of many university departments as representing the vested interests of 'liberal' educational establishments, and are resisting modernisation (Young, 1998: 17; Lambert, 2004).

Recently, the European Union started to play a more active role in the modernisation of its higher education sector and make it a key part of the Lisbon strategy for creating employment and growth in Europe. In October 2005, at Hampton Court in London, the European Council discussed the need for reforming the university sector in Europe and asked the Commission to come up with proposals on how to use 'this potential to the best advantage of Europe'. In May 2006, the European Commission produced a communication urging its member states to allow 'universities greater autonomy and accountability, so that they can respond quickly to change'[5]. Influential think-tanks argue that universities in Europe will have to evolve so that their leadership and management capacity matches that of modern enterprises (Schleicher (2006: 11).

Jacobs and van der Ploeg (2006) put forth a compelling case for reform of higher education in Europe, and make seven recommendations, summarised in Table 3:

[5] 'Mobilising the brainpower of Europe: enabling higher education to make its full contribution to the Lisbon Strategy', COM (2005)152 final of 20 April 2005. Press Release IP/06/592, 'Europe needs modernised universities,' says European Commission, Brussels, 10 May 2006;
http://www.europa.eu.int/rapid/pressReleasesAction.do?reference=IP/06/592&format=HTML&aged=0&language=EN&guiLanguage=en, accessed 25/5/2006.

Table 3.

Recommendations for Reform of Higher Education in Europe

Recommendation 1	***Expand private funding through higher tuition fees and income-contingent loans.*** Governments should facilitate private investment by allowing young individuals to borrow against their future earnings by means of income-contingent loans. Thus the supply of higher education can expand in response to a larger demand without burdening public finances.
Recommendation 2	***Distinguish studies that are public goods from those that are private goods.*** Governments should subsidise those studies whose social benefits exceed private benefits. Subsidies for studies with negligible or negative external benefit should be abolished.
Recommendation 3	***Differentiate tuition fees and offer a greater diversity of higher education.*** It makes no sense from an economic point of view to charge uniform tuition fees. Differentiation of fees allows the markets for higher education to respond to the changing preferences of students, the changing conditions on the labour market, and changing circumstances in the market for higher education.
Recommendation 4	***Selection, tracking and incentives.*** Selection of students based on academic aptitude upon admission helps to avoid enrolment of too many non-qualified students and reduces drop-out rates. Good staff are attracted by good salaries, but also by the promise of teaching excellent students.
Recommendation 5	***Foster competition, shift funding to students, and diminish government control.*** A level playing field must be created for higher education in Europe. At the same time, internationalisation, and competition with the best institutions abroad for the smartest and brightest students and staff, should be encouraged. Both private and public institutions should compete on the same terms by allocating government subsidies directly to students, through vouchers, grants or scholarships.
Recommendation 6	***Abolish equity issues from higher education.*** Equity arguments are not convincing. Subsidies on higher education are, after all, regressive. Governments should redistribute income through the tax system or through basic education. Education policies should aim to pursue economic efficiency (as defined in a broad sense, to include the non-material rewards of education).
Recommendation 7	***Increase information and transparency.*** Universities should be obliged to publish performance criteria annually. Governments should develop uniform tests of ability and aptitude to make possible the appropriate selection of students. Funding of higher education institutions should be as simple and transparent as possible. The adoption of a tenure-track appointment system, with regular assessment of every staff members' teaching and research performance, is recommended.

Source: Adapted from Jacobs and van der Ploeg (2006)

The American System of Higher Education: A Brief Overview

Compared to Europe's academic system, which is controlled and financed by central government, the United States' system is unusual in its decentralisation and autonomy[6]. According to Honan and Teferra (2000: 234), it has some top private institutions and is egalitarian, enormous in size and diverse in its body of studentship; furthermore, it uses other-than taxpayer-originated revenues and undertakes aggressive marketing. But Honan and Teferra argue that, despite the apparent success and popularity of its education system, academics face a number of major challenges:

> *Among the primary factors that have significant relevance and pertinence to the changing academic workplace, we contend, are assessment and accountability, financial pressure, governance and power, and technology (p. 235).*

Looking ahead, however, Honan and Teferra maintain their confidence in the American education system, and note that:

> *It is fair to say that the robustness, the diversity, uniqueness, and maturity emblematic of the US higher education system, will empower the academic profession to confront the current challenges and dilemmas that it currently faces (p. 255).*

As previously mentioned, the Unites States is currently the largest host country of international students and scholars, being home to more than a quarter of the world's foreign student population. It attracts more such students that its three largest European competitors put together (namely the UK, Germany and France). Most of the foreign students in the United States come from developing and newly industrialized countries in Asia (55%), reflecting on the one hand the 'pull' factor of American higher education system and, on the other, the growing internationalism of higher education worldwide (Altbach, 2004b: 19–20).

In the era of the knowledge-based economy and globalisation, higher education has increasingly become a commodity (particularly in the United States), as have league tables (Chang and Osborn, 2005: 338). However, acknowledging that higher education establishment rankings have weaknesses, the Institute of Education at Jiao Tong University (SJTU) in Shanghai has produced a global league table of universities (Table 4)[7]. The 2006 edition reveals that the top 100 are dominated by the United States, where just over half are located. Seventeen of the top 20 are American. Only thirty-seven are located in European countries: eleven in the United Kingdom, five in Germany, four each in France and Sweden, three in Switzerland, two in the Netherlands, and one each from Denmark, Finland, Norway, Italy and Russia. However, the high rankings of American universities are countered by the fact that they are expensive to attend. A recent report comparing six different measures of affordability in fifteen countries suggests that the ten most affordable institutions are from continental Europe: (1) Sweden, (2) Finland, (3) The Netherlands, (4) Belgium (Flemish Community), (5) Ireland, (6) Belgium (French Community), (7) Austria, (8) Germany, (9) France and (10) Italy (Shah, 2006).

A different study, examining the characteristics of those individuals who lead the world's top 100 universities, concludes that a strong correlation exists between their research background and

[6] Only 100 of America's 3,200 higher education institutions are considered research institutions. They receive the lion's share of government research funds and dominate the American education system. Most of the other institutions, such as comprehensive universities and community colleges, are at the periphery of the research establishment (Altbach, 2004a: 5)

[7] http://ed.sjtu.edu.cn/ranking.htm

Table 4.

A Selection of the World's Top 100 Universities*

World Rank	Institution	Country
1	Harvard University	USA
2	University of Cambridge	UK
3	Stanford University	USA
4	University of California (Berkeley)	USA
6	Massachusetts Inst Tech (MIT)	USA
7	Columbia University	USA
9	Princeton University	USA
10	University of Oxford	UK
19	Tokyo University	Japan
23	Imperial College London	UK
27	Swiss Fed Inst Tech—Zurich	Switzerland
40	University of Utrecht	Netherlands
45	University of Paris 06	France
48	Karolinska Inst Stockholm	Sweden
51	University of Munich	Germany
56	University of Copenhagen	Denmark
68	University of Oslo	Norway
70	Moscow State University	Russia

* Ranked by a mixture of indicators of academic and research performance, including Nobel prizes and articles in respected publications.

Source: Jiao Tong University, Shanghai, 2006

the position of their university in a world league table (Goodall, 2006). This is an important point, since leadership—as discussed in the next section—is a significant element in bringing about the necessary changes in an increasingly globalised educational system.

Creating the New Higher Education Institution: Management and Leadership Challenges

Central to the idea of the global knowledge-based economy is the way in which organisations, including higher education institutions, are being restructured for the twenty-first century. The innovation and creativity needed to sustain growth will increasingly depend on knowledge workers, who think creatively about improving the particular area of the organisation in which they operate. Conveniently, higher education institutions are organisations in which every employee is a knowledge worker. As *The Economist* (2006: 9–10) suggested in a recent survey, similar organisations exist in the professional-service firms, such as the partnership arrangements favoured by lawyers, accountants and consultants. In such partnerships, strategic decisions are made democratically by all members. However, generally speaking, the vast majority of higher

education institutions are larger and more complex than professional partnerships. Nevertheless, adoption of the new information and communication technologies (ICTs) has encouraged them to treat their employees more like partners. Moreover, ICTs enable academics to tap into each others' ideas, knowledge and experiences.

Many universities in Europe now limit management to a central executive leadership, and appoint (rather than elect) their Deans. This is particularly the case in the UK's 'new' universities, where the administration has increased its power at the expense of academics and an academically-led committee system (Pritchard, 2005: 440; Brehony and Deem, 2005: 403). A recent survey of academic staff in both the United Kingdom and Germany revealed that academics are strongly opposed to the notion of increasing the executive power of their leaders[8]. The suggestion that '*our vice-chancellor or president needs more power vis-à-vis academics*' was rejected by 74% of respondents in the United Kingdom and by 63% of those in Germany (Pritchard, 2005: 441). Furthermore, nearly 89% of German academics and 69% of their British counterparts agreed that 'the good functioning of our HEI is impeded by excessive state-sponsored interference' (Pritchard, 2005: 439). According to Payne (2002: 138), UK policy-makers seek 'to control education professionals, rather than trust them as active, committed participants in educational reform and curriculum renewal.' University management is also faced with the perennial problem of how to measure effectively the output of its academics. In the United Kingdom the unpopular Research Assessment Exercise (RAE) will be abolished by the Treasury after its next submission (in 2008)[9].

Deem and Brehony (2005) discuss some emerging ideological conceptions of management, especially the so-called 'new managerialism', which consists of a set of organisational forms, technologies and management practices adopted by British universities. They suggest that this type of management mainly serves the interests of manager-academics, and is based on relations of power and dominance, even in traditional and more collegiate universities, which have been associated with a weak management structure (Lomas, 2006).

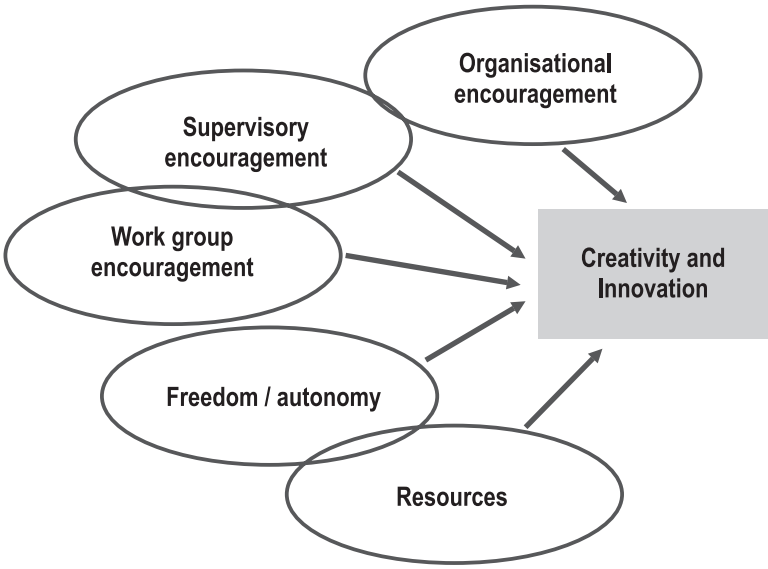
So what will transform European higher education institutions into establishments where academic teaching and research activities can flourish? Some educationalists have already predicted how European universities will evolve. McNay (1995), quoted by Hanna and Latchem, (2002: 123) suggests that they are moving from a 'collegium/bureaucratic organisational framework found in most traditional universities to an enterprise/corporate model', which is more appropriate for the knowledge-based economy. McNay's emphasis is on the changing culture of higher education institutions, whereas Hanna and Latchem emphasise leadership. They argue that those institutions with transformational leaders will find it easier to create new relationships and give more responsibilities and autonomy to their academics, while at the same time inventing new products and services (Hanna and Latchem, 2002: 129).

One further factor frequently addressed in management literature is creativity, a special form of knowledge which is notoriously difficult to quantify, but which can be important for higher education institutions. According to Lester Thurow (1999: 104), a former dean at MIT Sloan School of Management, 'creativity does not occur when it has to challenge authority. Creativity occurs when there is no authority to challenge—when there is an empty space without order where creativity can grow unmolested.' It is apparent that the academic environment of many higher educational institutions in Europe is too controlled and regulated, lacking the creativity of their

[8] Most recently, the University of Oxford's controversial governance reforms gave rise to a great deal of attention in the British press. The reforms involved the simplification of the university's decision-making structure and the creation of a board of directors, largely composed of external trustees. '*The bitterly divided dons of Oxford on Tuesday agreed to compromise on plans to hand over majority control of the university's governing body to non-academics, that could save its controversial vice-chancellor from humiliating defeat*' (*The Financial Times, 14th November 2006*).

[9] *The Independent*, 23 March 2006, 'The RAE is dead—Long Live Metrics'.

American counterparts. They should therefore 'loosen up', in order to allow individual creativity to flourish. McLean (2005)[10] , in a comprehensive article reviewing the existing literature, concludes that the factors which might support or impede creativity and innovation in organisations are **organisational encouragement**, **supervisory encouragement**, **work group encouragement**, **freedom/autonomy**, and **resources**. In contrast, **control** is considered to decrease organisational creativity and innovation.



Source: Adapted McLean (2005)

Fig. 2. Factprs Supporting Organisational Creativity and Innovation

Conclusion

It has been argued that the current organisational restructuring of higher education institutions in Europe is being influenced by the profound economic, technological, social, demographic and political developments taking place within the continent, which in turn are related to the dual processes of European integration and globalisation. Recently, the academic profession has been under considerable pressure to conform to changes brought about by these developments. It has been seeking to emulate the United States' system of higher education, the success of which is mainly the result of its unique organisational structure and its capacity to build and maintain the kind of 'new organisation' in which academics thrive. However, there is a substantial difference in the ways in which global trends are negotiated in each national context and in each individual institution, notwithstanding the European Union's common response to the challenges of globalisation through the adoption of the Bologna process.

In 'The Modern Firm', a seminal book by John Roberts (2004: 286–7), the author suggests that 'organisational design involves both management and leadership. Beyond that, it is fundamentally

[10] McLean (2005) discusses the history and evolution of the literature on organisational culture and creativity and innovation. Drawing from the work of Amabile, Kanter, Van de Ven, Angle and others, he explains how organisational culture and climate influence creativity and innovation.

a creative process.' Creativity, he adds, 'involves originality, imagining new things, seeing new patterns and connections.' As noted earlier, autonomy, self-control and self-direction lie at the heart of the 'new organisation', although hierarchical relations will continue to exist as efficient coordination mechanisms. This 'new organisation' is already found in the United States, not least within its higher education system. However, the institutional specificities of this system suggest that it will not be easy for Europe to adopt it, as it is likely that the EU and its member states lack the resources and the market conditions for successfully transplanting it to the knowledge-based economy of Europe.

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WOJCIECH BURZYŃSKI

HOW GOVERNMENTS (GOVs) AND TRANSNATIONAL CORPORATIONS (TNCs) WILL CONTRIBUTE TO MORE CREATIVE EUROPE?

The present paper continues the contribution to the international research programme in the field of European future studies (Burzyński, 2006, 2006a) and is composed of the following parts:

I. Presumptions
II. Facts and figures
III. Research questions
IV. Methodology

I. Presumptions

The following presumptions tend to indicate interdepence of GOVs and TNCs.

1. Two main forces shape the global status of Europe—GOVs and TNCs.
2. Activities of GOVs have national dimension, activities of TNCs have transnational dimension.
3. GOVs shape and represent the legal European and global rules of the market game, TNCs represent and take advantage of the financial rules of the global market game.
4. GOVs aim at more and better jobs, TNCs aim at more and higher financial results.
5. GOVs need TNCs to contribute in investment and support intergovernmental relations, TNCs need GOVs to facilitate access to markets and obtain financial benefits.
6. GOVs and TNCs negotiate proportions of competition and cooperation.

The composite presumption may refer to **an optim**um, namely—creative and innovative corporations in creative and innovative regions.

II. Facts and figures

The measurement of science and technology was fifty years old in 2000. It owes a large part of its existence to the work of the National Science Foundation (NSF) and the OECD in the 1950s and 1960s. It is worthwhile to quote the mission of the NSF, which reads as follows: **"to**

promote the progress of science, to advance the national health, prosperity and welfare, and to secure the national defense".[1]

Governments' policies and corporations' strategies rely upon their bargaining resources. In most cases GOVs offer access to market and local resources, but TNCs ofeer i.a. proprietary technllogy and managerial/marketing skills (Table 1, Tables in AnnexA.1, A.2).

Table 1.

Bargaining resources of TNCs and Governments of host countries

Transnational Corporation offer	Governments of host countries offer
1. Assistance in improving host country internal balance (e.g. income, employment) • Proprietary technology • Access to funds for investing in the host country • Managerial / marketing skills 2. Assistance in improving host country external balance • Access to low-cost inputs from abroad • Access to foreign markets for exports • Replacement of imports through local production 3. Assistance in achieving host country non-economic goals • Cooping pressure groups by providing jobs and other benefits • Local presence of TNC aids the Government of the host country in dealing with the firm's home Government	1. Control over access to the host country market • Control over access to the market in general • Ability to offer an important market to TNCs when the Government itself is a customer 2. Control over access to factors of production • Natural resources, such as minerals and metals, farmland, forests and fisheries • Low-cost production inputs such as labour • Funding and investing opportunities in local financial markets

Source: (Grosse, Bahrman, 1992).

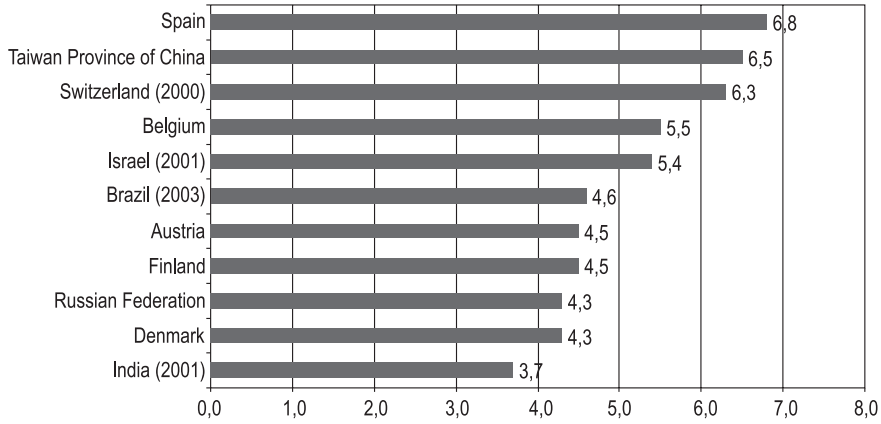
Competitiveness of both firms and countries is influnced by the ability to sell, to attract, to adjust—all these leading to the ability to earn. These components are related to activities of TNCs based on foreign direct investments. According to Dunning's theory, FDI flows are shaped by three sets of factors: ownership advantages, locational advantages and internalization advantages. Ownership and internalization advantages are those related to investing firms and their strategy. It is the locational advantages provided by a country, however, which allow countries to make use of the ownership and internalization advantages provided by investors (Hunya, 2001).

Global R&D expenditure has grown rapidly over the past decade to reach some 677 bln dollars in 2002. It is highly concentrated. The top ten countries by such expenditure, led by the United States, account for more than foru-fifths of the world total. Only two developing countries—China and the Republic of Korea—feature among the top ten. However, the share of developed countries fell from 97% in 1991 to 91% in 2002, while that of developing Asia rose from 2% to 6%. Similarly, there has been a rise in innovation outputs (as measured by the number of patents issued) For example, between the two time periods of 1991–1993 and 2001–2003, the share of foreign patent applications from developing countries, South-East Europe and the CIS to the United States Patent and Trademark Office jumped from 7% to 17%.

TNCs are key players in this process (Figure 1 and 2 and Tables in Annex A.3, A.4)). A conservative estimate is that they account for clese to half of global R&D expenditures, and at

[1] The measurement of science and technology as a part of an integrated system and the statistics of science and technology emerged simultaneously at the international and national levels (Burzyński, 2005a).

least two-thirds of business R&D expenditures (extimated at 450 bln dollars). These shares are considerably higher in a number of individual economies. In fact, the R&D spending of some large TNCs is higher than that of many countries. Six TNCs (Ford, Pfizer, DaimlerChrysler, Siemens, Tjoyota and General Motors) spent more than 5 bln dollars on R&D in 2003. In comparison, among the developing economies, total R&D spending came close to , or exceeded, 5 bln dollars in Brazil, China, the Republic of Krea and Taiwan Province of China. The world's largest R&D spenders are concentrated in a few industries, notably IT hardware, the automotive industry, pharmaceuticals and biotechnology (UNCTAD, 2005).



Source: (UNCTAD, 2005).

Fig. 1 R&D expenditure, by selected economies, 2002 (billions of dollars)

Both small and large firms play an important role in countries' innovative performance, but their relative importance for business R&D varies. In OECD countries the share of R&D performed by small and medium size enterprises is generally greater in smaller economies than in larger ones.

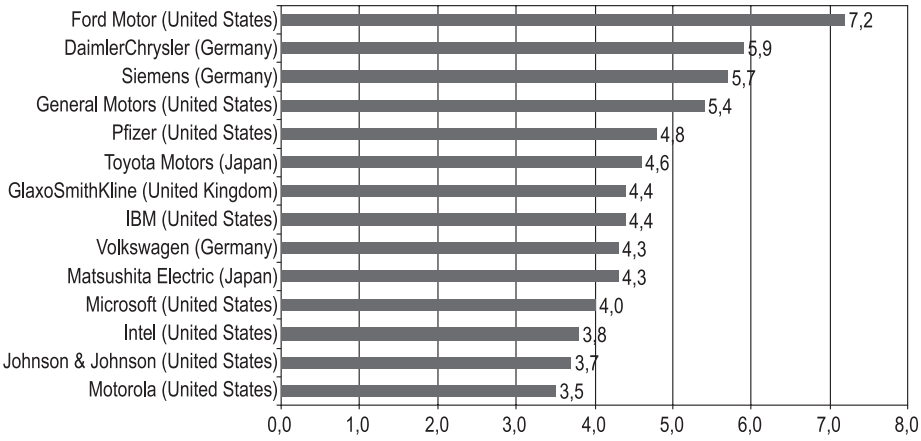
OECD countries also differ greatly in terms of Government financing of business R&D by size class. In Ireland, New Zealand and Australia, small and medium enterprises receive three quarters or more of Government financed R&D. In Ireland, New Zealand and Australia, more than half of Government-financed R&D goes to firms with fewer than 50 employees. In the United Kingdom, France, the United States, as well as in some smaller countries such as Turkey, Government-financed business R&D is mainly directed to large firms (OECD, 2005).

In this specific field of analysis, namely research and development expenditure, the bargaining resources—and following bargaining power—of GOVs and TNCs can be compared to each other (Figure 1 and 2). This fact may suggest the capability of cooperation between GOVs and TNCs in contributing to European creativity.

III. Research questions

The following series of questions has driven the present author's proposals of the research programme.

1. How GOVs and TNCs contribute in the field of:
   - creativity



Source: (UNCTAD, 2005).

Fig. 2 R&D expenditure, by selected TNCs, 2002 (billions of dollars)

- entrepreneurship (self-responsibility)
- education
- organization—European Union
- regions
- cities

to competition and cooperation?

2. How TNCs and GOVs influence / shape the civil societies (e.g. NGOs replacing trade unions, representatives of NGOs indirectly shape political structures, Parliaments and GOVs)?
3. What is the future
   - potential,
   - capability,
   - propensity

   of civil societies to compete and cooperate?
4. What is the future
   - competitive potential
   - competitive position

   of GOVs and TNCs?
5. What is the future
   - potential,
   - capability,
   - propensity

   of GOVs and TNCs to cooperate?
6. What is the experience of intra- and extra-European TNCs and their affiliates—similatiries and differences in R&D activities?
7. What can European GOVs learn from intra-European and extra-European experience in GOVs interactions with TNCs?

These questions may be regarded as **a new paradigm, however, the author does not explicitly furnish answers. The paper rather provides a methological approach to studies on interplay of GOVs and TNCs in the context of the future of Europe.**

IV. Methodology

There are important differences related to the deep roots of the nature and *modus operandi* of the corporation and the nature and *modus operandi* of the region. There are, however, important fields of encounter and cooperation linking the performance of corporations and regions. Maybe the most important link can be seen in the domain of creativity and innovativeness (Kukliński 2006).

Thus, s**ynergy can be expected in several fields of activities of civil societes and institutions resulting from motivation for inteactions between Governments (GOVs) and transnational corporations (TNCs) in creating more innovative Europe.**

Proposed research in the fields for competition and/or cooperation between GOVs and TNCs relate to civil societes (creativity, education, entrepreneurship) and institutions (European Union, regions, cities). In the proposed research programme Governments and transnational coroporations are approached as partners (Table 2). It means that both GOVs and TNCs would be attractive to each other and both would be assigned equal position in negotiating forms and conditions of interactions in medium (operational) and long (strategic) perspective, with respect to time sequnec of the processes in question. [2]

Table 2.

Synergy in inteactions between Governments (GOVs) and transnational corporations (TNCs) in developing more innovative Europe

Partners in competition and/ /or coopeartion		GOVs	TNCs \cr
	Fields for cmpetition and/or cooperation	Motivation for and synergy in competition and/or cooperation	
CIVIL SOCIETIES	Creativity		
	Education		
	Entrepreneurship		
INSTITUTIONS	European Union		
	Regions		
	Cities		

Source: own presentation.

In the context of the expected synergy of interactions betweeen GOVs and TNCs it would be useful to refer to the concept of 'an uneasy 3C triangle'[3], namely competition versus cooperation

[2] The development of knowledge society and knowledge economy—as meeium-term and long-term processes—may seem isolated from short-term fluctuations. E.g. modifications of speed in ICT development result from 'revolution' of its technological background. Waves on markets for ICT equipment, software and services are alos directly connected with regulatory reforms and financial restructuring of the ICT sector and supports justification of the proposed time sequence approach (Burzyński, 2005).

[3] As the global economy is rapidly being created and restructured, analysts have altered their view on the relationship between competition, collaboration and cooperation. Initially, analysts were prone to think of competition

and collaboration (Box 1), because both types of arrangements affect costs, especially the cost structure of a firm.

Box 1. An uneasy 3C triangle

Collaboration and cooperation are similar forms of collective behaviour in some ways. First, either collaboration or cooperation may occur among actors (e.g. private or public firms, the public sector, local organizations, members of the labour force or other agents) within the entity or region or across regional, national and international boundaries. Second, in both cases, the interaction may occur among firms in the private sector, between a private firm and the public sector and/or among other types of agents, such as trade associations and unions. Third, they may or may not be adopted to enhance the competitiveness of a firm. Fourth, either one may last a long or a short time, depending upon many economic, social and political factors. The similarities may be part of the reason many scholars treat the two concepts as synonymous, but K.R.Polenske stresses the distinctions that separate the collaborative from cooperative forms of behaviour.

Collaborative relationsships are defined to include direct participation by two or more actors in designing, producing and/or marketing a product (process). The relationships among these actors are often internal arrangements that are usually vertical, sometimes among divisions in the same firm or along supply chains. They may include joint ventures for "teamwork" or "partnership" as synonyms. Those collaborative arrangements that require firms to perform in teams or to form partnerships usually take far longer to build than those cooperative ones that may just require firms to assist each other voluntarily.

Cooperation relationships are defined to include when two or more actors agree through formal or informal arrangements to share information, support managerial and technical training, supply capital and/or provide market information. The relationships among these actors are usually external and horizontal, i.e. the actors do not work together on designing, producing and/or marketing a product (process). Cooperative arrangements are similar to public goods because they allow to the provision of collective goods under the non-exclusion principle, whereas collaborative arrangements are generally exclusionary. Collaborative and cooperative arrangements are two of many ways a firm has to expand its organizational and spatial boundaries.

Source: (Polenske, 2004).

Noting that these ideal types of interactions do not always fit the reality as weel as they should, it would be worthwhile to consider consequences of the above distinction, first of all, for the prospectiive approach to development of more creative Europe.

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as being the ideal type of behaviour for the firm, in that it was the one that maximized profits. Today may analysts think that collaboration and/or cooperation are needed for a competitive firm to be effective. The author believes that the three types of behaviour are best viewed as being on different end points of a triangle (Polenske, 2004). .

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ANNEX

Table A.1

Relative stakes of TNCs and Governments of host ountries

Factors contributing to the stakes of	
the firm	the Government
• Availability of other markets to replace the one in question • Availability of other sources of supply to replace this country • Importance of this negotiations in the firm's dealings with the given country • Relationship of the business in the country to the firm's total global business	• Availability of other firms to replace the one in question • Importance of the situation to the Governmet's interests • Importance of the negotiation in the Government's dealings with the given firm • Relationship of the situation to the country's overall interests

Source: (Grosse, Bahrman 1992).

Table A.2

Strategies for improving bargaining advantages

Bargaining resources

- Form a strategic alliance with a firm that possesses a desired resource (e.g. technology, local ownership in the host country, foreign distribution network)
- Acquire a desired resource through a purchase of contracting arrangement

Relative stakes

- Diversify business to activities outside of the control of the Government of the host country
- Establish multiple sites in different countries for the given business, so that the firm is not "hostage" to any one of them
- Share the business venture with a local firm, such that the firm can push the Government to offer favourable treatment
- Form a strategic alliance with other firm that might offer the Government of the host coutry an alternative, thus raising the Government's stakes in the bargain

Similarity of interests

- Retreat from initial bargaining position to offer more benefits (as seen by the Government) to the host country
- Involve the Government of the host country in the business venture (e.g. through a state-owned company) such that interests become mutual in the venture
- Structure activities of the venture (such as profit remittances, financing, importing of inputs, training) to meet key concerns of the Government

Source: (Grosse, Bahrman, 1992).

Table A.3

National regulatory changes, 1991–2004

Item	1991	1992	1993	1994	1995	1996	1997	1998	1999	2 000	2001	2002	2003	2004
Number pf countries that introduced changes in their investment regimes	35	43	57	49	64	65	76	60	63	69	71	70	82	102
Number of regulatory changes of which	82	79	102	110	112	114	151	145	140	150	208	248	244	271
More favourable to FDI (a)	80	79	101	108	106	98	135	136	131	147	194	236	220	235
Less favourable to FDI (b)	2	=	1	2	6	16	16	9	9	3	14	12	24	36

a) Includes liberalizing changes or changes aimed at strengthening market functioning, as well as increased incentives.
b) Includes changes aimed at increasing control, as well as reducing incentives.
Source: (UNCTAD, 2005).

Table A.4

Policies and policy tools used by Investment Promotion Agencies (IPAs) promoting FDI in R&D

Policies and policy tools	**All economies**	Developed countries (excl. new EU members)	New EU members	South-East Europe and CIS	Developing economies	Africa	Latin America and Caribbean	Asia and Oceania
General investment promotion	**36**	7	6	5	18	7	1	10
Setting up science parks	**26**	5	5	2	14	4	-	10
Tax incentives for R&D	**26**	3	3	3	17	7	1	9
Promotion of linkages between foreign affiliates and universities	**24**	4	4	2	14	6	1	7
Strenthening of intellectual property rights	**22**	2	2	2	16	6	2	8
Grants for R&D activities	**20**	4	6	2	8	2	-	6
Reduced tariffs on imported R&D equipment	**14**	-	-	1	13	8	-	5
Special incentives to attract foreign researchers	**9**	3	-	2	4	2	-	2
R&D requirements as a condition for estry	**7**	=	1	2	4	-	1	3
Other policy tools	**12**	3	2	1	6	1	-	5

Source: (*Transnational...*, 2005), Table VII.2.

ANNA GĄSIOR-NIEMIEC

TOWARDS A EUROPEAN RESEARCH PROGRAMME

Introduction

The following panel contribution "Creative and Innovative Europe of the XXI Century: Towards a European Research Programme" builds upon an on-going, transfrontier ideational exchange dedicated to the future of Europe which has been presented to the public across Europe e.g. by means of the EUROFUTURES (REUPUS) volumes edited by Antoni Kukliński and Krzysztof Pawłowski (2005a,b; 2006). The exchange has, *inter alia*, brought to light several aspects of the issues defined by Antoni Kukliński (Kukliński, 2005a, 2007) as dimensions along which a crisis and/or renaissance of the European civilization are likely to manifest themselves—demographic issues, economic issues, science and technology issues, educational issues, cultural issues, the issues of governance and those of an emerging global order (global mega-spaces).

The bulk of the contribution is structured as follows:

1) First, I will emphasize the manner in which an intellectual climate to deliberate the future of Europe during conferences such as the present one is reflected in the manner in which transdisciplinary research programmes may be designed.
2) Second, I will briefly sketch the most fundamental challenges to and opportunities for Europe vis-à-vis both its external, i.e. global, and internal, i.e. European, environment, highlighting the issue of global competition and European social cohesion.
3) Third, I will introduce the issue of conceptual challenges and opportunities facing European researchers by elaborating on an example of a conceptual binary opposition "competitiveness vs. cohesion".
4) Fourth, I will present some premises of a transdisciplinary research programme linked to the *problematique* of a New Creative and Innovative Europe.
5) Fifth, I will discuss an outline of an innovative, transdisciplinarity Corpo-Regio Research Programme.
6) Sixth, I will come to some conclusions related to the issue of creativity as the most general framework within which the conference, the panel VI discussion, and my contribution to it are all placed.

Reaching across borders—an intellectual climate to deliberate the future of Europe

The 30 November—2 December 2006 international conference on New Creative and Innovative Europe, held in Warsaw could be seen as a next milestone in the creation of a transfrontier intellectual climate to deliberate the future of the Continent and its civilization. The manner in which the conference has come about deserves in my view a brief overview for the simple reason that the manner is quite reminiscent of a manner to design transdiciplinary research programmes that I wish to discuss later in the contribution.

- First of all, the organizers choose to debate the future of Europe which extends beyond the conventional (temporary) boundaries of the European Union. This choice appears to correspond to a conviction, which I share, that the European Union may neither become detached from the much broader and much more complex concept (and reality) of Europe nor presume the latter's total appropriation or colonization.
- Secondly, the debate is framed by an awareness that both Europe and the European Union are integral part of a global order. Namely, they are both subjects and objects of globalization and therefore, many of the challenges they have to face derive from the global condition. Likewise, many of the opportunities that open up for Europe and the EU have to do with the global condition.
- Thirdly, it is worth highlighting that the organizers undertake the task of debating the future of Europe from within Poland, i.e. a country which—notwithstanding its potential—is frequently located—politically, symbolically and economically etc.—in a periphery of Europe and/or the European Union. Speaking from within a periphery while being aware of the fact, enforces, in my view, quite a different perspective on many of the discussed issues than the one endorsed when one speaks from the assumed (political, symbolic, economic etc.) center.
- Fourthly, the debate on the future of Europe is carried out in a manner which not only promises to transcend but does attempt to transcend various divides, divisions, borders and boundaries that could seriously limit the scope and depth of the debate. By inviting participants from different European countries as well as paying attention to voices coming from/about the outside of Europe (e.g. from China and India), the already mentioned centre-periphery divide is—at least—weakened. By inviting participants from the fields of politics, economy, science and culture an attempt is made to debate the future of Europe holistically as each of the major challenges that Europe faces may and will affect all of the social fields. Moreover, by inviting participants who represent very different branches of the "knowledge sector" (philosophy, the humanities, social sciences, natural sciences and technology etc.), a holistic perception of the present and a holistic vision of a future are incited.
- Lastly, it is quite telling that the Warsaw-Nowy Sącz debates on the future of Europe are guided by a prompt to focus on a "new and creative" Europe. In my view, this focus urges us *not so much perhaps to continue but to devise and test new approaches to the phenomena in question*, in accordance with the spirit of the debate. At the same time, however, it is to be noted that the very construction of the six panels around which the present Warsaw conference has been organised, testifies to an extremely complex and challenging nature of the two main themes —creativity and innovation. Their nature must certainly be probed and analyzed. This task should also, however, in my view, be accompanied by a reflection *on limits and limitations* of such an analytical endeavor and the possible practical implications thereof.

Challenges to and opportunities for Europe vis-à-vis its external and internal environment

Any debate about the future of Europe, including the strategic issue of European creativity and innovativeness, needs to be framed by an awareness that Europe faces many—not necessarily convergent—challenges and opportunities which derive from the exigencies produced by its, respectively, external, i.e. global and internal, i.e. European environments. For the last few years the challenges and opportunities have been predominantly expressed in a discourse of an emerging, new global order and that of an emerging, new European polity.

The verbiage that is associated with the global order bespeaks primarily of an urgent need to design a new European identity that would help Europe to join in the active shaping of the emerging global order. The verbiage that is associated with the internal order bespeaks primarily of an urgent need to design a new European identity that would help Europe to become a political and cultural community. The first identity project faces a challenge which is frequently couched in terms of "competitiveness" vis-a-vis the other global powers. The other identity project faces a challenge which is frequently couched in terms of "cohesion".

Presumably, the future construction of both an exterior-oriented and interior-oriented European identity must be based upon a certain *new quality* for the identities to succeed. It is hardly thinkable that the projects could succeed simply by following the already existing models of building economic competitiveness and social cohesion. Personally, I believe for instance that neither a path leading towards competitiveness through a constant labour cost-reduction strategy nor the one leading towards competitiveness through a massive investments in war-related industries seems promising for Europe. Similarly, neither an Europeanized (classical) national welfare state strategy path for building cohesion nor a typically *laissez-faire* approach to it seems to me to be really an option. The new European identity project must open up novel ways of building each—competitiveness and cohesion. This, however, might in fact require a considerable rethinking of the very concepts of competitiveness and cohesion.

A conceptual challenge: "competitiveness" vs. "cohesion"

It often seems that one of the major challenges that Europe faces today is constituted by a need to find a viable solution to the dilemma which is frequently expressed as "economic competitiveness" vs. "social cohesion". In its current formula, the dilemma touches upon the issue of the identity of Europe as a civilizational project which is, *inter alia*, premised upon a promise of progress manifested by an *inclusive* welfare. Seen in this light, the current emphasis on economic competitiveness, which is usually defined, in purely economic terms (instanced primarily by social cost-cutting strategies), could indeed be perceived as a threat to *inclusive* welfare and thus to social cohesion. However, in my opinion, binary oppositions such as the one expressed in the "economic competitiveness" vs. "social cohesion" formula need to be subjected to some critical intellectual reflection in order to make them yield novel conceptual interpretations of the involved phenomena and processes.

I am, for instance, quite convinced that the dilemma "economic competitiveness" vs. "social cohesion"—which, being posed in terms of a zero-sum game, appears as irresolvable in the current state of affairs—could and should be reinterpreted in such a way that both of the major notions are "deconstructed" and "recuperated" (this being done for instance by means of a Derridarean methodology of deconstruction). If we focus upon the notion of "competitiveness", it might for

example be possible to "extend" its meaning in two ways. First, the meaning of "competitiveness" could be extended beyond its appropriation by the field of the economic. Namely, why not apply the notion of competitiveness to the realm of the social and the political by referring it to novel, creative ways of managing social and political processes? Secondly, there is an (already quite marked) possibility to extend the meaning of "competitiveness" beyond its narrow, and already obsolete, relation to economic capital and linked it more strongly with other types of capital such as cultural or social capital (cf. Bourdieu, 2001; Kukliński, 2005b; Landabaso, 2005). Those two conceptual moves could produce the aforementioned, urgently needed, European added value vis-à-vis the global pressure coming especially from the USA and China. What is necessary, however, is to take up the challenge, break away from "conventional wisdom" and "intellectual self-satisfaction" (Kukliński's phrases) and make the concepts "work" in new and creative ways. It would be worthwhile studying in more depth experiences of countries such as Finland where, to my mind, such processes of concept deconstruction and construction have taken place recently during the radical transformation enacted there in the 1990s (cf. Castells, Himanen, 2001; Dahlman, Routti, Antilla, 2006; cf. also Schienstock, 2006). In this context, the successful post-Communist transformation of Slovenia also deserves attention in my opinion (Gąsior-Niemiec, 2007).

The issue of transdisciplinarity

Challenges (and opportunities) such as the ones described so far, stand, in my view, little chance of being taken up successfully if approached in a traditional manner, i.e. by means of sectoral policy analyses and solutions, theoretical and methodological frameworks which are defined by classical disciplines of science etc. Since they are to be met with a view to yielding *a new quality*, the manner in which to approach them must be different to the one used to *improve* what already exists. It follows that those challenges are to be approached in a transdisciplinary manner (cf. Galar, 2007).

Transdisciplinarity—understood as an organizational and methodological model to produce knowledge—has several advantages over the more traditional approaches (disciplinary, multidisciplinary, interdisciplinary) in situations when *new* and not just better knowledge is expected. Transdisciplinary research programmes are premised on an assumption that research activities will not only be carried out by an assemblage of representatives of different scientific (and non-scientific) disciplines, employing methods that are thought relevant across the disciplines but will also focus on areas which may conventionally be seen as borderlands, margins, black holes, white spots or no-man's-lands ... or may not be seen as areas of knowledge at all. Transgression and trespassing—unlike in conventional reality—are within such programmes encouraged and hoped for.

Transdiciplinarity could be likened to what Edward de Bono once dubbed "lateral thinking"—that is thinking which is directed towards finding new patterns, new orders of reality, identifying connections and linkages which are not just there for anyone to see. It may also be linked to new modes of practising logic such as the one devised by Stephane Lupasco and propagated by Edgar Morin, Basarab Nicolescu, Helga Novotny, Lima de Freitas and others. The logic subverts our conventional logic in several points, most important being the inversion of the principle of the excluded middle, according to which there does not exist an object T which is at the same time A and non-A. The Lupasco move introduces a principle of the included middle, arguing that there very well may exist such an object T which at the same time is A and non-A, depending on the acknowledgement of the existence of different orders of reality. Seen against

this background, transdisciplinarity, is a mode *best suited for stimulating innovativeness and creativity*.

At the same time, I would like, however, to add—invoking a well-known proverb that one should not put all eggs in one basket—that transdisciplinarity, as much as it seems tremendously promising and tuned towards producing *new quality*, ought not to be treated as a single best solution to produce knowledge and enhance research programmes. In my view, all of the four major organizational modes—multidisciplinary, interdisciplinary and traditional—single discipline framed programmes need to be supported simultaneously alongside transdiciplinary programmes. The grounds for this claim are rather simple but at the same time persuasive. All in all, what is needed is a working balance between order and chaos. Namely, if a social system (such as Europe) is to continue to exist, apart from the production of the new, we still need a consolidation, accumulation, reproduction and/or improvement of the old knowledge. Apart from cutting edge achievements we also need to rely on conventional and routinized stocks of knowledge and experience. After all, without the rigid epistemological grids offered by the conventional scientific disciplines it would be extremely difficult to conceive of transdisciplinarity.

A Corpo-Regio Research Programme

A very basic outline and some assumptions of a potentially innovative and transdisciplinary research programme have already been laid down in a series of memorandums, short papers and comments initiated and assembled by Antoni Kukliński under the heading of **"Corpo Regio Programme"** marked as chapter four in a volume edited by Kukliński and Pawłowski in 2005. The volume, one of the REUPUS series, was entitled *Europe—The Strategic Choices,* and published under the auspices of Wyższa Szkoła Biznesu-National Louis University in Nowy Sącz (2005). I believe that building upon the contributions to the "Corpo Regio Programme", published then, a very promising research programme could be constructed and implemented which could made concepts and issues such as competitiveness/cohesion and creativity/innovativeness its central preoccupation.[1]

The research programme, as its name reveals, is conceived as a framework within which experiences of two types of actors—corporations and regions—are brought together, analyzed, compared and confronted in order to bring up new knowledge geared towards stimulating competitiveness while retaining cohesion. The idea to link intellectually—and functionally—regions and corporations or to liken regions to firms seems still rather challenging and going against conventional wisdom. These, however, apart from the fact that the two types of actors figure prominently in the contemporary developmental discourse, are also the very reasons why such a link could be explored (cf. Boisier, 1997).

Just to introduce the type of thinking that might stimulate attempts to further develop the Corpo-Regio research programme, I will list and briefly deconstruct a few of the conventional myths which so far have blocked the development of such a programme:

- **"Firms and corporations are subjects while regions are objects in the global games"**. Firms, corporations and regions may be both subjects and objects of the globalizing process, depending on their having a strategy and a mission. Both need to be flexible, however, as it is rather obvious that a strategy of opening up and coming out in the global world offers at present greatest opportunities to become an *actor*, that is a subject of the processes. This, in

[1] Ideas expressed by Antoni Kukliński in his "The Second Warsaw Conference. The Future of European Regions, Warsaw, May 31*st*—June 3*rd* 2007. Six Notes" (2007) elaborate the general framework for such a programme further.

turn, requires that a mission, a goal to be reached should be defined clearly. Both, a strategy and a goal, to be operative, need to be rooted, or at least anchored, in a sort of identity or, in other words a *brand name* that is recognized globally.

- **"Firms and corporations are businesses (associations) while regions are not (they are communities)"**. Firms, corporations and regions are both associations and communities, or rather a mixture thereof. First of all, they function due to certain stocks of capital. The capital may take different forms (cf. Bourdieu, 2001), ultimately, however, all of them need to be convertible to economic capital. Moreover, running both firms, corporations and regions incurs costs. The basic point is to minimize the costs and thus to increase efficiency of the entities. Nevertheless, to be operative all of them need to be bound by some kind of normative framework out of which trust, voice and loyalty as opposed to exit (cf. Hirschamn, 1970) could result as their members (employees, clients, voters etc.) dominant strategies towards the entity. While this again, brings us back to the issue of identity and community, both regional and corporate, it is to be remembered that contemporary regions, like firms and corporations, are mostly imagined communities (cf. Anderson, 1983; Hobsbawm, Ranger, 1983).
- **"Firms and corporations are all about money while regions are mostly about people"**. As pointed above, neither firms and corporations or regions are able to function without stocks of capital, including economic capital. Similarly, neither can disregard people. Both firms, corporations and regions may only be successful owing to people they attract, inspire, use and ... shape. Human capital is thought to constitute a major factor in the developmental chances of any collectivity. Money and people are related in many ways. It is worth bearing in mind that the richer the firm or the region the more it may and will invest in its people. And conversely, poor regions like unsuccessful firms are instrumental in degrading people and destabilizing inter-human relationships.
- **"Firms and corporations must develop while regions may and/or must endure"**. In the contemporary world whatever/whoever does not develop, cannot endure. Firms and corporations that do not develop, go bankrupt and disappear. Regions that do not develop, become deserted by people (out-migration etc.), marginalized (lose autonomy, become overly dependent on the state etc.), and degraded (lost transportation links etc.). The persistence of "lagging behind" attitude among many regional actors obscures the growing improbability of continuing the outdated model where regional stagnation is "fed" by automatic redistribution of means from some central budget. The responsibility for development rests with whoever manages a firm/corporation. I do not see why such a responsibility could not be more emphasized and institutionally demanded from whoever heads a region.
- **"Firms and corporations are human creations while regions either just are or result from cultural-political-administrative processes"**. This puts us, as a matter of fact, at the very heart of traditional—mythical thinking about regions, which makes it difficult to conceive their existence in terms of purposeful process and change. Therefore, it is much more fruitful to perceive both firms, corporations and regions as social constructs (cf. Paasi, 1990, 2000). Leadership is thus a prerequisite for the establishment, institutionalization and development of both. Change is related to purposeful, endogenous action then and not only results from exogenous shocks. Passivity and "lagging behind" attitudes are no longer fully justified by anonymous forces of history that might, indeed, be inimical to certain regions. Such an approach does not, by any means, neglect the importance of myth-making in the creation and development of regional entities. The myth-making process needs to be forward-thinking however, as is most often the case with successful firms and corporations.
- **"Firms and corporations are managed while regions are administered or ruled"**. This point, unfortunately, more often than not seems to be true. Regions often fall prey to

politics that frequently exceeds their boundaries. Their administration is intertwined with electoral cycles. The qualities of whoever heads them are not always known or checked in advance. Moreover, regional space is populated by a multiplicity of actors whose interests, competences and relations with the region are variegated. All this undoubtedly makes regional government a difficult task. One of the solutions is offered by a progression from government to governance that has a lot in common with corporate experience of management. Strategic thinking, decentralization, strengthening horizontal and/or multi-level linkages and intensive (external *and* internal) marketing belong to its instruments. Regions cannot escape politics altogether, however it should be complemented with strong orientation toward management of the future of a given regional space.

Conclusion

At the beginning of the XXI century Europe faces several challenges, both in the external and internal dimension. To face the challenges and turn them into opportunities first of all a transdisciplinary mode of organizing a great intellectual effort geared towards stimulating creativity is needed. However, it needs to remebered that creativity is a very complex *social* and *cultural* phenomenon. It cannot be reduced to any single arena, such as for instance economy. Creativity is rooted, transcends and encompasses at the same time all of the major social arenas: the arena of the economic *alongside* the arenas of science, culture, politics and the social. Therefore, the imperative of transdiciplinarity.

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PAUL DREWE

TOWARDS A EUROPEAN RESEARCH PROGRAMME

Coming home from the Warsaw Conference, one might quote Voltaire's Candide: 'Cela est bien dit, il faut cultiver notre jardin'. 'Cela' has also been written well and even published before the Conference. Candide's point of view, however, implies wasting a momentum and, in particular, implies leaving unused an important asset: the network of participants. The proposed Research Program offers an opportunity here.

My comment relates to its content as well as to its implementation. Here are some salient points.

- An objective diagnosis of the present state of the European Union is certainly needed. Money makes the EU go round stimulating its members. But what is the overall impact? What is, for example, the impact of 15 years of innovation strategies and actions—in the shadow of the bulk of funds being dedicated to the marginal sector of agriculture? And should the impact be measured in terms of internal convergence or external benchmarking with regard to the US, Japan, China and India? Or is the economic state-of-the-art too narrow a point of view?
- To invent a vision of a New Renaissance in Europe asks for scenario building, because 'our worst enemy is the short term' (Edgard Pisani). To practice 'the art of the long view', a specific use of scenarios is required leading to a new path of European development. Emphasizing controllability can provide strategic levers of intervention.
- As to the contribution of creative regions and cities, our approach to social innovation in urban revitalization may serve as a source of inspiration [2].
- For the Research Program to really influence the European debate, is a matter of 'speaking truth to power'. Who should the Program be addressed to? Is not the real power that of the Round Table of European Industrialists (representing the EU's 40 largest multinational or transnational companies) [3] ? The EU could well sympathize with the Research Program, but might also at the end of the day resort to 'cultivate its own garden'.
- How to organize (and finance) the follow-up of the Warsaw Conference? How to make the network work in order to produce, first, an operational research plan aiming at an efficient meta-disciplinary methodology? The creation of specialized task forces within the network seems to be required.

[1] See Drewe, P. (2006) Quo Vadis European Union? Uncertainties ask for scenarios, in A. Kukliński & B. Skuza, Turning points in the transformation of the global scene, The Polish Association for the Club of Rome, Warsaw: 87–96.

[2] See Comment Three of the Preconference publication. See also Drewe, P., Klein, Juan-Luis & Hulsbergen, E.D. (eds) The challenge of social innovation in urban revitalization (publication in preparation).

[3] See Lecherbonnier, B. (2007) Les lobbies à l'assaut de l'Europe, Albin Michel, Paris.

ANTONI KUKLIŃSKI

TOWARDS AN EUROPEAN RESEARCH PROGRAMME

Introduction

This paper is presented as an introduction to panel six of the Warsaw Conference—*Towards a New Creative and Innovative Europe*—November 30th–December 2nd 2006. The Warsaw Conference like all other activities of this type can accept three criteria of self evaluation:

— *primo*—the criterion of individual intellectual self-satisfaction,
— *secundo*—the criterion of social dissemination,
— *tertio*—the criterion of vivant sequentes.

Primo

In my long experience in the active participation in fifty or may be hundred international conferences I ask always the important question—To what extent the conference has opened my mind and imagination to new approaches, observations and value judgments. I am convinced that the Warsaw Conference can be appreciated very highly as a really brainstorming venture—I hope that the Participants of the Conference will share my judgment.

Secundo

We are living in the age of internet but I am deeply convinced that the age of Gutenberg is not yet over. We have demonstrated that the Conference Volume is not published a year after the conference—the Pre Conference Volume is presented to the Participants and other interested persons and institutions in the first hour of the conference.

Four hundred copies of the Pre Conference Volume were already absorbed by the Polish and European Scene. In our case the ancient mechanism *verba volant, scripta manent* and *exempla trahunt* is working again!

Tertio

Vivant sequentes—is a way of seeing the conference as a trajectory into the future. I am convinced that this trajectory should be an imaginative and durable contribution to the European Debate. This contribution can be seen in different intellectual and pragmatic perspectives. I think

however that the best shape of this contribution can be envisaged in the form of a New European Research Programme—Towards a New Creative and Innovative Europe.

The paradigm of the Programme

The paradigm is a set of questions exploring the empirical reality and a set of answers formulated in an imaginative and innovative intellectual framework. To my mind the proposed Programme should be designed and implemented as a comprehensive answer related to the following twelve questions:

1) How to develop an efficient meta-disciplinary methodology of the Programme? The Programme should discover and apply an effective set of theoretical, methodological and pragmatic inspirations.
2) How to define in the framework of this meta-disciplinary methodology a set of questions following the spirit of Gunnar Myrdal?
3) How to define the concept of the deep structural crisis of the European civilization emerging on the global scene of the XXI century?
4) How to invent a vision of a New Renaissance in Europe of the XXI century?
5) How to develop a new vision of a creative and innovative European Union? How to prepare an objective diagnosis of the present state of the European Union?
6) To what extent the creative and innovative transnational corporations and enterprises can be seen as vehicles building the Future of Europe? Is the European identity of the leading transnational corporations a vanishing point on the global horizon of the XXI century?
7) To what extent the creative and innovative regions and cities can contribute to the global success of the Europe of the XXI century?
8) To what extent the European research and education communities can be changed into a strong driving forces building the creative and innovative Europe?
9) To what extent we will be able to develop a vision of a new creative and innovative Europe—as an equal partner of the grand quartet of scene of the XXI century USA, Europe, China and India?
10) Is it possible to envisage that the old path of dependences are constituting a spectrum of Europe as a Titanic of the XXI century? We have to develop a new path of European development, the path of creative and innovative Europe leading to a new European renaissance of the XXI century.
11) To what extent we recognize the pressing need to develop a new wisdom, imagination and courage to promote a new Futurology as a vehicle of holistic long term thinking related to the global and European future.
12) To what extent the paradigm of the Programme can be seen as an input into the European Debate dominated by the climate of intellectual and pragmatic fatigue?

* * *

This set of twelve questions is my subjective interpretation of the spirit and letter of the Warsaw Conference. I am fully aware that other interpretations will emerge and are most welcomed.

The methodology of the Programme

The methodology of the Programme is a challenge for our intellectual capacity. Let me mention only three dimensions of this challenge:

— *primo*—the challenge of mega disciplinarity,
— *secundo*—the challenge of the interpretation of diagnostic and prospective approaches, observations and value judgments,
— *tertio*—the challenge of the new interpretation of the philosophy of path dependency and the philosophy of path creation.

The title of the Programme

We have discovered an alternative formulation of the title of the Programme:

— *primo*—Towards a **new** creative and innovative Europe
— *secundo*—Towards a **more** creative and innovative Europe

After some reflection I am firmly supporting the first formulation. Only a "new" creative and innovative Europe will be able to face the challenges of the XXI century. The formulation "more" is an expression of a wrong value judgment trying to suggest that the present beautiful shape of the Old Europe is an excellent vehicle of the survival and success of Europe in the global context of the XXI century.

ANTONI KUKLIŃSKI

THE TALENT—AN IMPORTANT PERSPECTIVE FOR THE WARSAW CONFERENCE

Motto:
"The more countries and companies compete for talent, the better the chances that geniuses will be raked up from obscurity".
The Economist, October 7th 2006

To promote the brainstorming capacity[1] of the Warsaw Conference it is necessary to absorb the challenging content of the Special Report "The battle for brainpower. A survey of talent", The Economist, October 7th 2006.

Europe must discover the great art and ability to rake up geniuses from obscurity. Talent is an neglected dimension in the European systems of education and advancement in all domains of private and public activities. Let us quote the last sentence of the Survey:

> *"The success of advanced economies is increasingly dependent not on their physical capital but on their capacity to mobilise their citizens' brainpower. The rise of a global meritocracy offers all sorts of benefits, from higher growth in productivity to faster scientific progress. It can boost social mobility and allow all sorts of weird and wonderful talents to bloom. The talent wars may be a source of trepidation for companies and countries. But they should also be a cause for celebration."*

Warsaw – Nowy Sacz
October 13th 2006.

[1] Compare also: A.E. Andersson, Creation, innovation, and diffusion of knowledge: General and specific economic impacts (in:) S. Bertuglia, M.M. Fischer, G. Preto (eds), Technological change, economic development and space, Springer, Berlin 1995, p. 13–33.

Part IV:

EUROPE —THE EUROPEAN UNION —EUROFUTUROLOGY

LOUIS EMMERIJ*

HAS EUROPE A SPLENDID FUTURE BEHIND IT?

Euro-pessimism is a recurrent phenomenon. Over the last forty years we have known several forms of this pessimism. In the 1960s there was the technological gap with the United States, illustrated most vividly by Jean-Jacques Servan-Schreiber in his book *Le Defi Americain.* This was followed in the 1970s by the limits to growth thesis of the Club of Rome, admittedly going beyond Europe but very much including it. In the 1980s there was talk of Euro-sclerosis, a term launched by the German economist Herbert Giersch. These days again we hear a host of pessimistic noises that will be detailed in part I of this article.

In part II we shall discuss whether these pessimistic predictions will go the same way as their predecessors of the 1960, 70s and 80s or, and that is a question posed, is there something more important and durable there. Part III will put the "new futurology of Europe" in practice and will discuss Europe in the 2040s in the concert of a multi-polar world after the "moment" of uni-polarity we have lived through since the end of the Cold War.

I- Theses of the Euro-pessimists at the beginning of the 21st Century

Thesis no. 1: Although the situation has improved after the streamlining of the European welfare state, there are still traces of sclerosis left. The balance between the role of the state and the role of the market is not yet right. The state continues to put its nose into matters that is has no business to deal with. The labor market is still too rigid and in general the welfare state must be further reduced if Europe is to compete successfully in a rapidly globalizing world economy. Furthermore the European Union bureaucracy is more of a hindrance than an incentive in this context. At the time of writing (April 2006), an illustration of this thesis can be found in France where strikes are going on to prevent the labor market to become more flexible.

Thesis no. 2: Although the discussion in the 1960s about the technology gap was exaggerated, there is still in many European quarters a preoccupation with the danger of falling behind in innovation due, among others, to problems in science and technology. Most observers who adhere to this thesis point to the declining quality of the education system and the diminishing numbers of students in science and technology. This is not only a European problem and is also a preoccupation in the United States. Of course, the same obsession occurred after 1957 when the

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Soviets launched Sputnik and both the Americans and the Europeans convinced themselves that they were lagging in producing scientific and technological personnel.

Thesis no. 3: There is not only a preoccupation with the quality of education, but many belief that there is a direct link between the goal of equality of education and the decline in the quality of our schools and universities. In other words, the thesis is that there is a trade-off between equality and quality. This is one aspect of the debate about the welfare state and whether social policies have gone too far and too fast.

Thesis no. 4: European culture is an endangered species, among others because of the influx of immigrants and the liberal attitude most governments have had via-a-vis them. Multiculturalism has been a failure, according to those who hold this thesis. Terrorism, 9/11, the attacks in London and Madrid, political murders in The Netherlands, etc. have led to a backlash in many European countries and a revision of immigration policies followed thus far.

Thesis no. 5: Not only are European culture and values in danger, but moreover the continent is dying out... Fertility rates are down and the population in many European countries is on the decline, a trend, so the pessimists argue, that is bound to accelerate. Fewer children, declining populations are typically indicators of pessimism, selfishness, and lack of hope in the future. Must Europe rely on inflows of migrants and thus exasperate the situation as described in thesis no. 4 above?

Thesis no. 6: The baby boomers who are now on the point of retiring from the labor markets are going out not with a bang but with egoistic flair. It has been a spoiled and selfish generation-spoiled by the welfare state provisions, by the absence of war in Europe, by expanding education and job opportunities. They had a window of opportunity that the generations before and after them did not or no longer had. Nor is that all. They are also going out with good pensions putting a considerable weight on the economy and the diminishing number of younger workers.

Thesis no. 7: An economy without sufficient incentives, a labor market that is too rigid and lacks flexibility, an educational system that is on a declining quality trend, a European Union bureaucracy that is stifling, these are just a few of the problems Europe is facing. And in the midst of all that and with global competitors on the rise everywhere there is the environmental cloud that is becoming more and more visible and threatening. This environmental threat, so the Euro-pessimists argue, will further threaten Europe's competitive edge.

II- Are the Euro-Pessimists Right or Wrong or At Least Do They Have a Point?

Thesis no. 1: The discussion about the optimal balance between the role of the state and the role of the market in economic decision taking is as old as economics itself, and probably older. Some of us thought that this discussion had come to a pretty clear conclusion, namely that the state must intervene in order to secure that income inequality is not getting out of hand, that employment creation is on an even keel, that nobody falls under a poverty income level, etc. Clearly, that was an optimistic conclusion and we had to discuss this all over again during the last 25 years. This is discouraging, but one of the interesting things about growing older is that one observes that people do not stand on the shoulders of past learning. Each generation apparently has to learn things again from scratch. On the European bureaucracy, the pessimists have a point. There is too much power in Brussels, too much micro managing of all kinds of policies that could be better handled at the national and local levels.

Thesis no. 2: The discussion about desirable levels of scientific and technological development also shows cycles of pessimism, as was already implied in the view of the pessimists as set out above. Yes, it is true that the Chinese and the Indians produce huge numbers of graduates in science and technology, but then these are huge countries with a combined population of 2.3 billion people! In the United States there is also a discussion about the impressive number of Asian students in American universities and the declining proportion of American students that enter the science and technology departments. It is also true that many Asian graduates stay in the US and do very well in Silicon Valley to their great advantage and that of the US. In Europe high-tech industries—such as aeronautics, electronics, communication technologies—are doing well. It is a global business and scientists are global individuals and perfectly mobile. If Europe really has a problem of attracting young people into its science faculties and schools of technology, the resulting vacancies in the high-level job market will be filled by non-Europeans. Only the pessimists who are against immigration will be displeased.

Thesis no. 3: There is definitely a problem in Europe with the quality of education at all levels with the resulting flight into expensive private schools. At the primary and secondary levels, this is due to the poor pay of the teaching force and to the behavior of youngsters. Teaching the future generations is one of the most important activities in any society. Yet, the remuneration stands in no comparison with the importance of the task. It is also true that youngsters are more difficult to handle than before. Whether this is because of negligence on the part of parents in the upbringing of their children, the growing divorce rate, violence on TV, is not quite clear. But anybody who has been in a classroom in recent years can see and hear the chaos that is all too frequent. Teachers must be saints to face these situations and get a poverty return on their endeavors. At the higher levels of education equality of chances has brought a huge expansion of students at the Universities while the structure of higher education has remained basically the same. Clearly, a system that was conceived for receiving five percent of a generation cannot remain the same when fifty percent of a generation enters. The United States has handled this better. "There is a college for everyone", is the slogan. This means that a BA obtained at Princeton or Yale is not the same and carries more weight than a BA from some of the more provincial Colleges or Universities. Success in equality of educational opportunity at the post-secondary level must be accompanied by a restructuring of the system that guarantees the existence of Centers of Excellence in the midst of a great variety of institutions that cater for the great majority.

Thesis no. 4: Culture and immigration have long been seen as positive bedfellows because of mutual enrichment, both culturally and physically. Brazil was seen as the ultimate success story in this regard. The European experience is mixed, if I can put it this way, and pessimism has grown particularly after the recent terrorist attacks, thus confusing immigration, race, religion, and terrorism. In many European countries one now hears the complaint that multiculturalism has gone too far. However, as Amartya Sen has recently argued, the issue is not whether it has gone too far, but what particular form multiculturalism should take.

> *Is multiculturalism nothing other than tolerance of the diversity of cultures? Does it make a difference who chooses the cultural practices—whether they are imposed on young children in the name of "the culture of the community" or whether they are freely chosen by persons with adequate opportunities to learn and to reason about alternatives?*[1]

In the light of the discussions taking place on the Continent, Sen argues that the British experience in multiculturalism has been a success. This does not mean that there are no longer

[1] Amartya Sen, "Chili and Liberty: The Uses and Abuses of Multiculturalism", *The New Republic*, February 27, 2006, p. 27.

important questions to be answered, in particular those asked in the above quote. It does however indicate that a generalized pessimism is not in order.

Thesis no. 5: It is true that there have been downward demographic trends in most if not all European countries over the last decades. Fertility is down so much that the minimum replacement rate of 2.1 children per woman during her period of fecundity no longer obtains. Some see this population decline as a further menacing incentive for accelerating immigration patterns and as a security threat. Pat Buchanan's bestseller of a few years ago *The Death of the West: How Dying Populations and Immigrant Invasions imperil our Country and Civilization* is one example. Other examples are the success of Le Pen in the first round of the French presidential elections of 2002, the phenomenon of Fortuyn in the Netherlands and his assassination, also in 2002, and analogous cases in Belgium, Denmark, Norway, Austria and elsewhere. It is also true that older populations tend to think that they have a nice future behind them while younger populations believe they have a world to conquer. However, demography is pretty unpredictable and contains frequent surprises. One illustration is that after a war more boys tend to be born than girls, thus re-balancing the gender gap. More recently we have observed a reversal in fertility rates in countries like Sweden. These can of course also be influenced by policy measures that reward families with more children. All in all, one cannot be sure that the downward population trends continue indefinitely, that immigration is a negative (see thesis 4 above), and that other countries, like China for instance, do not face the same problems

Thesis no. 6: The West European baby boomer generation has been lucky in that it did not face a war (contrary to the situation in the USA), it could ride the wave of education expansion, and faced a very favorable labor market, at least until the 1980s. In other words, a person born in 1946 was 'spoiled' until he was around 35–40 before the economy and the labor market situation turned around. In that sense, the generation of the 1930's has done better: too young to be killed on the war front (although there was hunger and bombardment to be faced), just old enough to benefit from the post-war expansion. Does this mean that these generations have been selfish and should not have benefited from these circumstances? Actually, there has been a lot of generosity in these generations: from volunteer work in developing countries to battles at home against installation of missiles, pollution, and a less unjust world economy. There is much less of that in the young generation of today.

Thesis no.7: There are problems in Europe, but not worse than anywhere else and the human and physical infrastructure is better than in most other places on this earth. Europe by all means must maintain a healthy balance between economic efficiency and social equity. Thus, the welfare state must be maintained, albeit in a more streamlined version than the "fat" version of the 1970s. This streamlining has taken place during the last twenty years and it all but complete. There are tasks that must yet be undertaken: education must be restructured, pension systems adjusted, health care supervised. There is no technology gap in sight and if there is one, it is not Europe that is on the losing side. Will the environmental challenge play havoc with European competitiveness? Facing up to this challenge will most probably become one of the great tasks of the decades ahead. This is a world wide problem and surely common sense will prevail, including in the United States, China, India, and elsewhere. If this global challenge is being tackled in a global way, it will stimulate world economic development rather than hinder it. The Nobel prize winning economist, the late Wassily Leontief demonstrated in a paper prepared for the United Nations in the 1970s that there is no contradiction between economic growth and improving environmental conditions, on the contrary. It is only when certain countries want a free ride that imbalances may occur in terms of growth and competitiveness. Let us all work together to make sure that common sense will prevail before the disaster strikes.. In conclusion, the Euro-pessimists

are wrong now in 2006, as they were wrong in the 1960s, 1970s, and 1980s. But they are keeping us on our toes. That at least must be said in their favor.

III- Europe and the Multi-Polar World to Come

Since this piece is written for a book on *The New Futurology of Europe*, let us try the impossible and project ourselves into the 2040s to look at Europe and the world forty years from now.

The European Union will comprise at least 32 nations, including most of Central and Eastern Europe and Turkey. Bulgaria and Rumania will of course have been there for 35 years. But Croatia, Bosnia-Herzogovina, Macedonia, Serbia, Montenegro, and Turkey will have joined between 2012 and 2020. Albania and Switzerland have remained outside the Union for reasons of their own.

The Central and Eastern European wing of the Union, after a long and difficult transition period, has since the 2030s reached a growth-path that will enable it to catch up with the rest by the middle of the century. These countries now feel at ease within the Union and Euro-pessimism has turned into optimism.

Turkey, which has now in the 2040s more than 100 million inhabitants, had a difficult road to travel to gain entry into the Union. More than once there was a moment of pride and a tendency to withdraw from Europe in favor of other regional entities. Many member states also had their moments of doubt. But in the end the positive elements, both for Turkey and the Union prevailed and a regional giant of more than 600 million inhabitants was born.

This regional giant is multi-cultural, multi-religious and although tensions still prevail, the Union, largely thanks to Turkey, is on its way to become a shining example of the positive aspects of multiculturalism. Catholic, protestant, orthodox churches exist side by side with mosques all over the Union. Turkish workers have largely filled the demographic gap that existed in the "older" European countries which themselves are going through a demographic renaissance. The Turks have moved out of their ghettos in which they lived at the end of the 20th Century and beginning of the 21st.They are now fully integrated. The same applies of course to Central and Eastern European workers.

After the uni-polar "moment"—that has lasted until the 2030s, i.e. for more than 40 years!—the world is now resolutely moving toward multi-polarity. The United States is no longer the sole superpower and has now been joined by the European Union, Japan, Russia, China, and India, while Brazil is following hot on their heels. All seven are, or are rapidly becoming, economic superpowers and military power is not lagging far behind, particularly in China and Russia. Although there are of course occasional tensions between the seven "stars", there can be no doubt that a multi-polar world is safer from a human security point of view than when one sole superpower rules the globe, as we have seen at the beginning of the 21st century.

The age of terrorism has (temporary?) come to a halt. This has been due to the rise of other superpowers and the re-balancing of the world power structure. It has also been due to the influence of Turkey within the Union and in the Middle East.

Does this mean that we have moved into Paradise? Not quite, although compared to the first half of the 20th century with two world wars, a great economic depression, and more than 100 million dead, the situation one hundred years later is much closer to a state of bliss. However, Africa is still lagging and has become "the sick man of the world". Even if there are more and more signs of recovery, this Continent now is the main source of world unrest and destabilization.

The limits to economic growth have become visible, more so than when this was first announce by the Club of Rome in 1972. The phenomenal rise of the new economic superpowers has spurred the rise of new and clean technologies like solar power thereby killing two birds with one stone: shifting the limits to growth and tackling a major environmental problem, namely global warming.

Europe, in the middle of the 21st Century, has become a beacon of "civilized capitalism", of healthy multiculturalism, and of the peaceful co-existence of civilizations. Its capital has shifted to a beautifully reconstructed Berlin, another sign that Europe has put its "wild" past behind it.

Is this a pipe dream? Yes, of course, but a dream that can be turned into reality when people come to power who combine vision with a sense of detail.

Washington DC, April 2006.

SIMONE ARNALDI

In search of proactive participation: a comment to Louis Emmerij's "Has Europe a splendid future behind it"

When asked to comment Louis Emmerj's short article on Europe's future, I wondered what to add to a clear and brilliant analysis of euro pessimism, a sharable and thorough critique to pessimistic thinking, and a stimulating vision of European future.

Eventually, my choice was to focus on the conclusion of the article, on Emmerj's rhetoric question that is likely to summarise the hopes and expectations of many European citizens: "*Is this a pipe dream? Yes, of course, but a dream that can be turned into reality when people come to power who combine vision with a sense of detail*". The importance of the statement appears self-evident, as it shifts the attention from the analytical level to the spheres of social and political decision-making. In this sense, it briefly describes Emmerij's thought, a sharable thought, about the key conditions for the critique of euro pessimism being sound and the vision of Europe in 2040 squarely included in the space of plausible futures.

Before presenting my (short) comments, a few cautionary statements are required. First of all, this is not an academic piece of article, but it is better framed as a dialogic contribution to a sort of "longitudinal" brainstorming within REUPUS community. Secondly, as a consequence of the first point, I feel free to simplify some aspects of my argument for the sake of clarity and straightforwardness.

After these preliminary remarks, my first comment concerns what this book defines as futurology[1] and how I translate it in my short article. My attempt to participate to this anticipatory effort does not focus on the design and foresight of alternative futures, but on the features of human actions that are connected to the realisation of such futures. In fact, there is no doubt that the future is the only space for human action[2] despite the theories we endorse to interpret and explain such actions. This aspect of action is crucial to the definition of vision itself, as futures research literature clearly affirmed. According to Barbieri Masini and Van Steenbergen[3], a vision is not simply the capacity to imagine some kind of future, but the capacity of seeing and hearing the seeds of change underlying historical processes and put them as a future reality by building projects for the future through actions based on clearly structured

[1] I must admint that I prefere to use "futures research" instead of "futurology". For a discussion about terminology, see Barbieri Masini, E., *Why futures studies?*, London, Gray Seal, 1996.

[2] Barbieri Masini, E., *Space for man*, Rome, Edizioni Previsionali, 1975.

[3] Barbieri Masini, E. and Van Steenbergen, B. (eds.), Visions of desirable societies, London, Pergamon Press, 1983, pp. 7–8.

value systems. With the same view, Michel Godet[4] did not define his prospective thought and methods only in terms of anticipation, but also collective mobilisation and social action.

Therefore, the new "futurology" of Europe has surely a traditional question to answer: what dreams are going to be turned in reality? Nevertheless, a second question is as important as the first one: whose dream is this? Who are the European citizens who are contributing and who will contribute to the building of this dream? In this perspective, the concept of participation becomes once more the beacon of "futurology".

However, this is still a very much discussed concept and some questions still remain open. who are those who really "participate"? How can they influence the final decisions?

In fact, real participation implies the exercise of power, the power to decide what is to be done and to control who is in charge of doing it. The element that allows the distinction between participation and the simple involvement is hence the distribution of power and its actual exercise. Given that, we may define participation as "the process by which citizens, organised in groups and/or associations, determine or contribute to determine the choices concerning their lives and control their efficacy with regard to their interests"[5].

Unfortunately, processes are often labelled as "participatory" also if they simply include the communication of ideas and decisions that are already taken and their function is purely to increase the legitimacy of those ideas and decisions. In fact, the processes labelled as participatory range from top-down communication and passive reception of what is communicated, to the negotiation process with stakeholders who are active players in the process, but whose contribution is limited to planning and programming.

Following Apuzzo[6], a more general frame to classify participation is here presented. The goal is double: (1.) proposing a frame for better understanding the features of participatory processes; (2.) identifying the features of the kind of participation which, in my opinion, the "new futurology for Europe" should claim for.

The framework is based on four dimensions of participation: (1.) actions that are generated in the process; (2.) time horizons, which the actions refer to; (3.) the social level the process reaches; (4.) the attitude of participants. Each of these dimensions may have three different levels as in Figure 1.

Figure 1 shows how we can have a sort of "passive participation" when the citizen is simply informed and participation is limited to acknowledge what are the processes in progress. No feedback is required. We have a second step when participants are allowed to produce a feedback to influence planning, while a third step is when people is fully able to contribute to decisions. With regard to attitudes, people may have a passive attitude (no action is performed to cope with events occurred), a reactive one if people mobilise after a decision is taken, and a proactive one when citizens acquire an anticipatory attitude and the awareness that there is the possibility to influence their own future. Regarding time horizon, reactivity and passivity are referred to past and present, while proactivity is oriented to the future. Eventually, the social level describes whether the action is purely individual, or collective. Relationality[7] describes the social situation in which actors start cooperative and collaborative processes in the social arena that create shared goals, projects and values.

The kind of participation processes that meet the third degree of each dimension may be labelled as "relational proactive participation". The features of this processes are namely:

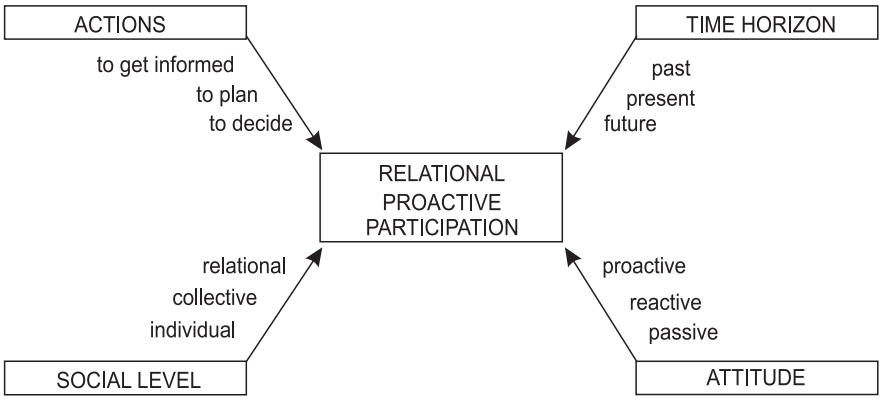
(1.) the future-orientation of its time horizon;

[4] Godet, M., *Fron anticipation to action*, Paris, UNESCO, 1991.

[5] Apuzzo, G. M., Progettare insieme lo spazio urbano, Trieste, Asterios Editore, 2000, p. 93.

[6] Apuzzo, G. M., Ibidem, p. 95–96.

[7] Apuzzo labels the third degree of this dimension with the word "shared".



Source: Apuzzo (2000)

Fig. 1. Types of participatory processes and relational proactive participation

(2.) the proactivity of the actors participating to the process;

(3.) the actual distribution of power, that make all actors participating to the process able to contribute to decisions;

(4.) the relationality of the process, as the creation of shared goals and orientations that are neither private nor imposed to the general audience by the exercise of power, but that are shared through collaborative and cooperative processes in the public arena.

In my opinion, a "new futurology for Europe" is called to support this perspective and to create effective methods that combine this kind of participation with accuracy and political viability. This call is above all an ethical one, a call to enable people to think and decide of his own future.

Is this a pipe dream? Yes, of course, but a dream that can be turned into reality when futures researchers combine vision with a sense of detail.

JAN LAMBOOY

Some remarks on: Has Europe a Splendid Future behind it? by Louis Emmerij

The paper by Louis Emmerij raises a number of interesting issues. A central message is that Europe has been adaptive to external and internal challenges before, now and will be in the future. It challenges the 'black perspective' of many Europeans and Europe-watchers that the end is near. Contrary to the view of many pessimists, Emmerij observes many opportunities, although he acknowledges that many changes have to be made to old institutions, like labour regulations and pension systems.

Indeed, European culture is traditionally already multicultural and it showed the vitality that no other continent possesses, maybe except the USA. However, the USA even now, is dependent on the import of academics and cultural talent to flourish. The vitality of the USA is also leading to leadership in economics and world politics, although sometimes with disastrous results. Europe is multi-polar and multicultural, but also divided. Its vitality has to be proven in the near future when it is becoming challenged by the rise of new vibrant economies as China and India.

Emmerij is right to state that not only Europe, but the entire world will be multi-polar and multicultural.

The need to develop better education and to close the technology gap is widely recognised, but nobody has as yet found a satisfactory answer to the questions whether such a gap really exists and how education can be made into a tool to improve this situation. Emmerij is right to underline the long-run perspective. Within 10 or 30 years the world map will look very different from now.

However, to develop new vitality one needs to analyse the weaknesses and the strengths of the European culture and economies, but also of many institutions which, in the past, have been designed to solve problems of previous structures and conditions. It would be dangerous to go on, just as if nothing is changing in the external world. Europe cannot close its eyes to ageing populations, to the need of technological development and resource scarcities. The environment is more than just CO2 and methane gas, it is also the shortage of energy sources and the need of technological development to cure those problems. However, technological development has to be guided by the demand of society. And, indeed, the European society is vital, although it will meet many problems to solve.

KRZYSZTOF PORWIT

What is "new" at present in our concern for an European futurology?*

(1) Our studies and disputes, concerned with relatively distant future prospects for European societies, seem to be somehow influenced by an attitude of acceptance and adaptation to destiny, which will abound with dismal critical problems[1]. Some forerunners of the latter are already seen and are expected to be growing in force, developing even into seriously dangerous societal crises, failures and collapses. The latter, although unfortunate and undesirable, are looked upon as a hardly avoidable destiny.

There are also opposite views. They consider our future problems as normal hard facts of life, which will be dealt with fairly easily. One may assume also, that difference in opinions follows (at least in part) from the length of time horizon adopted in considerations of our future. The last mentioned kind of opinion, relatively calmer, (as that expressed e.g. by L. Emmerij in His article mentioned in footnote 1) seems to reflect considerations of a not so distant future i.e. time periods when probable negative impacts of developing crises will not yet mature into full swing difficulties and besides—when it will be too early to expect any preventive measures to become feasible. Formerly mentioned kind of opinion (see footnote 2), more firmly warning and calling for attention, is not related to a particular length of time horizon but it is just expressing serious warnings that something wrong is going on, so that sooner or later dangerous troubles will develop, if some preventive interventions do not change the scenario.

I am inclined to argue, that warnings and alarm bells are too frequently met in serious discussions to be just neglected as unreasonable. The forerunners of alarming issues are already visible and the stake is altogether too important to be left without monitoring and a recurrent scrutiny.

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* This text offers my comments to Louis Emmerij article "Has Europe a Splendid Future behind It?".

[1] I have in mind here e.g. many aspects of the issues raised by A.Kukliński in his text "Strong or Weak Europe", in its fragment VIII entitled "The dramatic crisis of Europe" in *EUROPE—The Global Challenges* editors A.Kukliński & K.Pawłowski, p.17 — WSB-NLU Nowy Sącz 2005 as well as the problems discussed by L.Emmerij (see footnote 1) and by R.Galar in his text "How to Become and Optimistic Futurologist" in *Turning Points in the Transformation of the Global Scene* editors A.Kukliński & B. Skuza, Warsaw 2006, p.324. Many authors raised important problems, which will face future Europe and demand adequate answers (they are published in the volume "PRZYSZŁOŚĆ EUROPY — wyzwania globalne — wybory strategiczne "[*Future of Europe—Global Challenges—Strategic Choices*] editors: A. Kukliński and K.Pawłowski, in print, initial version was published as conference papers by WSB-NLU Nowy Sącz 2005 (in December) Several opinions and suggestions in this field are also included in my texts offered in the volume *EUROPE—The Strategic Choices* (REUPUS Series, volume 2), Nowy Sącz 2005, pp.184–191 and 429–436

This line of thinking seems to be indirectly reflected in recent studies of development processes[2], of problems causing obstacles in that field and of suggestions that some new approaches would be needed to solve such problems.

It seems moreover that a calmer approach is more likely in opinions voiced by the scholars from relatively more developed countries and more affluent societies, whereas the environment of poorer countries produces louder warnings. According to their arguments it is urgent to get wider understanding that some new ways in functioning of societies would have to be found for the mankind to develop in peace.

(2) The warnings are relevant, but—on the other hand— it would not be reasonable to assume that dismal prospects could be seriously considered as a somehow predetermined destiny, just in a nihilistic and fatalist manner, which would see European days of glory as inevitably passé, dwindling into a second-rate continent with a dying aboriginal population, with splendid days to be found only in the past and with no chances to play a crucial role in global processes and no hope to exert any positive influence on the fate of mankind.

It seems that we can be really faced with manifold exogenous phenomena which might become fatally dangerous for the prospects of Europe (and of an Euro-Atlantic "western style" Free World)[3]. However, an extent and intensity of such alarming challenges would depend heavily on the qualitative features of activities which will be endogenously initiated and performed within Europe and by European societies.

In other words, there are no reasons to expect easy and rosy future but similarly unreasonable would be for us to assume a deterministic attitude, without enough hope and without sufficient engagement in looking out for other, more fortunate scenarios[4]

(3) It seems also that our approach to futurology (and its respective outcomes) would gain by trying to avoid such considerations of above mentioned choices between a calm and "business as usual" attitude and a concern for approaching dangers, which would come from "path dependent" subjective evaluations, following from respective "amounts" of optimism or pessimism expressed in opinions concerned. Optimism reflects vague feelings that bad prospects will perhaps disappear and anyway it would not be so difficult to accommodate oneself to a destiny of inevitable constraints, whereas pessimism— reflects feelings of belief in dismal prospects but also—of resentment against accepting them and a will to do something in search for a better perspective of life.

Futurological projects are usually meant to serve policy-makers and their professional advisers (in substantial sociological and economic matters) as a potentially independent, politically un-biased source of ideas in expressing future challenges, in suggesting teleological arguments for medium term policy goals.

In that context I am afraid, that above mentioned impacts of subjectivity would decrease the quality of just mentioned potential service of futurology. The arguments and conclusions of the latter would be biased by initial assumptions of optimism versus pessimism in evaluations

[2] see: Louis Emmerij: "*Turning Points in Development Thinking and Practice*" in the volume *Turning Points in the Transformation of the Global Scene* eds: Antoni Kukliński and Bogisław Skuza, The Polish Association for the Club of Rome, Warsaw 2006, pp 11–22. Similar problems are discussed in that volume in the next chapter, viz Ryszard Piasecki and Miron Wolnicki: *Development Strategies—New Challenges* pp. 23–34

[3] I am sharing opinions, expressed in that field in a recent book of Timothy Garton Ash, that there are close interdependences between future perspectives of Europe, of Euro-American alliance and of the set of values and institutions characteristic for presently used term of the "Free World". However, I am inclined to argue that the last mentioned set cannot be kept without far reaching gradual reassessments.

[4] I have in mind scenarios, which will allow transformations towards intra- and inter-national relations as well as interpersonal and societal institutional arrangements nearer to "a civilization of love and peace", without so much emphasis on a civilization of materialistic success, of a "winner takes all" kind of a culture and of practically relentless manners applied in interpersonal contests.

of constraints. These circumstance may be used, unconsciously or deliberately, in scheming[5] for more influence in ideological or purely partisan domains of political disputes concerned with the tasks (and related policies) for governing bodies of the European Union and of respective member countries.

Participation in future oriented studies (as futurology in question) necessarily implies (for persons involved) a co-authorship and a respective co-responsibility for opinions and suggestions expressed, especially if they are addressed to various public bodies and authorities, supposed to perform functions of considerable importance for European societies. On the other hand—there is not much room for objective justification of any statements which are supposed to present future facts or to determine future activities. Contents of any future oriented studies (in particular—with longer time horizons) must include various subjective compositions on the time axis (of cause and result features, of changes expected in chains of consecutive events etc), which are linking knowledge of objective facts (based on what is observed up till now) with other arguments, those related to unknown, but only expected or imagined, future events. Such opinions will be more informative and potentially valuable if they include adequate explanation **why certain future facts are assumed to happen,, which conditions or circumstances would make them more probable, what justifies an opinion that the occurrence of such facts will (or will not) be desirable and feasible**. One should hope and try to attain certain methodical objectivity and transparence in order to explain to a reader the arguments and reasons behind presented "versions* of the future.

In other words—one cannot help to depend in future oriented studies on subjective judgments, but one should try to avoid them in respect to relatively voluminous and complex notions as well as in some general issues of trade-offs and options. It would be better to try instead somehow to disentangle contents of such notions as well as to outline a probable kind and aetiology of ailments causing crises.

Such lines of arguments would certainly involve drawing attention to numerous subjective elements, but the reader would be better prepared to form her/his own opinion whether to share that lines of thoughts and how far to accept or to reject respective subjective assumptions. Such endeavors would have to reach beyond the scope of presently available tool-kit of policies and policy instruments into the field of institutional qualitative transformations[6]. Optimistic politicians would prefer to neglect warnings about forthcoming calamities and their attitude may be called by critics as "sweeping dirt under the carpet" or "keeping skeletons in a cupboard". If warning predictions materialize their earlier neglect would lead later to multiplied difficulties.

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[5] I suppose that participants of futurological projects may be naturally more inclined to optimism or pessimism through "path dependence" in history of their respective countries and of their personal lives. They may implicitly sympathize with different ideologies, which incline either to pessimism (present order will not be able to survive) or to optimism (present order will easily manage to correct some weakness). In politics, it seems obvious that presently ruling parties will gather around optimistic banners and those presently in opposition —will reject this views as a potential road to detrimental results.

[6] I have in mind here the desirable changes in the behavioral practice (within an informal part of institutions) towards those qualities which are expressing ethical and moral standards concerned with human behavioral patterns and with their rules rooted in personal consciences. I am sharing a view that such standards cannot be arbitrarily set and reset through any procedure of majority voting, but they have a superior attribute of validity. The latter is based on the values inherent to humanity (and believed to be transcendental in origin), as well as on corresponding attitudes of good-will and fairness in interpersonal relations. In short (and with an exaggeration) one should try to harness a tendency to outline general pictures of the future (with quarrels about amounts of sunny brightness or gloom and tempests in prospects for European societies). A more useful approach (and less vulnerable to utopian schemes) would be nearer to considerations of human health matters, which include twofold aspects: **(i)** of health friendly environment for human beings and their interrelations (of natural and spiritual kind) **(ii)** of gaining more strength in prevention and cure of most serious diseases.

(4) Anyway it seems obvious that one should look out for measures either to counteract undesirable features of our future or to neutralize their impacts. If the range of such challenging issues (derived from unavoidable and gloomy expectations) were really wide, then the major part of future would look as determined by defensive endeavors against crisis-born exogenous calamities. Taking this for granted would mean that our European future will be inevitably challenged by an expansion of exogenous constraints, which would impose upon our societies continuous losses in their freedom of choice for exerting an influence on their own future. It seems thus, that a crucial issue for the long term perspective boils down to a search for a scenario, which would promise stepwise processes of loosening pressures from presently recognizable constraints, so that more freedom of choice would be available. That, in turn, would serve as an essential condition for facing challenges yet unknown, but sure to be gradually arising.

An *ex ante* viewpoint on these matters suggests, that the most difficult issue is the feasibility of conquering the factors causing defensive moods and a large extent of respective corrective actions (in neutralizing undesirable impacts of the past history) in order to engage more attention and actions into a more offensive approach, concerned with the chances to utilize new opportunities and to face new challenges. That road may help to keep decreasing an extent of exogenous constraints and their crisis—breeding impacts, i.e. to get more hope for gaining and recovering more freedom of European choices. According to my view— the most difficult issue (just mentioned above) concerns institutional qualitative transformations, outlined in footnote 7.

To illustrate these general comments I shall refer to some issues, taken from those raised in Louis Emmerij article (mentioned in footnote 1).

(5)—(A) I am looking somewhat differently on **the issue, "how much" either of the state or of the market**. Both are crucially relevant for an adequate order in European economic and societal life, but in each of them there are certain new exogenous impacts and new harmful symptoms of pathologies in their operational practice, which seem to grow and become increasingly noxious.

I am not inclined to look for any ideal "policy-mix" nor for any ideal model for economic & social system, but I am feeling more concerned with future prospects and hopes for harnessing diseases at grass-roots (interpersonal) level and their pathological origins. Suggestions to transform some of system arrangements may prove to be useful in order to improve immunology and therapy against micro sources of diseases. That would imply essays in two directions: of some systemic issues and morphological (societal & holistic and personal & grass-root) respectively.

Altogether, I am inclined to suggest a preference for tackling these systemic issues (in our futurological essays) in a manner, which would rather resemble an approach, which was taken also by contemporary studies on development and by inevitable "turning points" implied through observations and diagnosis that development processes become dangerously weaker because of certain organic deficiencies.[7]

(B) Scientific and educational tradition of Europe is certainly impressive and a contemporary quality level has numerous merits, but one may feel unrest and concern about their width and depth, their extent of presence in the society as well as about some conditions which may help to explain, why there are obstacles in Europe to follow a pattern "There is a college for everyone". The merits of universal access and chances to educational opportunities at the post-secondary level may be more feasible and effective if they were more universally based on and steadily strengthened by their interconnections with a professional and neighborhood and family life

[7] I have in mind the articles mentioned in footnote 3. I am considering these articles as important potential inspirations for futurological essays, but in an intellectual, indirect sense, because they have different aims (analytical with respect to diagnostic and theoretical literature on development processes) and are less concerned with anatomy and pathology of organic aspects of development in sustainable & livable social systems.

features which correspond to that education in their cultural and intellectual aspects. Strong obstacles are certainly somehow interrelated with frequently met large areas of societal exclusion and a notorious lack of success in essays to vitalize grass-roots forces for wider spread support for locally (regionally) endogenous self-subsistence.

(C) Similar threads of thought are inclining me to add some grains of doubtful comment to basically justified opinions of Mr. Emmerij in favor of **growing migrations, of large mobility of professionals in science, education, culture** as well as in favor of feasibility and **merits of multiculturalism** (especially if conceived alongside the spirit of Amartya Sen writings). All optimistic arguments may be sufficiently convincing if one assumes that they refer mainly to people whose characteristics resemble those called "cosmopolitan*, basically friendly, peaceful towards everyone around, either already in practice or—at least—potentially, through respective type of abilities, cultural preferences, behavioral modes. Such conditions can be met more easily within the category of people who are moving around the world wishing to improve something in their lives, the latter being in general satisfactory, giving to the persons involved more of various positive lessons than of harm experienced from others and of own failures. More difficult problems are likely, however, in real life when a lot of migrating people are forced to leave their homeland by various evil conditions already faced and by lack of hope for improvement. They deserve—of course— welcoming assistance in new surroundings, but quite often their attitudes are far from being friendly, loyal and peaceful towards new neighbors, new institutions and culture. The main issues for our European future in that field are related to the last mentioned cases, i.e. to identify difficulties and to think about ways of dealing with them.

(6) I am offering more detailed comments to the first and the last of the theses discussed in the article of Mr. L. Emmerij.

It is true that nothing new can follow from a discussion "about the optimal balance" between "the market" and "the state", as two types of regulation, as long as the arguments pertain to their previously known general features (positive functions and failures), which used to prevail and to be observed some decades ago and were (and still are) characterized in basic textbooks.

If there existed still (and were likely to continue) enough resemblance of reality to such characteristics, then one would be able to hope for a desirable order and efficiency brought by various set-ups composed of an "invisible hand " of markets and of duly performed functions of the state and public bodies, with fairly respected "rules of the game" on both sides, i.e.: of a "free" competitive market and of a truly democratic state. That would make us fairly safe in expecting that the practice may move within a "trade-off" range of changes, between a scheme for higher growth & efficiency but less egalitarian outcomes, lower social benefits and distributional peace and vice versa.

(Democratic changes from one government option to another could lead then to a kind of a shuttle trajectory of consecutive periods: one with higher marks for economic growth and monetary stability but lower social satisfaction in the field of income distribution and of social security and then followed by another period with vice versa evaluations). The quality of markets (which justified such expectations) reflected important **merits of self-regulation**, based on **horizontal interrelations** (reciprocal in their nature) among numerous subjects, everyone responsible for her own fate and honestly competing one with another. All actions and interactions were supposed then to happen within generally known and, hopefully, accepted rules of conduct (which exclude mischievous schemes against other actors participating in market activities). Many of such rules were effectively strengthened by an authority of the State and formally binding justice arrangements, with institutions of law and order (through respective penal arrangements).

The practice differed always from an ideal picture but mainly because of well known general weaknesses in the human nature. At that time—the systemic structures of markets (with a legal

assistance from the state) were not yet suffering organic ailments, but the latter were becoming gradually wider and stronger, which eventually was lowering a feasibility of even approaching ideal states[8]. One is hearing and reading a continuously flowing stream of news about various examples of human weakness, failure, erring and vice. It is possible that impressions of their strength and ubiquity are largely exaggerated, but nevertheless their impacts on societal health are detrimental. One cannot help thinking, how much harm follows from a continuous shrinkage of the belief and conviction, that a person should and is able to keep decency and ethical fairness in a successful practice of taking care for his own and his family welfare. Falling down are also feelings of esteem and trust towards efficacy of such factors of success as knowledge, diligence, personal integrity. More frequent become the attitudes to be clever in cheating and relentless in relations with everyone around.

Moreover, it seems that such unfortunate tendencies cannot be harnessed by the state i.e. by governmental policies and actions. The latter are not able to tackle the sources of ailments, (which seem to have rather a grass-roots origin and to be organic in nature) Besides, the troubles are growing because the activities of people in public service, forming governmental organs and other public structures, are also vulnerable to various pathological deviations.

Last, but not least, within some particular countries, the interrelations between markets and the state are nowadays under frequent shocks, powerful challenges and pressures coming from new forms and mutations of empirically untried impacts of globalization and of global geo-political ideological conflicts.

(7) Altogether, there are reasons to believe that at present we are faced with the future relatively more unknown than ever, full of unanswerable questions and risks.

There are voices about visible symptoms of capitalism being in a stage of " twilight" or even a decline[9], which happens after centuries of successes in the role of a motive power for progress in material civilization, which were considered as sufficiently strong merits in comparison with inherently inseparable defects (in terms of large and growing social costs, in particular—disadvantages of large and growing differentiation in distributional features of income and of living conditions). The latter have been supposed to become less severe thanks to apparent advantages of political systems, ensuring democracy and equalizing endeavors in social matters[10].

It seems increasingly harder to keep assuming long lasting viability of such a set-up. Growth promoting advantages are weakening because the qualitative features of markets are deteriorating. "Invisible hand" hypothesis does not work any more without its moral backbone (in terms of adequately ethical behavioral features), as well alongside with tremendous diversification of goods and services participating in transactions, which were supposedly able to self-compose into harmonized demand-supply-prices interrelations. There are numerous reasons to question validity of an assumption that equivalent exchanges can be attained nowadays through spontaneous

[8] According to competent diagnostic opinions one can notice a wide-spread falling tendency in socially progressive innovations, which allow to combine adequate business profitability with corresponding qualitative real effects, allowing to increase common welfare (in terms of living conditions for population as well as qualitative features of culture and of public life). Another kind of innovations dominates, that applying new ingenious speculative ways to take away from someone else a part from his potential share in common welfare. There are growingly numerous examples of such mischievous innovations, not only in so-called market "bubbles" or "creative" bookkeeping malpractice or successful marketing of products which prove to be harmful to consumers or users, but also in certain generally approved and applauded business practices which although profitable are contributing to harmful societal phenomena (growing unemployment, social exclusion, destruction of families, growing juvenile delinquency etc.

[9] e.g. diagnostic opinions expressed by Immanuel Wallerstein in interview given to Jacek Żakowski in a supplement to a weekly POLITYKA nr 12, 25 March 2006

[10] We are also aware how tragic were the consequences of revolutionary schemes to implant ideologically predetermined models of economic and social systems, which wanted to replace existing order by a "new brave world". This gives a lesson to limit our dreams about a better future to grass-roots, remedial, evolutionary concepts.

horizontal interactions of sellers and buyers, in particular with a growing role of time-lags in transaction activities.

In essays to handle these matters we are witnessing —on the one hand —a growing emphasis on trust and more widely—on social capital— as a hopeful remedy, together with intensive search for more effective ways to get more knowledge and more management abilities in the field of dealing with uncertainty and risk[11], as well with an ubiquitous speed of proliferating variety[12]. On the other hand— markets are no longer wishing to rely entirely on any "invisible hand" and to be relatively separated in business matters from the state and politics. On the contrary such interrelations are valued as devices to gain some insights and measures for more stability and risk management.

Many politicians are tempted, by the last mentioned tendencies, to offer and promise much more services (tasks) from the state than practically feasible. This feasibility is objectively limited because a wide extent of uncertainty and of vagueness, as disadvantages, in social systems are reflecting an extremely complex nature of the latter, so that any essays to tackle them from above, through hierarchical chains of command and according to predetermined blue-prints, must be doomed to fail. It seems that many politician are applying somewhat business-like attitude of marketing their potential services to the electorate, unfortunately without concern for feasibility of their promises The promises and also —endeavors to multiply and enlarge functions of the state, and the role of politics, are much more likely to deteriorate the substance of functions and the quality of their performance. Unfortunately, this deterioration covers also the qualitative aspects of such functions of the state which are of basic importance and are indispensable for the system.

It is well known that the state, being responsible for a number of specific functions, must be equipped with adequate resources, provided by means of taxes and other funds (called "public" because of their public aims), which are collected from the population as legally levied contribution to State revenue.

I am reminding this well known detail, because—as proved by human history[13]— large amounts of money (as treasury) are usually a source of alluring temptations for some persons, either cynically rapacious or extremely possessed by a pugnacious ideology, to pretend engagement in politics as a devotion to public service, while in fact wishing primarily to grasp ruling power, quite often together with a desire to attain access to public money (for personal purposes or for a particular political organization). Less dramatic cases can be met frequently, even without elements of evil intensions, when there are strong pressures to expand public expenses without adequate concern for feasibility, in terms of being able to afford them (together with repayment of debts).

[11] E.g. there is a widespread tendency to transform various features of enterprises into more flexible systems, which pertains also to employment, to outsourcing of various previously internal services and corresponding organizational structures. This is considered profitable for entrepreneurs, because of cost cutting merits. At the same time— the impacts on societal environment (particularly in terms of employment) are highly destructive. According to recent comments, that one-sided cost cutting approach proves to be questionable also for entrepreneurs if it is assessed in a longer time perspective (It is lowering qualitative standards of products and is harmful for internal industrial labor relations. I am referring to John Gray article on "Global illusions" (in EUROPA weekly, 10.05.2006), with comments to recent research published in USA, in Susan Berger book "How we compete")

[12] Inreasing variety in assortments of marketable goods and servives seems to be partly artificial because differently named and priced items are often very similar, differing often only in some details or by invisible qualitative features, but the offers are making believe potential buyers that they are facing mutually competitive differently named items.

[13] Relevant in that context are the arguments (referring to Greek and Roman philosophers) in the book of Joseph Cardinal Ratzinger "Czas przemian w Europie" (The Time for Transformations in Europe), Polish translation, Wyd. M, Kraków 2005, pp 117–120, with a conclusion that the state can be governed differently than by a band of robbers if this is done in obedience to the rules of an objective justice, I. e. not pretended only to be legally binding through acceptance of a sufficiently powerful band. Tragic examples of such pathologies were experienced under totalitarian rule, but other milder cases can be met also in supposedly democratic conditions,

Critical situations are hardly avoidable if the market sphere societal functions are failing by not providing adequate employment and earning opportunities, whereas existing opportunities of that kind are likely to be still decreased by additional taxation needed by the state for taking over more social care functions. It seems that there are various experiences concerning relations between business attitudes towards profitability on the one hand and towards social responsibility on the other. Their nature depends perhaps mainly on the kind of most frequent business strategies applied by the entrepreneurs in response to their assessment of stability and predictability in systemic conditions (i.e. indirectly also—in exogenous impacts) These strategies differ alongside with preferences either for longer term aims to gain stronger market position or of short term flexibility in speedy adaptations to market challenges, including mobility in shifting business activities from one segment of markets (in terms of product missions, branches or space areas) to another, which means that enterprises become footloose, interested only in monetary effects. The latter case means that there are no reasons to care for any real terms aspects of bounds between business activities and societal matters. Social responsibility within markets is forgotten and shifted into the realm of politics and state functions. If one adds tendencies to destruction of moral rules in business and public behaviors, then there is no wonder that one hears warnings about twilight or decline of existing order for social systems. That road leads nowhere, through illusions of utopian ideologies and can revive ghosts of totalitarian regimes and visions of Armageddon. However, there are still other options at our future cross-roads.

ANTONI KUKLIŃSKI

THE SOUND OF EUROPE THE SALZBURG CONFERENCE JANUARY 27th–28th 2006

Motto:
Jacques Delors, who was perhaps the most far-sighted President of the EU Commission, observed many years ago that one could not fall in love with a common market. Only if the EU succeeds in appealing to the emotions of its citizens, in stirring their imagination, would it be through an identification with Europe to create a European identity. In a word: Europe needs a soul.

The Publishers—special edition
Europaische Rundschau

Introduction

The Austrian EU Presidency has organized a splendid conference on the future of Europe under the title "The Sound of Europe" A selected set of papers presented at this conference was published in the Europäische Rundschau as a special edition[1]. This special edition is a publication which should be given a pronounced attention by the participants of the Warsaw Conference for two reasons:

1) as a substantive contribution to the European debate
2) as a challenging benchmark related to the highest quality of a European conference and of a post conference volume.

I hope that all participants of the Warsaw Conference will have the opportunity to read the interesting content of a special edition[2].

In this note I would like to present some comments and an extended set of quotations to give a taste of the spirit and letter of the special edition. Naturally this selection of quotations is not an attempt to present an objective and comprehensive information related to the content of the special edition. It is a subjective choice of the author of this note presented as an inducement to read the full text of the special edition and to arrive at individual conclusion and value judgment related to the future of Europe. Let me present the following set of quotations and comments:

[1] The Sound of Europe—Europäische Rundschau, Quarterly for Politics, Economics and Contemporary History—Special edition, Vienna 2006

Editorial Office: Europäische Rundschau, Beide A-1010 Wien, Ebendorferstrasse 6/4, ph.: 01/408 34 00, e-mail: europ.rundschau@eunet.at

[2] Special edition, op.cit—in next footnotes—SE.

I. The cultural identity
II. The real cause of European problem
III. The risk of paralysis
IV. The strategic deficit, the Achilles heel of Europe
V. The new political landscape
VI. Updating Monnet for an democrative age
VII. The three fallacies
VIII. What kind of Europe we want?

I. The cultural identity

In the opening paper of Wolfgang Schüssel[3] we find the following observation:

> *"In Salzburg many of these questions as well as other problems and difficulties were openly addressed. Part of the unease felt by many people derives from the rapid changes their global environment is subjected to. Many of these pains caused by change, growth and maturing we naturally also feel in Europe. But our Europe should not be reduced to a purely economic idea. It is not only a question of competitive advantages, free trade and market shares. Europe must be more than this. It must find a cultural identity. We must be aware what holds us together, where Europe's frontiers, objectives and possibilities lie.*
>
> *Europe must develop its feeling for reality and possibility. It is not only a common currency which ensures this cohesiveness. Joint objectives and joint projects are also essential. Europe's frontiers are not just those shown in geography books or identified by spots chiseled on rocks by surveyors. The frontiers of Europe are self defined by the values, ideals and types of living accepted in Europe. It is also a matter, above all, of maintaining this typical European life-style, the 'European way of life'."*

The potential of culture as a comprehensive foundation of the whole development process of the European Union is well outlined by András Bozóki[4]:

> *"Culture has the potential to provide a solution to this social and economic crisis due to its unique ability of enhancing cohesion and competitiveness simultaneously. Economics usually assumes a trade-off between cohesion and competitiveness, but I argue that culture can prove that they can be mutually reinforcing. In terms of cohesion, culture means inclusion, cooperation, self-respect, solidarity, tolerance, equality of opportunity, curiosity and dialogue. In terms of competitiveness, culture brings innovation, ingenuity and creativity."*

From the point of view of the Warsaw Conference the last sentence of this quotation is of particular importance.

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[3] W. Schüssel, Sighting "The sound of Europe", SE, p.10.
[4] A. Bozóki, For a European cultural renewal, SE, p. 80.

II. The real cause of European problems

There is a lot of confusion in the exploration of the real cause of European problems. In this context it is an intellectual pleasure to quote the following opinion of José Manuel Barroso[5]:

> *"So we have to think: is globalization going to go away or will it be there for the next years? I believe it will be here for the future. It is not a political decision, no country—not even the most powerful countries—controls this process. To a large extent it is ruled by technological changes. So we have two possibilities. And before being an economic decision, before being an ideological decision, this is a cultural decision. What is our position faced with globalization? Are we going to hide? Are we going to pretend it does not exist, are we going to resist it or are we going to try to manage it with our values, the European values, the European way of life, our principles? I believe the answer is the second one. We have to try to shape this globalization with our values to adapt it. The message that we send to our people should be a message of openness and not a message of retreat. It is a message of overcoming stupid, narrow nationalism that was the source of so many tragedies in our continent for hundreds of years. We have to be able to understand that only the paradigm of openness (and here culture is very important) can really overcome the current difficulties. It is not because of the internal market that we have problems in Europe. It is not because of the last enlargement that we have some problems in Europe. On the contrary. It is precisely because we were not prepared from an economic point of view to face the challenges of this globalized world that we are witnessing some problems of adaptation."*

III. The risk of paralysis

The paper of Dominique de Villepin[6] is an example of an integration of political, intellectual and artistic reflection.

From my point of view the most important are the opinions concerning the risk of paralysis:

> *"This risk of paralysis is even more worrying in that the world is changing very fast and we are facing increasingly stiff international economic competition. At a time when new economic powerhouses such as India or China provide further proof of their vitality every day, Europe cannot remain immobile. It must take advantage of globalization, win new market share, innovate and create leading-edge products to stimulate its own growth and create new jobs.*
>
> *This crisis of European decision-making goes well beyond a simple problem of operation—it is also an appeal for more democracy in Europe. Who makes the decisions today in Europe? In whose name? How are the choices that will durably affect the future of our societies made? How do we assess the results? Who accepts responsibility when a given measure proves to be ineffective? When do we decide to go back on a decision? Democratic transparency is a national imperative that governs the legitimacy of every one of our decisions. It is also an imperative for Europe, since political legitimacy today is less the product of debate and declaration*

[5] J.M. Barroso, Globalisation—a driving force for Europe, SE, p. 14.

[6] D. de Villepin, Crisis as a springboard for a new leap forward, SE, p.18.

than of decision and results. But Europe is also experiencing an identity crisis. Many citizens are questioning the purpose of European Integration. First, they are unclear about its geographical contours: no political entity can be built on a movement of rapid and continuous expansion whose limits are uncertain. No political project can live without a border.

A border does not define solely a space and sovereignty but also marks an attachment to values, defense of a culture, reference to a memory. Europe has recently experienced an unprecedented enlargement: by integrating ten new countries, it has passed a major milestone in its development. My conviction is that we may not have sufficiently anticipated the consequences of these major political choices. We embarked on the path of enlargement without fully measuring the need to go deeper, to consolidate our rules and bolster our demands."

IV The strategic deficit—The Achilles Heel of Europe

We find a strong value judgment in the paper of Werner Weidenfeld[7] "Europe lacks strategic thinking". Let us quote this important opinion:

"One route out of the acute ratification crisis is to undertake a particular task. The pressure for reform will grow over the coming months in Europe's daily political work, and the member states' willingness to accept to compromise solution, one along the lines of a "Treaty to Amend the Treaty of Nice", will increase. It will be much more difficult to confront the symptoms and characteristics of the EU's crisis of acceptance and legitimacy. There will be no silver bullet; instead, a number of measures will be necessary, and their effects will only become apparent over the medium and longer terms.

But even if the EU clears this hurdle, will Europe be in a position to use its potential effectively, to become a mature political actor both internally and externally? Essentially, Europe lacks not only an operational center to fulfill this role, more importantly it lacks strategic thinking. Europe's great powers have all lost much of their place on the global stage. None of these states has developed the will to compensate for the national loss of global standing by developing it at the European level. The deficit in strategic thinking thus proves to be the actual Achilles heel of Europe.

There is no agenda that could give Europe direction in crises and conflicts. The big thinkers, people who would be capable not only of conceptualizing Europe's strategic role but also of implementing it, are at present nowhere in sight. Only when Europe manages to develop a culture of strategic thinking will it gain a significant ability to shape events internally and externally, and thus keep its place on the world stage over the long term. To many decision-makers, this seems like too distant a question, given the acute internal problems facing the EU anf its member states. They would be well advised, however, to consider this question today. Coming to terms with change will continue to be a key task for the European project, and the ability to structure developments will be decisive for Europe's ability to face the future."

[7] W. Weidenfeld, Europe: Identity and Strategic Perspectives, SE, p. 47.

V. The new political landscape

It is very difficult to argue that we have to acknowledge the end of the federal dream. The end of federal dream is to my mind the end of the dream seeing the European Union as a global power of the XXI century.

In this context I would like to quote the thesis of Mark Leonard[8]:

> *"If EU leaders want to modernise the Union's institutions, they will need to adapt to a new political landscape.*
>
> *In the next decade, the issues that define the EU's agenda will be different. 'Widening' will become more controversial than 'deepening'. Federalists have not disappeared from European chancelleries or the Brussels bureaucracies, but their political star has been on the wane for over a decade. Ironically, the process of negotiating the constitutional treaty pointed to the end of the federal dream. After 16 months of deliberations, the Convention on the Future of Europe decisively rejected key federalist demands, such as a directly elected president of the Commission, and a European Parliament with the power to initiate legislation. In the event,*
>
> *even the modest treaty that was agreed by governments was rejected in referendums. With the EU enlarging to 25 the cause of federalism has weakened. And the huge diversity of the member-states means that even if there was a will to move towards federalism, it would be almost impossible to agree on a common structure. While many pro-Europeans still hope to revive the constitution, there are no longer any big integrationist projects like the single market and the single currency. As a result, the spectre of a super-state is likely to subside in sceptical countries such as Britain and Denmark. It will be overshadowed by the fear of enlargement which is growing in countries like Germany, Austria, France and the Netherlands. Several lobbies have formed against further enlargement. Federalists fear that a wider Europe will be incapable of 'deepening'. Much of the right wants to exclude Muslim Turkey for cultural reasons. Much of the left fears that cheap labour from the east will put blue-collar workers on the dole. Because enlargement creates economic winners and losers, it is forging new political alignments."*

VI. Updating Monnet in a democratic age

The already quoted paper of mark Leonard is formulating a wrong dilemma—consent of the elites versus direct public support[9]. In the realities of the XXI century Europe we need the direct public support but we need also the consent of the elites to design the future of Europe. After this comments let us present the following quotation from the paper of Mark Leonard[10]:

> *"The founding fathers of the EU understood the dangers of constitutional posturing. The 'Schuman Declaration', which the French and the Germans signed to launch the European project in 1950, set the tone for a pragmatic EU "Europe will not be made all at once, or according to a single general plan. It will be built through concrete achievements, which first create a de facto solidarity."*

[8] M. Leonard, democracy in Europe: how the EU can survive in an age of referendums, SE, p.65.

[9] M. Leonard, op.cit.

[10] M. Leonard, op.cit, p. 69.

Jean Monnet, the plan's author, gave form to the political theory that academics have called 'functionalism'. He thought that integration should start with concrete forms of co-operation rather than building institutions to an illusory idea of the international community. That insight is as relevant today as it was in the 1950s. But, unlike in Monnet's era, the EU needs the public's direct support—expressed in some countries through referendums—rather than the consent of elites. That is why European governments must embrace a new approach. We could call it 'democratic functionalism'. By taking the steps set out above, EU leaders could build a new political community organized around the challenges of globalisation, with the flexibility to accommodate different national priorities, and the consent of its citizens.

Of course this is a risky agenda. Referendums are unpredictable—and prone to be high-jacked by special interests. EU governments are not yet used to drafting treaties, or advancing policy agendas, with a view to winning popular votes. And an EU of pioneer groups will be messy and hard to understand. But the risks of failed referendums are overshadowed by those of a European Union void of legitimacy. The EU is no longer a fragile project that needs constant momentum, a bicycle that needs to be peddled constantly lest it fall. The French and Dutch votes showed that Europe can face political set-backs without wiping out the gains of a half century of integration. On the other hand, if public resentment is allowed to build up without

an outlet for expression, it could one day explode and take the EU with it."

VII. The three fallacies

The paper of Andrew Moravcsik[11] is an interesting and maybe controversial contribution to the European debate. In this place I would like to quote some observations related to three fallacies:

One: The fallacy of Europessimism:

"The first false premise underlying the constitution was that the EU faces a crisis that requires a strong forward impetus to overcome disorder or collapse. It must keep moving forward lest it fall over—the so-called "bicycle theory" attributed to the first Commission President Walter Hallstein. Ironically, this pessimistic prognosis is held, as it has been for a half—century, most strongly among partisans of European integration—in large part because it serves their political purposes. Yet any objective observer should admit that this gloomy view has a air of unreality about it."

Two: The fallacy of the democratic deficit:

"The second erroneous view underlying the constitution was that the EU faced a legitimacy crisis driven by its "democratic deficit", which must be overcome not through pragmatic economic policies and useful political regulation, as had been the case for 50 years, but by politicizing and democratizing the EU."

[11] A. Moravcsik, The Consitution is Dead! Long Live the Constitution!, SE p. 72–75.

"This is as it should be, for there is no "democratic deficit" in the EU—or not much of one. Once we set aside ideal notions of democracy and look to real—world standards, we see that the EU is as transparent, responsive, accountable and honest as its member states. The relative lack of centralized financial or administrative discretion all but eliminates corruption. The EU's areas of autonomous authority—trade policy, constitutional adjudication and central banking—are the same as those in most democracies, where these functions are politically insulated for sound reasons. The notion of imposing democratic control through multiple checks and balances, rather than through elections to a single sovereign parliament, is more American than European—but it is no less legitimate for that. Everyone gets a say in a system in which a European directive needs approval from a technocratic commission, a supermajority of democratic national governments and a directly elected parliament, and must then be implemented by national regulators. Studies show that EU legislation is both consensual and relatively responsive to shifts in partisan and popular opinion. And when all else fails, as we see with the recent compromise over the services directive, the European Parliament can and does act a meaningful democratic counterweight".

Three: The fallacy of populism

"The final erroneous view underlying the constitutional process is that populist preferences are the ultimate arbiter, and thus the populist rejection in the two referenda show us that the European "people" have cast a considered judgment to reject the constitution and its contents. Therefore, many say, the content of the constitution must be changed."

"This, too, is false. The central error of the European constitutional framers was one of style and symbolism, not substance. The constitution contained a set modest reforms, very much in line with European popular preferences, The mistake was to present a set of modest and pragmatic reforms as a major constitutional shift—which triggered a reaction. But just as we do not consider every expression of populist frustration as a fundamental challenge to the existence of nation—states, so we should not do so in the case of the EU.

Though democratic systems tend to be more legitimate and popular than democracies, there is little reason to believe that within democracies, that turning policy over to a legislature or referenda makes the result more legitimate or trustworthy. In western democracies, popularity is in fact inversely correlated with direct electoral accountability. The most popular institutions are the least democratic ones: courts, police forces and the military. Parliaments are generally disliked; elected politicians are mistrusted. Whatever the source of Europe's declining popularity—a general decline in political trust, unfamiliarity with institutions, xenophobia, discontent with economic performance—it has little to do with its democratic mandate."

* * *

The thesis of Andrew Moravcsik concerning the three fallacies is an interesting input into the European debate irrespective of our agreement or disagreement in this field.

VIII. What kind of Europe we want?

This is fundamental question formulated in the title of the paper of Loukas Tsoukalis[12]. This question is not finding a satisfactory and comprehensive answer in this paper which is nevertheless a valid contribution to the European debate documented inter alia in the following quotations:

"Regional integration in Europe has been mostly the product of an elitist conspiracy, with good intensions and pretty remarkable results. This has been changing fast since the early 1990s. The permissive consensus on which regional integration used to rely for many years, and which enabled national political elites to determine its shape and speed, can no longer be taken for granted. Integration is becoming more political, in the traditional sense of the term—and hence also, more divisive. The relevant question is no longer How much Europe? But What kind of Europe? This type of question is unlikely to produce the broad cross-party consensus, which characterized the European policies of most member countries in he past. Some of the fundamentals have changed.

This change has much to do with successive rounds of widening and deepening. As European integration began to reach the famous nooks and crannies of our societies, many aspects of the everyday life of citizens are being directly or indirectly affected by decisions and regulations emanating from European institutions. It would have been strange if the old consensus had survived. On the other hand, the continuous addition of new members has helped to dilute whatever fragile common identity (or common interests) we had slowly constructed over the years.

Economic integration has contributed to growing prosperity in Europe. Most economists agree on this point—and this is, indeed, pretty rare in the profession. But it is also increasingly true that regional integration, very much like globalization, has distributional consequences within counties more than between countries. In other words, there are winners and losers from economic liberalization and the reduced ability of the national state to regulate and tax."

* * *

"The EU can and should provide a useful forum for debate as well as a basis for comparing national experiences and possibly also a soft version of benchmarking. At the same time, it can and should provide a broad policy framework, and hopefully no longer a scapegoat. It is important, however, to recognize the limitations of such an exercise in which the final responsibility lies with member states, while the role of the EU is limited to 'soft' coordination at best. There is a huge difference between the Lisbon process on the one hand, and the internal market and EMU on the other. It would not be wise for Europe to be seen by citizens as having responsibility for things it has no real power to deliver."

* * *

"In times when inequalities are growing within countries and the number of losers is on the rise, a division of labour in which European institutions concentrate on economic liberalization, while national institutions retain the (near) monopoly of redistribution and welfare, can become politically explosive. More growth would

[12] L. Tsoukalis, What kind of Europe do we want?, SE, p. 94–96.

help in this respect, but it may not be enough on its own. For Europe to be an effective agent of reform, it will require a stronger caring dimension. Are we ready for that?

There is also a much broader issue concerning the place of Europe in the process of globalization and any collective efforts aimed at managing this process. At the one extreme of this political debate, we find old-and new-style protectionists who believe that Europe can be shielded from the rest of the world and also from change. At the other extreme, we find globalization missionaries preaching the virtues (and usually the alleged inevitability) of the shrinking world, together with market fundamentalists who want to strike down all barriers in order to unleash the forces of competition. According to them, politics should simply submit to superior economic logic. The large majority of Europeans situate themselves somewhere in between; the point of compromise can only be decided at the political level. It remains to be seen whether the political battle on this major issue will be largely confined to intergovernmental diplomacy, which is still the main characteristic of the European political system. I believe it should not be so. This is the perfect example where European integration needs to become more political.

But can we have European politics as long as there is no European public space and no Europeans demos?".

Conclusion

The Salzburg Conference has created an important contribution to the European debate and to the role of the Austrian Presidency in the promotion of this debate. It is an open question if the Warsaw conference would be seen as a comparable experience in the framework of the Finish Presidency?

In the final words of my note let us return to the motto at the beginning of this note. In this context the crucial problem in our thinking on the Future of Europe will emerge—"How to discover or invent the soul of Europe. The soul of creative and innovative Europe?".

Warszawa – Nowy Sącz
October 2006.

ANTONI KUKLIŃSKI

EUROFUTUROLOGY 2050 VERSUS 2057

Eurofuturology 2050 is changing itself into a great scientific, economic, political and cultural problem. We have to answer the dramatic or even tragic questions related to the vision of Europe 2050. Our perception overburdened by the real or fictitious problems of today, is not able to acknowledge the simple truth that the long term horizon of 2050 is de facto a short term horizon. In the present demographic structures the majority of now living inhabitants of Europe will see Europe 2050 inside the individual experiences of their life. They will not only see the European scene of 2050—they will also participate in the glory and misery of this scene. The distance linking the years 2007 and 2050 will involve experiences of two types:

1) the phenomena of long duration—the phenomena which exists in the European experiences of the last, ten hundred or even five hundred years,
2) the phenomena of turning points[1].

The turning points are destruction of our conventional wisdom. The turning points can be defined as rapid and deep transformation of the global scene creating new structures and new driving forces of development. In my view the dialectic of mutual interdependencies of the processes of long duration and the transformation of turning points are the core of the futurology.

In such a spirit I would like to present the following thematic sequence of this short paper:

I. The object of futurological studies
II. The great challenge of Eurofuturology
III. The European Union as an ego of Eurofuturology 2050
IV. The diagnostic foundation of Eurofuturology
V. The four grand problems of Eurofuturology
VI. The New Paradigm of Eurofuturology

I. The object of futurological studies

In the classical view of empirical sciences futurology has no object of research following the elementary observations that the future "will be" but the future "is no existing as an empirical reality". If however we recognize that the perception of the future is a real individual and social problem then this perception can be an object of futurological studies. In human experiences this perception of the future can be related to different sources and motivations. These sources we can find in the worlds of religion, art and science.

[1] A. Kukliński, B. Skuza (eds) Turning points in the transformation of the global scene. Warszawa 2006.

II. The great challenge of Eurofuturology

The beginning of the XXI century is a time of almost unlimited dramaturgy and a time of strongly limited predictability. This is a great challenge for Eurofuturology facing the competition of American futurology now and the Chinese futurology in the near future.

III. The European Union as an ego of Eurofuturology 2050

In the last decade of the XXI century we could find in the structure of the European Commission the "*Cellue Perspective*" which was the author and sponsor of numerable, non conventional studies concerning the Futurology of Europe. Unfortunately at the beginning of the XXI century Romano Prodi took the wrong decision to liquidate this innovative center of Futurology.

To my mind in the present structure of the European Commission it is difficult to find an integrated system of Eurofuturology and an integrated system of time horizons applied by the Commission and by the member countries. In this context we have a chance to select at least one important time horizon. This is the year 2050 which is already functioning in global perspective studies[2].

In this context we can quote a document of the European Union—"The Document of June 9*th* 2006[3]" where we read *inter alia*:

> *"The Commission should elaborate a concrete and realistic vision of the EU and its way to sustainable development over the next 50 years. Such a vision should be prepared in a participating manner and should identify the main long term objectives and describe intermediate stages and steps towards their achievement."*

This should be seen as an inducement to develop the substance of Eurofuturology 2050 as a system integrating four types of intellectual[4] and pragmatic reflection:

— the diagnostic reflection
— the visionary reflection
— the scenario reflection
— the strategic reflection

The consecutive Presidencies of the European Union should to my mind use the great historical opportunity to promote the grand idea of Eurofuturology 2050 as a system which will improve the future oriented performances of the European Union. This is also an opportunity to demonstrate the power of the European mind in the global competition related to the global Futurology of the year 2050.

IV. The diagnostic foundation of Eurofuturology

It is impossible to create a vision of the Future without the competent and courageous diagnosis of the European status quo. We need a theoretical competence to formulate the valid

[2] Compare: A. Kukliński, B. Skuza, op.cit., p. 333.

[3] The Council of the European Union—Review of the EU Sustainable Development Strategy, Brussels, June 9*th* 2006.

[4] Compare: A. Kukliński, B. Skuza, op.cit., p. 269.

empirical questions. We need also the moral courage to avoid the temptation to keep a diplomatic silence in relation to problems which are difficult or inconvenient from the point of view of conventional wisdom and political correctness. In most general terms the space of the European Union can be seen as a scene of interaction of two patterns:

1) the pattern of spatially differentiated set of resources in the field of economy, nature and culture. Let me use the concept—Resources for the Future of Europe.
2) the pattern of a spatially differentiated set of material and spiritual barriers which are diminishing the dynamics and efficiency of developmental processes. Let us use the concept—The barriers for the Future of Europe.

V. The four grand problems of Eurofuturology

It is a great challenge to master the ability to outline the grand problems of the Future of Europe[5]. Having the full consciousness of my limited wisdom and imagination. I would like to suggest four problems for consideration:

1) The autonomy of Europe in global structures
2) The demographical drama of Europe
3) The challenge of creative and innovative economy and society
4) The European crisis of the will to power

1) The autonomy of Europe in global structures

We find a beautiful metaphor of Europe as a crystal palace[6]. Inside this palace we have temperatures independent from the global environment. This is a dream of autonomous Europe having a very large scope of choice in the global realities of the XXI century. In the interpretation of this metaphor we can find two patterns of thinking:

— *primo*—The European Union will have a boarder or smaller strategic choice depending on its power or weakness. A strong Europe will be an important pattern in the system of global decision making. A weak Europe will be only an object of global decision making.
— *secundo*—We can outline a review of different dimensions of the global reality and indicating the stronger or weaker position of Europe in the given dimension.

Let us compare the economic dimension, the military dimension and the ecological dimension. In the economic dimension the autonomy and position of Europe is relatively strong. In the military dimension the position of Europe is miserable in comparison to the US and in the near future also to China. In the ecological dimension the achievements of the European Union are magnificent. However all the ecological potential of the European Union will not rescue the Union from the global ecological disaster generated by totally irresponsible policies of USA, China and India.

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[5] Compare: A. Kukliński, K. Pawłowski (eds) Europe the global challenges, Europe the strategic choices. Nowy Sącz, 2005.

[6] P. Sloterdijk, Kryształowy Pałac jest Wielką Rewolucją. Europa—Tygodnik idei, 27 stycznia 2007.
N. Gardels, Davos power shift America no longer owns globalization. IHT, January 25*th* 2007
J. Markoff, Sun may be setting on Silicon Valley supremacy. IHT, January 24*th* 2007.
J. Kanter, A. Cowell, European backs vast battle on warming. IHT, January 26*th* 2007.
J. Kanter, K. Bernhold, India and China: New Dilemmas in Battling Climate Change. IHT, January 25*th* 2007.
J. Kanter, First commandment of 21*st* century adopt to climate change. IHT, January 24*th* 2007.

2) The demographical drama of Europe[7]

Maybe the term drama is too mild and we should use the metaphor of tragedy. This tragedy is visible in continental dimensions of Europe. But this tragedy would be especially painful if we could see the demographic maps of European Regions 2020 and 2050. A comprehensive systems of demographic projections *the European Regions 2020 and 2050* should be sponsored by the European Commission as an especially urgent task.

3) The challenge of the creative and innovative Europe is well outlined in a recently published Volume[8]

4) The European crisis of the will to power[9]

The political structure of the European Union and of the majority of European countries are in a state of deep crisis. The philosophical problem of the lost will to power is a great weakness of Europe. Will Europe answer this challenge in the perspective of 2050?

VI. The New Paradigm of Eurofuturology

The present system of concepts and assumptions incorporated into the "scripture" of the European Union is a firm formulation of the present paradigm of the Union seen as a set of questions and answers which are recognized as "correct" according to the prevailing conventional wisdom and political correctness.

The New Global Scene of the XXI century must be a driving force to transform the system of concepts, assumption, questions and answers to find a new Paradigm of Eurofuturology 2050.

Warszawa, February 28*th* 2007.

Post scriptum
2050 versus 2057

At the Annual Conference of the Club of Rome in Helsinki (October 2004) I have presented a paper[10]—Global development in secular perspective—The experiences and prospects of the years 1950–2050—Global catastrophe versus global renaissance. Unfortunately the Club of Rome was not able to develop and support the innovative ideas incorporated in this paper. The 50*th* Birthday of the European Union[11] was an inducement to see the experiences and prospects of the Union in a secular perspective of the years 1957–2007–2057.

In this context we may have a temptation to extend the time horizon of Eurofuturology from 2050 to 2057. The time sequence of 1957–2007–2057 will pronounce the European differentia specifica—the time sequence 1950–2000–2050 will be a more efficient instrument to incorporate

[7] A. Kukliński, K. Pawłowski (eds), op.cit., p. 39.

[8] A. Kukliński, C.Lusiński, K. Pawłowski (eds) Towards a New Creative and Innovative Europe. Nowy Sącz 2006.

[9] A. Kukliński, C. Lusiński, K. Pawłowski (eds) op.cit., p. 138.

[10] Compare: A. Kukliński, K. Pawłowski, Europe—the strategic choices. Nowy Sącz 2005, p. 365–401.

[11] Compare: The Europe of 2057—Suprising expectations. International herald Tribune, March 23*rd* 2007. Compare also: IHT, March 24*th*–25*th* 2007.

the European experiences into a global framework. This is however a minor question. The great challenge is to promote a grand research programme[12]—*Europe and the World. The secular perspective 1950–2000–2050 or 1957–2007–2057.*

The design, implementation and promotion of this programme will establish the European Union as a leader of futurological thinking of the XXI century. The philosophy and substance of the conference The Future of European Regions, Warsaw—Hotel Bristol, May 31*st* – June 2*nd* 2007—is an important milestone along the trajectory leading a new Eurofuturology as an integral element of the emerging system of global futurologies.

[12] Compare: G. Soros, Zadania dla Europy — UE jako społeczeństwo otwarte. Tygodnik idei—Dziennik 31 marca 2007. According to G. Soros—The idea of open society is the main common denominator of all European nations.

ANTONI KUKLIŃSKI

EUROPE 2050 —CHALLENGES OF THE FUTURE —HERITAGE OF THE PAST

This is the title of a synthetic volume published in Helsinki[1]. In the first sentences of the volume we find the following formulation of Paavo Hohti—The Chairman of the Board, Foundation Institutum Romanum Finlandiae[2]:

> *"Fenestra Finnorum in urbem et orbem—the window for Finns into the city and the world is the motto of Villa Lante, the Finnish Institute in Rome. For more than 50 years it has been a seat for research and artistic work, a place to understand the depth of the roots of our European culture and to see them in the context of a wider horizon.*
>
> *The Finnish Institute considers its role not only as a place of research but also wants to contribute to debates in society. Consequently, the year of Finnish presidency of the European Union was seen as a good opportunity for Villa Lante to be the venue of a seminar and discussion on European ideas, their roots, present and future. The colloquium was held in September 2006."*

The volume is a set of five chapters:

- Messages from Antiquity
- The Middle Ages and the Birth of Europe
- Europe from the 17^{th} to the 20^{th} Century
- Present Day Challenges
- Europe 2050—New Border

The last sentences[3] of the volume are formulated by Markku Wilenius Professor of Future Studies Turku School of economics:

> *"Europe has to have a dream of tomorrow, not a dream of the past. As a futurist, I see this kind of dream rising, slowly but surely, as Europe finds its own distinctive way to define the elements of good society. What Europe needs are much more distinctive and elaborate objectives than those provided by the Lisbon strategy. Samuel Huntington has pointed out that a cohesive Europe would have the population resources, economic strength, technology and actual and potential*

[1] T. Heikkila, Europe 2050. Challenges of the Future, Heritage of the Past, Villa Lante, Rome, Helsinki 2006.
[2] Europe 2050, op.cit, p.6.
[3] Europe 2050, op.cit, p. 149.

military strength to be the pre-eminent power of the 21st century. But for that to happen, we need a strong and dynamic system that encourages and supports forward thinking and the empowerment of citizens. But, above all we need dreams; strong dreams of a better world and the heavy use of soft power. We need a European dream of the future to take humanity to the next step of human evolution."

* * *

In my long experience I find for the first time a publication which is trying—in the space of 150 pages—to outline the main features of the history and the Future of Europe. Naturally not all observations, generalizations and visions presented in Europe 2050 will find a general approval.

The factographical framework and the spirit of value judgments are open for critical—sometimes—controversial evaluations related to different visions of the history[4] and the Future of Europe. The most striking example is the relatively soft negative value judgment related to the European experiences generated by nazism and communism. The negative value judgment of the volume in this field is clear but many persons for example in Poland would prefer a much stronger formulation[5]. The Authors of the volume were challenged by an almost impossible mission to find a field of common denominators linking the different empirical and ideological visions of Europe. The evaluation of the success or failure of this mission is now in the mind and perception of all persons who will have the opportunity to read Europe 2050.

In this place I have a suggestion for Villa Lante and the Ministry for Foreign Affairs of Finland. Please consider to sponsor a second revised edition of the volume and open the channels of a very broad distribution of the volume in European scale and maybe in a global scale. Please consider to promote the translation of the volume into German, French, Spanish, Italian and Polish. Each translation could be supplemented by a set of commenting papers , creating a bridge linking the general spirit of the volume and the particular features of the given national scene.

Europe 2050 is an valuable contribution to the grand debate—the history and the future of Europe. It is an open question if Europe 2050 can be seen as a publication which could be critically absorbed by the systems of national education of all countries being members of the European Union. We know very well that the national systems of education have a long way to go to achieve a long distance goal—the common perception of European history and European future in the minds of young Europe of the XXI century. The reception of the volume in Europe will be an important test to answer the fundamental question—Is a common integrated vision of European history and European future only an utopian dream or an already emerging reality especially in the minds of the young Europe?

Warszawa – Nowy Sącz
February 5th 2007.

[4] Compare for example: R. Stark, The victory of reason how Christianity let to freedom, capitalism and Western success. Random House, New York 2005.

Compare also: R. Sennett, The culture of new capitalism. Yale University Press, New Haven, 2006.

[5] The experience to see W. Wilson and W. Lenin in parallel position in the same sentence is very difficult for me (see p. 87).

KATARZYNA ŻUKROWSKA

TURNING POINTS IN THE EUROPEAN ECONOMY SEEN AS XXI CENTURY CHALLENGES

Some see future of Europe pessimistically. Others are more optimistic[1]. My vision of Europe falls into the second category. I see Europe as an important international player concentrated on bringing wealth, stability and security to other regions of the world. Europe has proved in its 50 years history that it has abilities to turn water into wine. Wealth was brought to all member states, including the latest enlargements to the East and Central Europe. Despite still deep diversities among states all are better off in comparison with the moment when their closer relations with the European Community were started. Challenges for Europe in XXI century cover improvement of standards of living in new MS, as well as improvement of the standards of living of the neighbors, who with consecutive enlargements can cover the whole globe[2]. At the same time the level of standards of living of the Old Member States should not deteriorate but rather increase. Europe is well equipped to do that and has needed know-how on how to do that. Moreover, Europe has strong support in her endeavors from other states who play more or less important roles in the world scene.

What has given power to Europe in the past? Main powers were born by spreading over democracy as basic political system and change the economy by limiting economic nationalisms. Enough to remind that in between WWI and WWII there was a limited number of democratic states, all could be counted on fingers of one hand[3]. It was USA, UK, France, Switzerland and Czechoslovakia. Not all of them could play an important role in international relations, having strong impact on its neighbors. The roles were divided by those players in such manner that the Five had drugged on their side most of the world states. That transition was decisive in replacing authoritarian political regimes into democracies. This process lasted since the end of WWII and still continues. Europe plays in it an important role offering different types of cooperation from cooperation agreements, through trade and cooperation agreements, free trade agreements, association agreements to membership. Europe also offers access to its markets to underdeveloped states on special advantages conditions called GSP (General System of Preference). Those trade conditions show that international relations can be profitable and prove that states are able to compete and gain increased share in exports to most competitive markets of developed economies. Moreover, those relations are conducive in increasing earnings from exports by EU partners.

[1] A. Kukliński, K. Pawłowski (ed.), Przyszłość Europy — Wyzwania Globalne—Wybory Strategiczne, Nowy Sącz 2006;

[2] A. Kukliński, K. Pawłowski (ed.), Europe—The Global Challenges, Nowy Sącz 2005.

[3] S. Sweeney, Europe, the State and Globalisation, Pearsons Longman, Phoenix 2005.

By explaining this one can move to the notion of new economy, which is based on idea to limit economic nationalisms in Europe as well as on world wide scale[4]. This was done by making state borders porous, advancing the process of internationalization of economies, opening them up by replacing the philosophy of national protection by philosophy based on liberal ideas. On world wide scale this has resulted in creating conditions in which production factors start to move more freely[5] , while in Europe they move almost on unlimited scale within the internal market of EU or within the EEA (European Economic Area).

States are becoming more open to liberal ideas as world economy is strongly diversified being at the same time interdependent and this interdependence no longer is based on spare trade based on surpluses over the national supply and demand balances or supplementary trade within inter-branch division of labor but rather built upon a new division of labor which is based on philosophy of intra-branch division. This new philosophy has several important features which are considered as stabilizing continuity of international trade, which are: need to import and export in order to obtain a final product; rich economies are eager to resign from part of the production increasing share of production encompassing higher value added, getting at the same time final product with lower price as some components are produced in less developed economies where costs of labor are lower; poor economies are given opportunities to produce what creates conditions for their partial self-financing of reforms and stimulation of development. All those changes gradually, in long time, should lead towards equalization of monetary indicators, costs of labor, tax systems, etc[6].

There is a number of turning points, both in Europe as well as in world economy, which can be considered as decisive, enabling the European Union to fulfill the mission in bringing wealth around the globe. Those turning points decide that Europe becomes a hub which radiates positively with energy and power reaching nearest, direct neighbors as well as further located indirect neighborhood[7].

End of the Cold War, in 1989, brought about culmination of the bipolar political division and in short time after that moment, namely a decade, was replaced by a new bipolarity, which this time was established in international finances. The old "**political bipolarity**" consisted of bigger number of states than the new one "**financial bipolarity**". In the old bipolarity European Community and her member states played secondary role, supporting the US in its endeavors, while in the new "financial bipolarity" the EU (namely the EMU–13[8]) starts to play a role of the second pillar in the financial system. Finances today, in the deeply interdependent world, show new common interests of states bound to play together as some are interested in value of the currency which they mint, while others care about that value of the same currencies as they stock them in their reserves, as well as consider it as a tool in opening or closing the markets. Those new relations deepen parallel to engagement of states in world trade.

[4] L. Greenfield, The Spirit of Capitalism. Nationalism and Economic Growth, Harvard University Press, Cambridge, London 2001.

[5] This process was stimulated by liberalization of trade within GATT/WTO consecutive rounds, as well as by GATT/WTO liberalization of capital, services and intellectual properties transfers. Liberalization within GATT/WTO was supported by regional (there are 188 free trade agreements and 67 are in process of negotiations, as well as 18 customs unions are already functioning, while 5 new are being negotiated) or subregional processes (OECD capital transfers liberalization). Numerous liberalization agreements are being suspended as support and interests of the engaged parties were strongly diversified. This is the case with MAI (Multinational Investment Agreement of OECD), as well as talks within Doha Round of the WTO, or FTAA (Free Trade Agreement of America's).

[6] Equalization does not mean that costs of labor will be equal but rather should be read as elimination of deep disparities of today. Mentioned indicators are not equal even in national economies so one should not suppose that they can be equal internationally but at least strong disparities, which are characterizing the development gap between developed and underdeveloped economies will be eliminated.

[7] A. Kukliński, B. Skuza (ed.), Turning Points In the Transformation of the Global Scene, Rewasz, Warsaw 2006.

[8] In January 2007, after first enlargement of the EMU by a post-communist state: Slovenia.

Important turning point for Europe is marked by **liberalization of trade** (or more generally: economic relations) within different arrangements carried out within different institutional structures: globally within the WTO; regionally by widening and deepening; subregionally by creating free trade areas and giving access to the European market. Liberalization intensives competition, competition is basic condition for creating competitiveness of the manufacturing and service sectors. In other words the goals of Lisbon Strategy are coming closer to point of realization but this is will be achieved not by following the guidelines given in the agenda. Europe is close to conclude a new agreement with Russia and consecutively by remaining CIS (replacing the Partnership and Cooperation Agreement's signed between CIS and the EC), Mediterranean States (followed by remaining states embraced by the European Neighborhood policy) will create a free trade zone with the EU, Mexico is associated with EU, while MERCOSUR is negotiating an Association Agreement with the EU. US and EU come back from time to time to the idea of Transatlantic Marketplace, what also means liberalization of trade among the two biggest markets in the world. Those regional markets also liberalize their relations regionally and this process is not limited to relations with the EU. This is the case with Asian states (ASEAN, SARC, GCC) Northern and Southern American states (FTAA, CUFTA, CAFTA), as well as African ones (SACU, Pan African FTA). Making the long story short a model that was created by the European Community in 1987 by Single European Act is the goal that will be applied in whole world, integrating national markets and their economies into one much more homogeneous entity. In long run this will lead towards **one world internal market with the four transfer liberties and** upon that **one currency** and **one Central Bank**.

European institutions, with time passing, will become **world institutions**, gradually enhancing representatives of all states from the world. Romano Prodi's idea of "sharing everything but institutions" with states who want to cooperate with the EU is being replaced by the idea of including representatives of all states from the whole world into those institutions, what can be read in the solutions applied within the draft of the Constitutional Treaty. The Commission is working already with almost all states in the world indicating what has to be done in order to increase access to their economies, stabilize them (where it is necessary), restructure it, open up, modernize and finally join the emerging division of labor. This process can be seen as "**globalization of Europe**".

Increasing its attractiveness Europe offers "**different carrots**" to those who want to cooperate. For all it is **access to the market**, for some it is **aid money transfers**, for others **FDI flows**, for rich **ideas how to use the money**, for underdeveloped access to knowledge and technologies, for regionally insecure—**membership in the NATO** (which has to be globalized as well[9]). Incentives are and will continue to be differentiated meeting the differentiated demand defined by states that show desire to cooperate.

The list of turning points as well as challenges which the EU has to face in the coming days is on the one hand long, while on the other one short and a bit unbelievable. Can states cooperate together? Can they depart from their state nationalisms and economic nationalisms? Can all be democratic and friendly one to another? Is Europe (and the US) able to make such dream come true? Can all states be rich? Is all that possible? This seems like an unrealistic dream.

My answer to those questions is generally positive. The idea of United States of Europe coined by Winston Churchill in 1945 has changed the European landscape, influencing the world scene in result as well. The model applied in the European Communities, based on interdependencies[10] , reversing relations with former colonies replacing access to colonial markets by access to own

[9] It should be explained that all members of the EU are preceding this membership by NATO membership.

[10] R. O. Keohane, J. S. Nye, Power and Interdependence. Third Edition, Longman, New York, San Francisco, London, Sydney, Tokyo, Singapore, Madrid, Mexico City, Munich, Paris, Cape Town, Hong Kong, Montreal, 2001.

markets, seems to be very powerful. It pulls all states into one hub, using soft power, using the power of market mechanism[11].

Gradualism and sequencing[12] in international relations after the WWII formed by the 1944—Bretton Woods System (and its adjusted follow up) has created specific conditions in which Europe can play such a role. European Community is bigger and stronger today than it was in 1957, when it was called into life. EU is equipped in all needed tools and has gained, with years passing, strong support from her partners to play such role.

[11] J. S. Nye, Jr., Soft Power. The Means to Success in World Politics, Public Affairs, New York 2004, as well as in: J. S. Nye, Jr., The Paradox of American Power: Why the World's Only Super Power Can't Go it Alone, Oxford, New York, Athens, Auckland, Bangkok, Bogota, Buenos Aires, Cape Town, Chennai, Dar es Salam, Delhi, Florence, Hong Kong, Istanbul, Karachi, Kolkata, Kuala Lumpur, Madrid, Mexico City, Mumbai, Nairobi, Paris, Sao Paolo, Shanghai, Singapore, Tai Pei, Tokyo, Toronto, Warsaw 2002.

[12] K. Żukrowska, Institutionalization and sequencing—instruments building confidence as precondition to universal development, Bonn 2005 (conference paper available on line at EADI web page).

VALTTERI KAARTEMO

OUTWARD FDI FROM CHINA AND ITS CHALLENGES AND OPPORTUNITIES FOR EUROPE

Globalisation of markets has raised threats also in the European Union, and its been considered that MNCs, mostly independent from EU and national state decision-making, should act in harmony with the Union's objectives to ensure EU's survival and development (Lukaszewicz 2003, 74).

> *One of the driving forces behind globalization is the idea of moving all production beyond the borders of countries (that are generally leaders in such production) and living off royalties from intellectual property and fees for financial services. Such an idea may appear attractive, but only if a practical monopoly for innovation is retained and the demand on the solvent outside markets will not dry out. Such assumptions have recently begun causing increased doubts. (Galar—Pawlowski 2003, 90.)*

Globalisation is considered to be the main process which has transformed the universal scene at the turn of the XX and XXI century, and thus it is considered that Europe should not see its challenges and opportunities only in the framework of its own regions but in the perspective of 250 regions of the USA, China and India. (Kuklinski 2006, 262)

Similarly, it has been noted that economic growth in Asia will diminish the role of Europe in the global economy. However, it is considered that Europe's intellectual potential makes it well prepared to play an important role in the knowledge-based economy. (Sadowski 2003, 70.)

Is this intellectual potential enough? This can be questioned; particularly when many researchers have acknowledged that most innovation potential does not lie in Europe but in China and India instead. For instance, in China alone hundreds of thousands of engineers graduate annually. It is considered that China is to become a true competitor in the global marketplace when it is able to build a better knowledge base (Rousseau & Wang 2006, 286). In addition, the economic growth in China leads to an inevitable situation where, by definition, any truly global company must be a major player in China, and then by 2050, at the latest, many global companies will be based in China (Lunding 2006, 26). In my opinion, Europe should not afford waiting for this to happen before taking counteracting measures.

An interesting aspect in the rise of emerging economies, and that of China in particular, is that they have already started to invest in foreign assets. There are already thousands of MNCs

who have their origins in emerging economies. Already a part of Chinese companies[1] are already considered to be truly global companies, which challenge Western companies in lucrative markets. According to the Hemerling et al. (2006, 19) "*the transformation of the global economy by a new generation of competitors from rapidly emerging economies... ...is perhaps the most important of the trends that will shape the world economy in the years to come*".

Motives of Chinese foreign investments

The historical development of Chinese foreign investments has been reported especially by Wu and Chen (2001). They have analysed how the changes in the government's approach towards the internationalisation of Chinese companies have affected Chinese FDI outflows. Before China began its process of economic liberalisation in the late 1970s the government had adopted an inward-looking economic policy with emphasis on self-reliance and economic independence. The government was thus strongly against to FDI in any direction. As a result of economic liberalisation, China came to adopt a different attitude towards the importance of FDI. It did not only start welcoming foreign capital, technology and management experience, but it was also encouraging the expansion of overseas investment by Chinese enterprises. As a corollary, outward FDI has become part of the strategy for China's economic development.

Initially, China's foreign investment policy was intended to enhance China's international political and economic influence, rather than to maximise profits. The first investors were basically trade corporations, which tried to enter foreign business arrangements by taking advantage of their existing international business links and their higher autonomy in operation which had been granted by central and local governments. Later on, China began to place more emphasis not only to the political objectives but to the trade-related issues with the desire to develop new markets, increase exports, exploit local conditions and obtain new resources. Since the emergence of Chinese foreign investments the motives have thus consequently experienced slow strategic shifts from the political objective-centred to the commercial interest-oriented. Simultaneously, the motives of Chinese investments have developed from resource-seeking to the combination of resource-, market-, and technology-seeking motives. (Wu & Chen 2001; Hong & Sun 2004.)

Especially, due to background of state ownership in many of China's globalising companies, there has been growing concern of their true intentions[2], and thus the development of rising outward FDI flows from emerging economies has not been solely considered as a positive one. Close relations of globalising companies with political decision-makers has raised many questions on their military links with some speculators even suggesting that Chinese companies could harbour military spies (see e.g. Bacani 2005). Political and financial support for state-owned and state-affiliated companies also often provides them with an advantage over Western companies by reducing their cost of capital, as state-owned banks can provide cheap financing with Chinese foreign reserves close to $US 1 trillion (Lunding 2006, 7). Political interest in China's global champions is considered to reflect China's governments growing influence and interests in global scene as China is integrating itself into the new world order (World Economic Forum 2007).

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[1] IBM Institute for Business Value (2006) estimates that there are currently some 60 companies with global potential in China.

[2] The motives of Chinese investors have been largely remained unknown due to lack of researches on the given topic. The author's initial findings on the motives of Chinese investments in the Baltic Sea Region can be found in the pre-conference book of the Warsaw Conference (Kaartemo 2006)

In line with China's ascent as a major economic power, its companies will accelerate their global activities. For this purpose they need to possess right combination of management capabilities, innovation, and market savvy. (IBM Institute for Business Value 2006, 1.)

Through acquisitions, Chinese companies seek to exploit their competitive advantages and explore new advantages to shore up their weaknesses, particularly in the areas of branding, sales, marketing and technology (De Ramos 2005). In general, the motives of China's foreign direct investments outflows can be categorised into three groups (von Keller & Zhou 2003, 11–13; Lunding 2006, 3–4):

— acquisition of technology and brands
— access to natural resources
— need for new markets

Previously, Chinese M&A activity has been mainly been focused on access to energy and raw materials, but according to the survey by IBM Institute for Business Value (2006) market-seeking motives and willingness to acquire advanced technology and management skills are becoming more important source of motivation for Chinese companies.

Fig. 1 Motives of Chinese companies for outward foreign investments (IBM Institute for Business Value 2006)

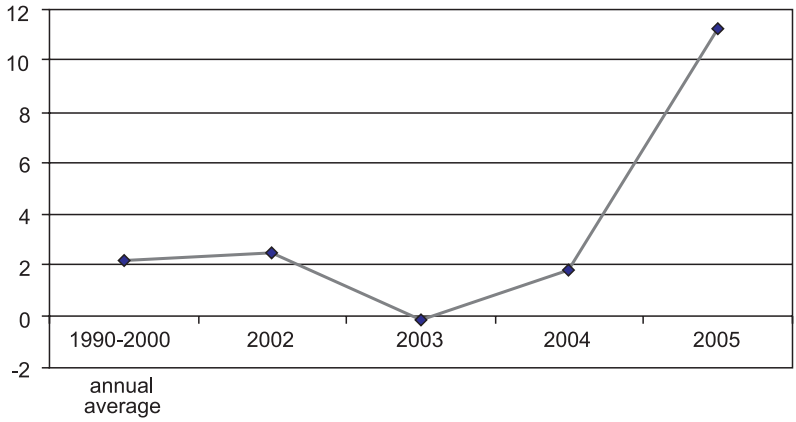
As Chinese companies get more competitive, they start to seek alternative ways of achieving corporate growth. The reasons why Chinese companies expand their business via FDI are basically the same as it is for Western companies. However, some factors play more crucial roles than others. For instance, low production costs and the extension of the life cycle of products are less important in the strategies of Chinese companies willing to invest overseas. In contrast, due to their high dependency on exports, access to foreign markets and market exploration are the key drivers of Chinese outward FDI. Acquisitions of international companies with relevant know-how, brand names and distribution networks are necessary steps for Chinese companies that aim to get a larger market share. With domestic competition increasing further, the expansion of overseas market shares via mergers and acquisitions (M&As) will become even more important for Chinese companies in the future. It is also expected that in the future resource-seeking motives together with access to markets and new technology will remain important drivers for Chinese foreign investments. (Schüller & Turner 2005.)

"Given the fact that foreign companies manage virtually all intellectual property in China and account for 85% of its technology exports, Chinese firms have increasingly realised that they cannot compete on low cost alone, and have targeted overseas acquisitions as a route to building up their R&D and brand value. However, the geographical make-up of Chinese cross-border M&A differs somewhat from the general pattern for Chinese ODI in that targeting of North American assets has been much more dominant." (Lunding 2006, 8–9.)

Development of China's outward FDI activity

In terms of the number and the deal value of M&A deals, Chinese investments in foreign companies grew from 1986 through 2005 at an average annual rate of 11 and 22 percent, respectively (Hemerling et al. 2006, 9). Yang (2005) argues that the recent growth of Chinese outward FDI activity can be related to number of factors. For instance, China's accession to the World Trade Organisation (WTO) in 2001 brought both pressure and impetus for internationalisation of Chinese companies. The companies have also gradually become more competitive in the global economy. It has given them an edge in competition when they invest abroad.

Recently, the development of Chinese foreign investments has witnessed also new features. First, the average investment size has been increasing, which has led, in addition to the more significant role of large companies undertaking foreign investments, to the improvement of the investment ability of Chinese firms. Secondly, mergers and acquisitions, and equity swap have gained popularity as investment modes among Chinese investors. Thirdly, a growing number of foreign investments are undertaken by non-state-owned enterprises. (Yang 2005.)



Source: UNCTAD 2006a

Fig. 2 Development of China's outward FDI flows (US$ billion)

In the global scale the figures on the individual value of Chinese outward FDI projects are still small, and consequently the Chinese FDI outflows (2005: US$ 11 billion) and stock (2005: US$ 46 billion) remain comparatively low. As a result, on the "Outward FDI Performance Index" China is currently ranked 71st out of 141 economies covered in the survey. The Outward FDI Peformance Index measures "*the world share of an economy's outward FDI as a ratio of its share in world GDP*". Thus, China's weak performance in the index suggests substantial potential

for future expansion of Chinese outward FDI. China's outward FDI stock has remained around 2 percent of its GDP, whereas for developing economies it has been around 13 percent and the world average is closer to 25 percent. (UNCTAD 2006a; 2006b.) This could eventually mean expectations for even tenfold outward FDI activity by Chinese companies.

In 2003, the Chinese Government launched "Go Out" ("Zou Chu Qu")—programme to encourage country's companies to invest overseas. In fact, after the launch of the programme, the global economy has witnessed remarkable manoeuvres of Chinese multinational corporations (MNCs) of which the most notorious is Lenovo's US$ 1.8 billion acquisition of IBM's PC hardware division in 2004. It was followed by two high profile, though unsuccessful bids. First, Haier offered US$ 1.3 billion for Maytag and then China National Offshore Oil Corporation (CNOOC), one of China's top oil firms, attempted an acquisition of Unocal, California-based oil company, by US$ 18.5 billion. (von Zedtwitz 2005.) The most well-known Chinese investments reflect the general distribution of Chinese FDI. The outward FDI has been mainly targeted in the areas of information technology, resources and commercial services. (Yang 2005.)

As shown above, the last few years have witnessed a more rapid expansion of FDI outflows from China. For instance, from 1993 to 2005 number of Chinese parent companies overseas surged by massive 805 %; from 2001 to 2004, Chinese firms undertook foreign investments in value of close to US$ 14 billion, which is more than a third of China's accumulated net FDI outflows during the previous two decades; and in 2005, China's FDI outflows reached already US$ 11 billion[3]. The latest increase was driven mainly by some substantial M&A deals in natural resources and manufacturing; such as the acquisition of Canadian-owned PetroKazakhstan Inc by Chinese CNPC International Ltd for US$ 4,100 million, the acquisition of Korean Ssangyong Motor by Shanghai Automotive Industry Corporation Group for US$ 531 million and the acquisition of UK-based MG Rover by Nanjing Automobile Group for US$ 122 million. (UNCTAD 2006a.)

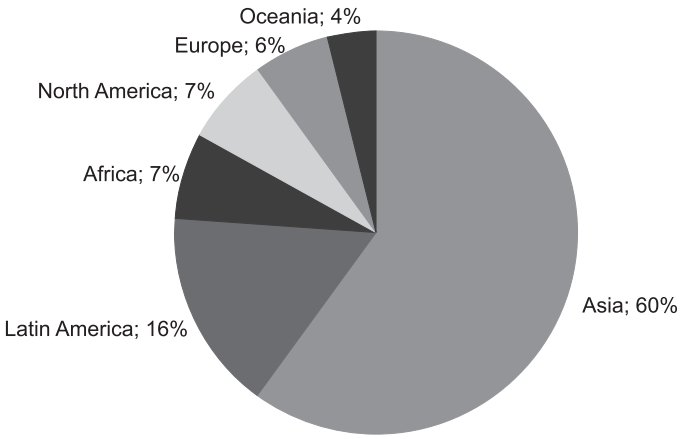


Fig. 3 Chinese outward foreign direct investment flows by destination in 2005 (Lunding 2006 / MOFCOM)

The huge share of Asia as a recipient of Chinese FDI outflows can be partly explained by the return of Hong Kong to China in late 1990s, when mainland companies took control of strategically important assets in Hong Kong. When China joined the WTO in late 2001, broader range of industries and countries were seen as targets for Chinese M&A activity. (Hemerling et

[3] It is also noted in UNCTAD 2006a that as many international M&A deals by Chinese companies are financed outside China, their outward FDI performance may be significantly underestimated.

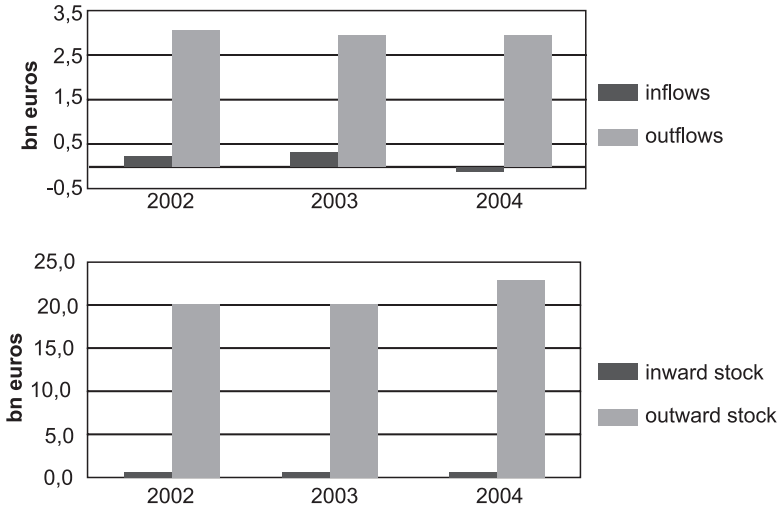


Fig. 4 EU25's FDI flows and stocks with China (Eurostat 2006)

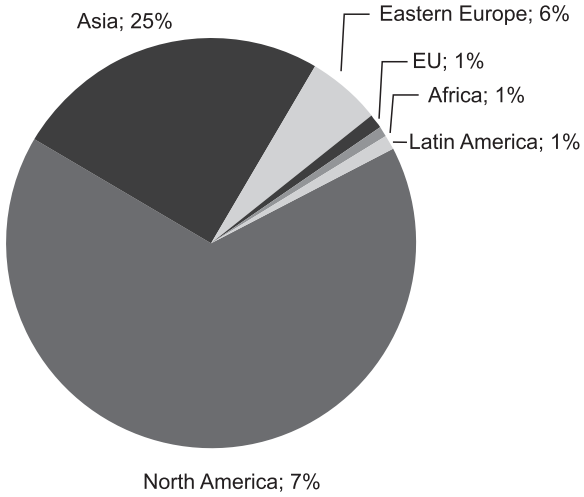


Fig. 5 Chinese outbound M&A investment in bid value, January 1999 to June 2005 (Lunding 2006 / Schüller & Turner 2005)

al. 2006.) As a result, after the return of Hong Kong, most of the outbound M&A transactions by Chinese companies have been targeted in North America.

Although traditionally Chinese investments have been targeted in Asia and North America, Chinese companies have recently become interested in growth and profit potential in Europe, too (von Keller & Zhou 2003, 11). In global markets China possesses already a diverse set of global challengers in industries such as consumer electronics, household appliances, telecommunications and IT equipment, and automotive equipment manufacturing (Aguiar et el. 2006).

As economic growth, inward investments and exports are all booming in China, it is expected that there will be new booms for FDI from China in the near future (Yang 2005). Estimates by Straszheim Global Advisors show that Chinese companies will invest some US$ 80 billion in 2006–2007 (De Ramos 2005) and MOFCOM predicts that outward FDI from China will maintain

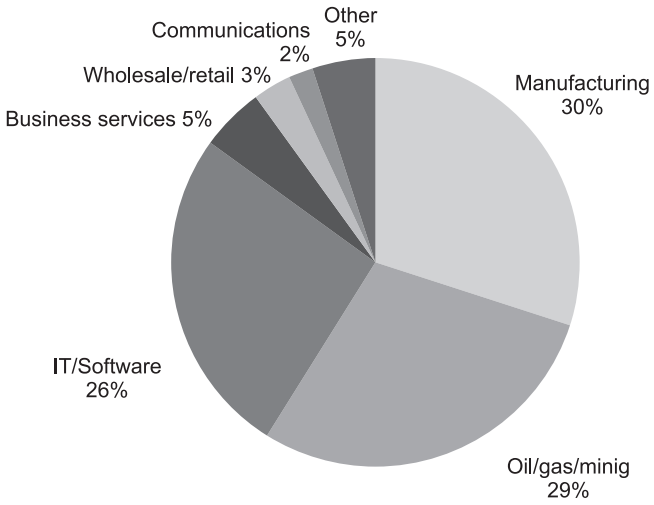
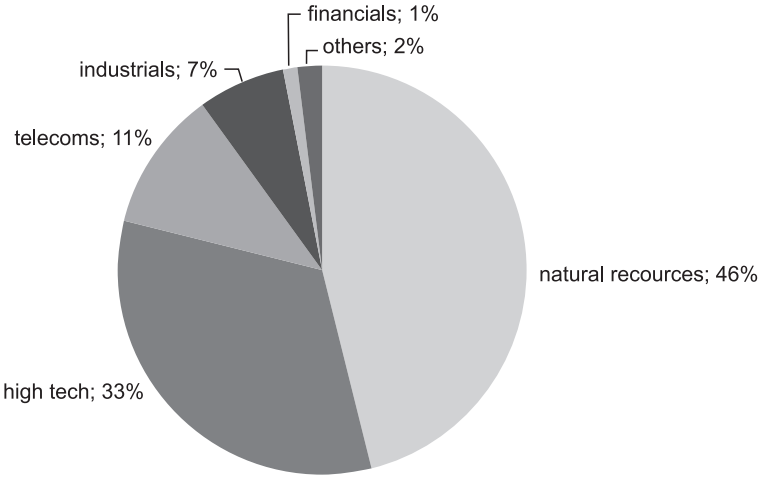


Fig. 6 Chinese outward foreign direct investment flows by sector in 2005 (Lunding 2006 / MOFCOM)



"*The recent flurry of M&A activity by Chinese companies is only the beginning of a powerful long-term trend*" (Hemerling et al. 2006, 6)

Fig. 7 Chinese outward M&A investment by sector of acquirer in 2005 (Lunding 2006 / Economist Intelligence Unit)

an average growth of over 22 percent during the next five years and exceed US$ 60 billion by 2010 (IBM Institute for Business Value 2006). Especially, with strengthened governmental support and expected M&A deals China's outward FDI will keep growing (UNCTAD 2006b) with huge emphasis on consumer-products and technology companies (von Keller & Zhou 2003, 17; De Ramos 2006).

Chinese FDI outflows are expected not only to grow but to become more diverse. Especially, the private enterprises are expected to play more significant role. However, as long as state-owned enterprises act as dominant forces of foreign investment outflows, the international pattern of FDI is more or less politically coloured. (Yang 2005.)

China's FDI is still in the early stages of growth and except for a small number of multinationals the investments are first steps in their expansion to the world market. This causes that they are related to relatively simple and rather specific functions. Therefore, the location choice involves also fewer decision factors. When Chinese companies develop, their foreign investments will cover more locations. Consequently, the integration of geographically scattered affiliates becomes more important and then location choices for investments will involve more factors resulting in changes in the geographical distribution of Chinese FDI. (Yang 2005.)

Thus, it is expected that in the future the FDI outflows from China are expected to be targeted mostly in industrialised countries, as Chinese MNCs are increasingly interested in acquiring strategic assets and knowledge from developed economies (Deng 2004). According to a survey by the Asia Pacific Foundation of Canada (2005) the most likely investment target of Chinese outward FDI is going to be Asia followed by Europe and the United States. In the survey by von Keller & Zhou (2003, 18) it is noted that declining number of Chinese companies (from 19% to 16%) rank Europe as a top priority target market for investment, whereas North America is becoming the priority target market instead of Hong Kong and Macau. They suggest that Europe's diminishing role is two-fold. Firstly, European market is fragmented with widely differing legislation, languages and business customs. Secondly, the USA has more traditional ties with China due to a large Chinese community in the country.

In contrast to von Keller & Zhou's previous findings, Hess (2006) suggests that Hong Kong and the tax havens will continue to absorb a significant proportion of Chinese outward FDI flows. However, also he expects more direct investments into productive enterprises overseas. Rosenbush (2005) suggests that Chinese investments in M&A are likely to grow in the future, especially in the technology sector. Similarly, von Keller and Zhou (2003, 23) expect the number of foreign investments in developed markets projecting R&D capabilities to increase with the growth of China's technology sector and the emergence of cash-abundant, listed technology companies with global ambitions.

China's R&D capacity as a challenge for Europe

It has been noted that only few western executives associate Chinese companies with innovation, and mainly because these companies haven't shown many break-through innovations (Hagel III & Brown 2005). If one thinks that the idea of East Asia taking a lead position in the world trade sounds unrealistic, it must be noted that it is already even in manufacturing output with Europe and North America. Moreover, it was the top region of manufacturing output for ages before 1850s. And it not today's news that China is becoming creative and innovative; it has been like that for centuries. Consider, for instance, China's inventions of gunpowder, compass and papermaking. It is true that China's R&D spending has been traditionally low, but it has already equalled with that of Japan (World Economic Forum 2007).

China represents a scientific and practical challenge to Europe. It has a huge pool of talents and investments in R&D with support of risk-taking and encouragement of long-term strategies, which gives knowledge creators resources and incentives to succeed, and knowledge users the means and ways to access innovations. Moreover, China is at the moment in the midst of economy transformation and is strengthening nation's innovation capabilities. Whereas in 1990, China led the world in the production of only cotton textiles and televisions, by the early 2000s, it has added more high-tech products to the list, such as cameras, desktop PCs and cellular phones. As a result of the development, knowledge based economies are growing within China. (Rousseau & Wang 2006, 284–285.)

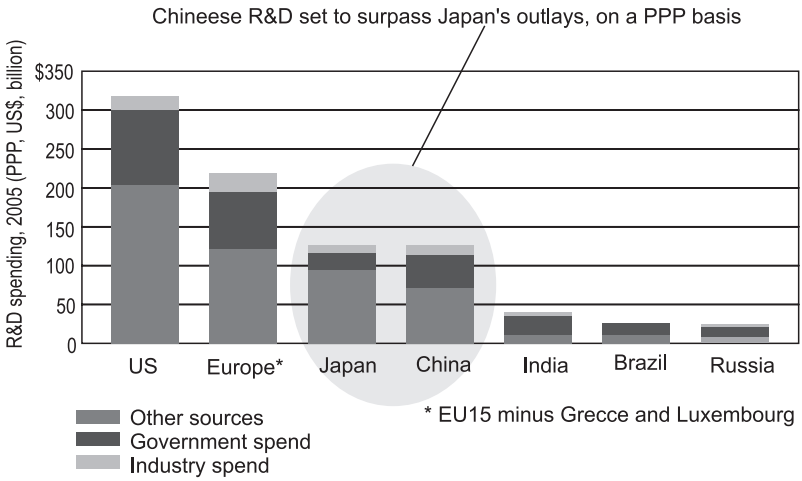


Fig. 8 World R&D spending on a PPP basis (World Economic Forum 2007 / R&D Magazine, Battelle Memorial Institute, OECD, World Bank)

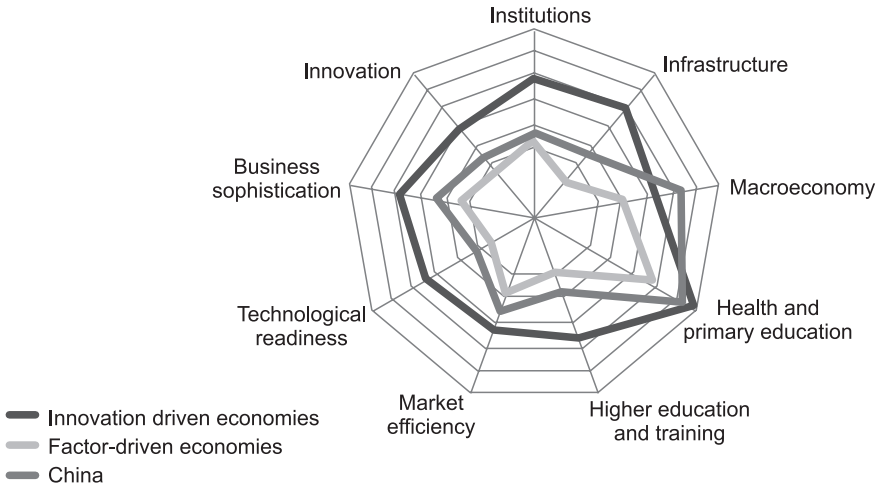


Fig. 9 China becoming more innovation-driven economy (World Economic Forum 2007)

Europe as a target for China's R&D investments

Although European economies rank well in competitiveness surveys, Europe is slowly losing its position to Asian economies. One of the best examples is Finland, who has ranked top-3 in these surveys for several years but still has failed in attracting investments. And these are not only foreign investments but also domestic companies are more willing to invest overseas rather than in Finland. For instance, in technology industry Finnish companies have invested twice more in their foreign locations than what they have invested in Finland during last few years. As an outcome, China and other emerging countries have attracted a lot of investments and jobs in manufacturing. Although it is considered that Finland would survive with high-level of R&D, it is a known fact that today's R&D is more often located close to production sites, and thus it may be risky to solely rely on R&D activities to guarantee jobs. Outflow of R&D investments outside

Europe is a threat which may also make it difficult to meet the Lisbon Strategy target of 2 percent funding target for private sector R&D.

From the perspective of foreign investments, Rousseau (2006, 61) suggests that countries must be both attractive and aggressive in order to compete globally on income and jobs:

> *"While traditionally competitiveness was linked to the international aggressiveness of countries, that is, exports and foreign direct investment (FDI), more recently, some nations manage their competitiveness by being attractive; since aggressiveness generates income in the home country, but not necessarily jobs, by contrast, attractiveness creates jobs in the FDI host countries, but can be short in income because of the incentives; therefore, countries must consider both attractiveness and aggressiveness in order to compete today; the US seems to be the only country that is able to be both attractive and very aggressive."*

Considering, the recent income figures and inflows of FDI, one might suggest that also China is more aggressive and attractive than Europe. Thus, also Rousseau (2006, 62) has suggested that the most serious challenge for Western Europe is coming from Asia. He also adds that in order to remain competitive, Europe needs knowledge-rich regions for its technology companies, which attract ideas, talents and capital which are needed for future innovations. Innovations, in turn, are likely to lead to further innovations, productivity and economic growth, wealth creation, higher paying jobs and rising living standards.

Recent knowledge-related investments by Chinese companies indicate that they are willing to explore new competitive advantages from global R&D base. Further on, Chinese companies, as strategic investors, may provide good news for Europe, as they have been traditionally concentrated on increasing productivity by relying on tangible and intangible assets and by increasing productivity of existing staff, instead of massive lay-offs (De Ramos 2005). This is especially good news for close-to bankrupt European companies which need further financing to guarantee jobs for their employees.

For European companies Chinese outward investments are thus not only a challenge but they may also provide opportunities. Whereas the entry of Chinese company can fundamentally change the competitive dynamics of an industry, they may also provide chance to exit business which is no longer attractive. Hemerling et al. (2006, 19) has provided a list of processes which Western companies should follow in order to counteract Chinese outbound M&A activity:

— understand the impact of Chinese global players
— rethink long-term strategy
— reassess strategic options

These processes include thorough understanding on Chinese globalisers and their impact on industries in their respective industries. As a result, indigenous companies must reassess their strategic options and think how they can improve their competitiveness against new competitors. It also means assessing opportunities to cooperate with Chinese companies in order to achieve one's own goals.

Creativity as Europe's key to challenges and opportunities provided by Chinese outward FDI

Jennifer Risi, executive vice president of Weber Shandwick's Global Strategic Media Group, is suggesting that globalisation and easily accessible information has made knowedge a commodity.

As a result, once-vital sources of competitive advantage such as quality, price and product are now easily duplicated. Since innovations are harder to achieve, leading companies are coming to view creativity and innovation in business processes as paramount to future success. Thus, it is considered that the advent of a "Creativity Economy" leads business to find success through ideas and innovations rather than knowledge and education. (Weber Shandwick 2006.)

When European companies have their knowledge stored in their companies, it is easy for Chinese firms to buy this knowledge, or to get access to it with other arrangements. Therefore, it is suggested that "*creativity is one of the last legal ways to gain unfair advantage over the competition*"[4].

The need for creativity-based economy is focused in this paper from the perspective of the triple-helix model, showing the need for creativity and innovativeness for the industry, university and government. Similar approach has been encouraged also by Rousseau (2006, 65). He states that knowledge partnerships between academia, business and government need to be created in order to bridge the gap between the long-term discovery process and commercialisation, and to capture interests of economic clusters. However, it is not enough for Europe to act on its own in a world of "mutual dependencies", where innovations can not be identified with a single isolated invention (Rousseau 2006, 82). Instead, Europe must be aware of measures of other major economic powers and act accordingly.

To keep the jobs in Europe, it is a necessity to keep companies in Europe. This requires that Europe is seen as an attractive platform for both multinational companies (MNCs), and small- and medium-sized enterprises (SMEs). This is the only feasible way that Europe is able to get the most desired knowledge sources and investments. This is especially valid, when the power has been shifting from nation states to MNCs.

It has been widely approved that a geographically localised industry within a nation increases international competitiveness of industries. These localised industries are also known as clusters. Advantages of clusters are summarised as (Dziemianowicz—Olejniczak 2003, 370–371):

— attraction of various intermediate and subsidy industries
— creation and sustain of the growth pool of skilled and highly specialised labour
— development and deployment of specialised machinery among local companies
— creation of spillovers of knowledge and technology between local companies
— facilitation of the innovation process and development of products

Thus, clusters explain why local industries can effectively face the challenge of global economy in terms of innovation and knowledge production.

In industries where being first in the market with an innovation is critical to success, the ability to join the capabilities of various different operators can result in faster innovations and commercialisation of innovations. This turns the question of the global level of innovation activities. It is not enough for Europe to be innovative, if the same innovations have been commercialised by the Asians 6 months before. Moreover, it is important to note that a cluster does not automatically qualify as an innovative milieu (Drewe 2006, 94).

In order to be creative and remain competitive, companies need more and more collaboration, because in the globalised world it is difficult to survive alone. In the survey by the Economist Intelligence Unit (2006) it was found out that close to half of the UK-based companies gain an important part of their competitive advantage from collaborative relationships. Similarly, 36% of the survey's respondents said that they are collaborating on R&D, and it was added that companies from countries which can combine a high level of expertise with low costs are favourable partners.

[4] Mikel Landabaso (European Commission) in his presentation in the Warsaw Conference "Towards a New Creative and Innovative Europe"

Good news is that it is also the Asian companies that need collaboration. Especially the lack of deep relationships with overseas customers, slow rate of innovation, lack of strong brands and customer franchises, scarcity of in-house intellectual property, lack of access to effective distribution channels, and limited experience managing international business portfolios are constraints on their global success (Aguiar et al. 2006, 20), which encourage them to find partners from Europe.

Today, we are proving the scene where only a few companies from emerging economies have managed to make cutting edge innovationa. However, the low number of patents[5] is likely to change due to extensive resource base of R&D talents and the most successful companies will become true innovators over time. According to Aguiar et al. (2006, 22), in 2010 China is expected to graduate 800,000 engineers, mathematicians, technicians and scientists, while India will graduate 600,000. It is, however, not easy for European companies to recruit these talents, although they would establish an R&D centre in Asia, when local companies have an advantage to leverage local talent effectively, and only a fraction of young professional engineers from China and India are suitable for working for MNCs (McKinsey Global Institute 2005).

It is not only in competition, in acquisitions or in the search for the talent where European companies meet the new challengers from Asia, but also in the quest for innovation, partnering and cooperation. *"So it will be vital for all companies, regardless of their home location, to understand these developments and take action ahead of them, lest their competitive positions deteriorate."* (Aguiar et al. 2006)

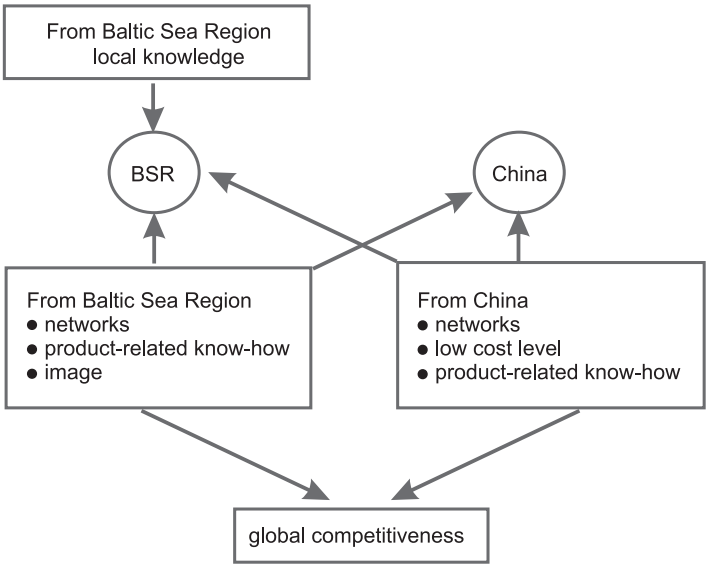


Fig. 10 The impact of Chinese investments in the Baltic Sea Region on the global competitiveness of investing companies (Kaartemo 2006, 5)

Aguiar et al. (2006a, 25) provides following recommendations how Western companies could respond to the challenge raised by multinationals from emerging economies:

— know you challengers
— take a hard look ahead

[5] In 2005, patent applications by Chinese residents in other countries was 6.1 % of all worldwide patent applications. The patent applications have already risen close to 100,000, whereas it remained below 30,000 throughout the 1990s. (World Intellectual Property Organization 2007.)

— design a strategy for the new reality
— hone your operations and reinforce customer ties
— find ways to ride the wave

To summarise, they suggest that companies should analyse the future competitive implications of the emerging economy companies. Companies should act accordingly by taking a visionary look into the future, whether it is wise to leave the market, erect barriers to entry, partner with companies or relocate production, for instance. Most of all, after knowing the challengers it is necessary to be creative in order to stay in business.

In a survey by Weber Shandwick (2006) it is noted that central to company's survival in a creativity economy is customer-driven innovation—incorporating the customer's viewpoint into marketing and R&D processes. More than half of the executives interviewed in the survey mentioned that their company is incorporating the new creativity- and innovation-based economy by:

— putting greater emphasis on understanding and incorporating customer view points (65%)
— providing customers with all the information needed to make informed decisions (63%)
— anticipating actively what customers will want or need before they articulate it (58%)
— shifting to marketing and advertising expenditures that enhance the way you think and talk about the company, not just the products themselves (58%)
— working directly with customers to create products they want or need (58%)

Creativity of decision-makers

Although it is suggested that for creativeness and innovativeness, bottom-up solutions are better, it must be acknowledged that also governments and other policy-makers should show creativity in their decision-making. Societies are not independent of innovation activities, but can stimulate it by providing a well-functioning environment for creativity. However, bottom-up solutions must be encouraged, as it's been noted that what is good for companies, seems to be good for the European Union, too (Drewe 2006, 87).

As Drewe (2006, 88) has stated Europe must boast competitiveness of its regions through cross-border, transnational and interregional cooperation. In his opinion it is better to combine competition with cooperation and thus regions may play larger role than networks within territories. Thus, he supports bottom-up measures, and also expects that individual member states and regions take bigger role with local actions to meet the objectives of the Lisbon Strategy to boost growth and employment in a knowledge-based economy.

According to Rousseau & Wang (2006, 288) it is not only the task of enterprises to attract most talented people but also for policy-makers to provide such factors which enable regions to attract valuable companies and talented workers, which are likely to be sources of innovations. Public policies related to infrastructure, education and training, research funding, fiscal and monetary tools, intellectual property regulations are just a few ways to mention, how societies may offer ability to generate innovation inputs. "*Taken together, the policy and infrastructure environments create a national platform that can accelerate—or impede—the pace and quality of innovation.*" (Rousseau 2006, 63.)

Is it then necessary for policy-makers to avoid flowing out of manufacturing jobs from Europe to Asia? Considering the proposition that this would also lead to flowing out of R&D jobs, these manufacturing jobs should be kept in Europe. However, Rousseau (2006, 70) states that the resources, which are allocated to keeping the uncompetitive firms in business artificially, should be redirected to investments in network of skills, which would create a new collective

pattern of growth. He adds that "*for Europe to remain competitive, policymakers should support regulations that encourage investments that will bring productivity growth and knowledge*". In order to succeed in this, Europe must be able to attract and retain the most talented people. (Rousseau 2006, 82.)

Creativity of universities and research institutions

Thanks to technology transfer and spread of education, manufacturing knowledge is accessible to different regions of the world. The question is therefore not anymore about how to manufacture something but how to manufacture something and add value to it.

Rousseau notes that regions should create local and regional synergies by providing incentives for interaction between business and educational institutions and resources. Resources should be allocated into the processes involved in teaching creativeness, inventiveness and commercialisation. Moreover, universities should promote an innovation-oriented culture and commit to creating of new knowledge. (Rousseau 2006, 65.)

It is not only companies that must be able to attract the most talented people, but also universities and other research institutions must be competing for this scarce resource. Moreover, these resources must be adapted in a way that innovative, talented people produce innovations for the economic prosperity of nations. This concern has been stated by Sir George Cox[6] who thinks that it is a major problem that people in art schools do not understand the language of business, and business people do not understand how to manage innovations. He adds that the threat of China and India can be also seen as a great potential but to take advantage of this potential, when it is needed to have ability to innovate. Although his comments concern the long-term economic success of the United Kingdom, his suggestions can be easily transformed into the European context.

Similarly, it is not only businesses that need cooperation. The mobility of European researchers must be encouraged even further. This is most of all a question of funding, when resources are allocated to projects with cooperation. In European Union's project funding this already occurs, but the mobility could be enhanced by encouraging less formal modes of cooperation. Warsaw Conference was a great example how important it is that researches all over Europe get together sharing a common interest with different backgrounds. I am convinced that this post-conference volume proves how the ideas have been developed from the pre-conference contributions to a higher level, thus showing the importance of such conferences as incubators of new ideas and modes of cooperation.

Concluding remarks

Innovations are key concepts of a creativity economy. To improve innovation capability companies need partners and cooperation. If the innovation potential is in China, the companies are better-off investing there. Together with rapidly growing GDP figures China is also likely to be home countries for some of the world's largest MNCs. The need for collaboration added to the importance of MNCs for innovation processes, it is clear that more collaboration is going to be

[6] Sir George Cox presented his views in the Competitiveness Summit '06 convened by the UK Design Council. Review of the summit can be read in Macdonald (2006).

done with Chinese companies in the future. Is this then done in China or in Europe, is another question.

If all companies are located in emerging economies of Asia, economy suffers severely in Europe. Therefore, more has to be done in order to make Europe more aggressive in the sense of income creation and more attractive as an investment target. And this is not only for European investors but in a global scale.

Investments from emerging economies may improve:

— development of clusters
— provision of financing
— attracting talented labour and intellectual property

Chinese companies have already been able to improve their competitiveness, and they can be regarded to some extent as a threat for indigenous companies in Europe. Especially, when Chinese investments are strategic in nature, they are likely to improve the position of the investing companies. Therefore, local companies should follow the manoeuvres of Chinese internationalisers and adjust their business operations accordingly.

Adjustment of business activities seems likely to lead to new allocation of resources in local companies. This means that the so-called China-phenomenon with the leakage of jobs to China is likely to be continued. In the era of globalisation it is not enough for companies to be the best locally or even regionally but they must reflect themselves in the global scene. Therefore, companies must be able to make use of the most competitive resources available—be it cheap labour, inexpensive capital or innovation networks. As Chinese companies are already able to exploit cheap labour and inexpensive capital, their adjustment to the global innovation network makes them potentially serious competitors even to the advanced economy MNCs.

One should also remember that Chinese companies are not only a threat, but provide also opportunities for cooperation. Many Chinese companies are interested in long-term cooperation agreements with local companies. This can provide not only business opportunities in the local market but an important linkage to the emerging Chinese markets. Cooperation with the Chinese can help European companies to make their own cost structure more competitive. It is also evident that after huge investments in R&D, some Chinese companies have become important information sources, and this knowledge can be exploited by local companies. Thus, through networking and cooperation, it is possible for companies to utilise the same potential advantages which Chinese multinationals are already exploiting.

Although some parties are concerned on the ultimate intentions of Chinese investments, Chinese companies can also be beneficial to their target regions. They can develop the industrial clusters even further, as more dynamic and challenging environment pushes companies to improve their performance and to innovate.

It may seem to be a stupid question, whether it is better to attract the most talented Chinese people and China's R&D spending as resources to Europe, instead of letting China to work on its own or with other partners. Although the answer would be clear, how much of this spirit can be seen in Europe. Has Europe given all it has to outmanoeuvre China?

The comments, how Europe could counteract the emerging economies of the East, suggest that it is not only the knowledge that counts anymore, but creativity of European business, education and policy-makers. I thus agree with Rousseau (2006, 70) who states that "*a key ingredient for success will be the development of collaborative models among industry, customers, suppliers, research institutions, government and investors to share the risk, cost and time to develop new technologies*". However, in my opinion what has to be added here is to make a full use of global resources instead of having Europe-centric perspective.

How then to make Europe more attractive? One solution could be the development of European-level investment promotion agencies (IPAs). Now when all countries have basically their own IPAs dispersed in various locations, the European perspective is easily forgotten. Not stating whether competition between IPAs within Europe would not be a good idea, with common resources the competition could be targeted against other continents rather than neighbouring countries. This is especially the case when the neighbouring country is also likely to benefit from the investment with spillover effects to regional industry.

As Chinese companies can be interpreted to be interested in the local network of companies, investment promotion agencies should be also positioned more as matchmakers. This means that instead of promoting intra-boundary locational advantages, they should find matching solutions for the needs of Chinese firms from the company network. The Polish IPA, PAIiZ, under the tourist organisation is a good example how it is a threat that locational advantages are emphasised rather than the pool of companies within the region. Promotion of clusters has been implemented before, but the investment promotion agencies should be in the future more focused in the regional company networks.

New approach towards investment promotion agencies would include the matchmaking perspective, which would enable Europe's regions to attract the most prominent investors—the investors who would benefit the region's cluster development most. Without matchmaking, investments may be disperse and potential benefits from the investments are lost not only by the investor but by local industry.

In many occasions, regional view on competitiveness may enhance competitiveness of companies in national level as well. However, the European business environment is in constant flux, and more global approach has to be taken in order to maintain competitiveness of the companies within the region. When Chinese companies, together with India's and Russia's national champions are entering the global markets, local companies need better and more flexible possibilities to conduct business in their home markets. This requires measures for counteracting the new China-phenomenon.

There are no references, why counteracting measures should be protective by nature. Instead, it is suggested that local companies should be given better opportunities for cooperation, so that they could have access to the same advanced information and competitive (inexpensive) resources, as their Chinese counterparts have. This is where the final battle for market shares and competitiveness then starts in terms of creativity and innovativeness.

Thus, it can be questioned whether it is already the end of the knowledge-based economy in sight. Is it the knowledge from the past that is solely keeping us up, or do future changes require more future-oriented measures? As stated by Albert Einstein and quoted in Kuklinski (2006, 270) "Imagination is more important than knowledge"

Measures to increase creativity of Europe should not be taken considering today's world order but the focus should be in the future. This is the only way Europe may defeat the challenges and exploit the opportunities raising from the new world order, and from emerging role of China in particular.

Thus, more resources should be allocated to research on how to attract more investments from China, and other emerging economies such as Russia, India and Brazil. Moreover, it is needed to know how Europe can make best use of these investments so that they lead to innovations, productivity and economic growth, wealth creation, higher paying jobs and rising living standards in Europe. There is also need for research how Europe can better engage in innovation co-operation with these emerging economies, and how European companies can improve their own creativity. It has been noted that skills in innovation development is needed especially

in customer-driven process innovations, which are central to company's survival in a "creativity economy".

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JÓZEF NIŻNIK

TOWARDS CREATIVE CONCEPTUALISATION OF EUROPEAN INTEGRATION

In a modern civilization creativity belongs to the obvious, unchallenged values. Who would not want to be creative? It is certainly the most decisive factor in human advancement whether in individual, social or civilizational dimension. Hans Joas maintains that "there is a creative dimension to all human action, a dimension which is only inadequately expressed in the models of rational and normatively oriented action".[1] Therefore, the postulate that "creativity" should be of an utmost care in our actions directed to the future of Europe may at first glance sound trivial. This is not the first case, though, that the postulate looking trivial contains a powerful and a very important message. Why, then, creativity is the concept that should be put forward in our thinking about the future of Europe? Antoni Kukliński in a series of very stimulating essays enumerated a number of areas which demand European creativity in order to secure European competitiveness on the global scene. In his approach creativity appears as an issue vital for the political and economic development of the EU. There is however one more dimension, probably even more essential for the future of European integration, which demands our attention to the concept of creativity. This is creativity in our mental approach to the European project. I have in mind especially conceptualisation of social and political aspects of the European integration. There are many reasons to look at this aspect of creativity. I will point out only one, which is probably most important, and may be expressed by a simple, practical question: how to put the postulate of creativity into practice? What to do to make the people creative? Although there is no simple answer to this question we can at least formulate initial condition for it: creativity must appear among the basic categories of the political discourse, among categories which serve as "organizing concepts" of the discourse. The following three problems , starting with this "initial condition", seem to be of crucial importance. All are closely linked with each other and indicate in a dramatic way "the deficit of visionary thinking in Europe" which Antoni Kukliński points out in his note on the creativity conference programme.

1. The need for creativity in a political discourse

It seems that, in most cases, the paramount position of creativity among top values have been limited to a declaration. In reality there are routine, tradition, stereotypes and practicality that are leading our activities and ideas. In some instances new concepts that supposed to indicate

[1] Hans Joas, The Creativity of Action, University of Chicago Press, Chicago 1996, p.4

innovation in our actions or in our thinking simply conceal their links with the past. In fact, even the concepts which have been purposefully redefined suffer from the "inertia of meaning". Usually, behind new definitions of old terms still remain some elements of their outdated meanings which may influence our actions that suppose to create new reality.[2] European integration is an excellent example of such situation. It is an unprecedented , successful economic, political and social experiment. The problem is, however, that both the language of those who have designed or later carried out the whole project and the language of people affected by it is based on the concepts created in the past with completely different aims in mind. In most cases centuries old terms reflect the development of language and practice of politics which ended with the birth of a Westphalian ideal of sovereignty and later with the concept of a nation state. In effect, in a political discourse European integration has been confronted with misunderstandings and confusions. Also, in some cases Europeans became the victims of brutal conceptual manipulations performed by politicians fighting for power[3].

Conceptual creativity needed in this situation must reflect completely new political environment being created in Europe, which means new conditions for all European nations and for all individuals in Europe. Of course, required creativity must not be limited to concepts since European civilizational, economic, political and social project needs to be accommodated within the global context which is still being defined in a quite traditional language of international relations and economic development. Therefore, Europe certainly needs innovations in science, technology, and governance. Antoni Kukliński's paper "Towards a New Creative Europe. 12 theses for the Warsaw Conference", and, outline of an European research project, "The Creative Europe—The Crucial Challenge of the XXI century" by Antoni Kukliński and Krzysztof Pawłowski open a very good research venue towards an ambitious project. According to those authors such a project would focus on the intellectual space with has been delineated by five concepts: creativity, innovativeness, knowledge, imagination and freedom. It seems that the European Union's elites understand the need for reorientation of the EU politics towards those factors. After all this is exactly what is behind the Lisbon Agenda. We all know, however, that this agenda is in trouble for very trivial reasons: a) particular interests of member states who are unable to see the profits from the deepening of integration, b) inability to reach the public with the Lisbon goals and c) short sighted national politicians who have primarily their personal carriers in mind.

Therefore it is clear, that the main barrier for making those five concepts proposed by Antoni Kukliński the centre of European activities is mentality of people and trivial limitations created by everyday practice of politics. Both —mentality of people and the practice of politics —are not easy to change. And certainly the task to do this cannot be left to the public. It is exactly the case which shows that even in a democracy elites have some initial obligations that have to be realized before democracy can bring its effects. Transformation of the political discourse in the process of European integration must be done by those who understand the problem. How to do this should become one of the goals of the proposed research programme.

2. Liberal vs. "social" Europe: the need for European "third way"

The debate about European Union's competitiveness on the global scene have been put in the deadlock. Although it is more and more obvious that, in the globalized world, maintaining in most of European states ideals of a welfare state would be devastating for European competitiveness

[2] Józef Niżnik, Przedmiot poznania w naukach społecznych, PWN, Warszawa 1979, s. 106

[3] Józef Niżnik, Integracja europejska w dyskursie politycznym, in: Jolanta Polakowska-Kujawa (red.), Współczesna Europa w procesie zmian, Defin, Warszawa 2006, s. 36

there is still strong demand to build "social Europe" which would—more or less—continue social protection even at the costs of economic effectiveness. Without moving beyond the dilemma of liberal—social Europe, European Union will be put into an unsolvable crisis. This is exactly the case calling for creativity and innovation. In fact, the concept of "social quality", very intelligent and appealing, may be perceived as an example of such an attempt although it probably does not eliminate well known expectations demonstrated in the perspective of "social Europe".[4] An effective solution for this dilemma would need to save some values of both liberal and "social" system in a supranational political entity. The past experience is of no use here and what is needed is creativity. The ideas of Anthony Giddens, and Tony Blair placing the "third way" between neoliberalism and socialism, are missing the main point: European dimension[5]. Even when globalization has been pointed out as one of the main factors. Giddens recalls Italian Prime Minister Massimo D'Alema who observed—in Giddens words—that "The European countries have developed strong system of solidarity and protection" but have to abandon existing system of welfare and social protection[6]. British sociologist tries to find a solution to the problem of ineffectiveness of the welfare state model while saving its social ideals. His further discussion shows, that his deliberations are focused on such classical socialist issues as—for example—inequality.

The needed "third way" I have in mind cannot be understood as a new economic format for the national economies. The question is whether united Europe indeed has created a new opportunity in this regard, just by its ideal and process of integration. In fact, the essence of the needed idea cannot be drown from the economic approach to social reality. The third way I have in mind should be build on a new understanding of "the social", on developing new mechanisms of transnational social bonds that would lead towards the new sense of solidarity, and a new sense of community. Solidarity based on socialist redistribution of wealth, with the lip service to the equal opportunities principle, does not reflect the greatest potential brought in with the European project: solidarity that supposed primarily address European diversities with the common European future in mind. The idea which appeared already in Robert Schuman's famous declaration of May 9, 1950, and since then has been misused in a number of ways. In fact "solidarity" understood that way together with "creativity" could become the key concepts aimed at organizing the whole European integration discourse. I will return to this idea in the further parts of this text.

3. The dilemma of federalism vs. intergovernmentalism: the need for a new approach to the EU transnational political system

In the European debates over the nature of the union's political form there is no acceptance of federalism and at the same time it is clear that intergovernmentalism has unacceptable limits. It can neither eliminate democracy deficit nor secure advancement of the new institutional system of the EU. At the same time it is more and more clear that such an advancement is needed in order to pursue the goals of integration and secure the well being of Europeans.

The very much cherished principles of democracy became in the EU a practically unsolvable political problem: European Union can either save democracy by expanding its communal, federal tendencies—an option which does not receive enough public support—or maintain the present

[4] Wolfgan Beck, Laurent J.G. van der Maesen, Fleur Thomése and Alan Walker (eds.), Social Quality:A Vision for Europe, Kluwer Law International, The Hague—London—Boston, 2001

[5] Anthony Giddens, The Third Way and its Critics, Polity Press, Oxford, 2000.

[6] ibidem p. 5–6.

intergovernmental model of governance, which excludes all chances for a radical improvement of its present decision-making system, which does not receive public support exactly because of the democracy deficit. The network of concepts involved, many of which refer rather to the historical experience of different nations than to the newly emerging common, supranational political entity, does not offer any coherent theoretical instruments. The situation became more dramatic than anybody is ready to admit. We need—indeed—very innovative, creative solution that could save the merits of democracy without giving up efficiency of governance, offering completely new institutional setting, even if this would involve going beyond existing, known mechanisms of democracy. It is not so important whether this would require redefinition of democracy or replacing it with completely new word. Such a new institutional setting should be neither federal—in a sense which is at present associated with this term—nor intergovernmental but completely new. In fact the way towards such a new setting might have been started with such concepts as a "multi-level governance"[7] or "open method of coordination".[8] What is still needed, though, is a courage to give up some of the ideas and concepts of the past which function as immortal values and untouchable elements of the political discourse. Without such courage there will be no creativity in political thinking. Among those concepts that need an urgent reformulation or even replacement there are: democracy, sovereignty, nation, citizenship, border, and many others.

Such creative process may begin with an attempt to rebuild the whole European integration discourse. The crucial role belongs to the "organizing concepts" in the discourse. At present the role of such an organizing element has been performed by the concept of democracy which for the reasons explained earlier creates a serious problem for the whole European project. Although no one would recommend abandoning the ideal of democracy, despite its conceptual difficulties, there is no necessity to maintain it as a focal point in the European discourse. In fact, it is possible to say that there is no problem with democracy in the EU. The problems that are identified as a democracy deficit are stemming from the deficiency in the European social communication[9]. Every discourse, however, has to be organized around some specific concepts which determine its communicative and explaining power.

As suggested earlier there are good reasons to propose for such a role the concept of solidarity. Could the concept of creativity be another conceptual instrument in the European integration discourse? The analysis I did so far make it the natural candidate for this role. But, how we are to make the concept of creativity to perform this role? How we are to reach with the idea of creativity the public? And finally, how we are to turn the idea of creativity into creative action? These questions can become the starting point for further research in a number of areas starting from the history of innovations, through psychology of scientific discoveries till systems of education. We know from the very beginning, though, that European diversity can be more than part of a popular slogan because it contains true potential of creativity which must be put to action. Such postulate, clearly announced, can become a sound argument for further, deeper integration.

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[7] Gary Marks, Liesbeth Hooghe and Kermit Blank, European Integration from the 1980s: State-centric vs Multi-level Governance, in: Mette Eilstrup-Sangiovanni (ed.), Debates on European Integration, Palgrave Macmillan, New York 2006, pp. 357–377

[8] Jonathan Zeitlin, Social Europe and Experimentalist Governance: Towards a New Constitutional Compromise?, EuroGov Papers, 2005 http://www.connex-network.org/eurogov/pdf/egp-connex-C-05-04.pdf

[9] Józef Niżnik, Unia Europejska; wyzwania globalne, wybory strategiczne, a komunikacja społeczna, w: Antoni Kukliński, Krzysztof Pawłowski (red.), Przyszłość Europy—Wyzwania globalne—wybory strategiczne, Nowy Sącz 2006, s.188–192

TOMASZ GRZEGORZ GROSSE

CREATIVENESS OF THE EUROPEAN UNION GOVERNANCE

Is technocratic governance a rescue for European integration? The case of European agency systems

Introduction

The three ballot processes which took place in the spring of 2005—the referenda in France and the Netherlands as well as the German elections in Nordrhein-Westfalen—demonstrated the strong opposition of the voters to local political elites. This is mostly connected with the fact that domestic politicians do not know how to, or are unable to, keep the promises they make in election campaigns or solve the painful economic and social problems. This is because the political elites in the European states are increasingly losing control over the economic processes in their countries. This, in turn, is the result of at least two coincidental processes. The first is the influence of economic globalisation, which brings with it the decreasing identification of European businesses with local social problems and the weakening control of the state over economic processes. The second process relates to the results of European integration so far and the transfer of certain national competencies to the EU level. Politicians' freedom to act in order to pursue policies is becoming increasingly limited, especially in the face of economic difficulties. They have transferred the prerogatives of monetary policy to the ECB, and the requirements of the Maastricht Treaty limit the possibilities of fiscal policy instruments[1]. The ineffectiveness of the national political authorities is thus as much or more the result of structural factors beyond their control than their unskilled political leadership.

And the European Union does not bail out national politicians, as it remains as equally ineffective in solving the problems of the EU citizens as the Member States themselves, as best illustrated by the fiasco of the Lisbon strategy and other European programmes stimulating employment and economic growth. Consequently, it is the **inefficiency of the whole European system**[2] that should be discussed, i.e. the ineffectiveness of the interconnected and interdependent system of national and European institutions. Consequently, it is not only imperative that European policies or the separate national policies should be improved, but also that both segments should be analyzed jointly and that the problem of dysfunctionality, manifested in the mutual relations

[1] Cf. F.W. Scharpf (1999): *Governing in Europe: Effective and Democratic?*, Oxford: Oxford University Press.

[2] Cf. T. G. Grosse (2005): *What Future for the European Constitution, What Fate for European Integration*?, The Polish Foreign Affairs Digest, vol. 5, no. 3 (16).

between institutions and economic polices at both the EU and national levels, should also be dealt with.

From this perspective, the fundamental problem of the European Union lies in inefficiency of governance, and basic question is how to improve governability in the European Union. This paper is an attempt to examine emerging European agency systems and proliferation of delegation mode of governance in EU as well as in member countries. This mode of governance would be treated as a creative way to improve management of EU policies and further develop processes of European integration. In addition it is treated as a tool to strengthen Europe as a global player, because strong Europe should be based on effective system of governability. It is also an effort to harmonise administrative systems in Europe and converge member countries administrative practices and cultures. This applies particularly to agencies that function within the European agency system. Even though there are no mechanisms in the European Union that harmonize the activities of administrative structures responsible for policy implementation, such as the *acquis communautaire* that governs the activities of the public administration in member states[3], the European Commission has started in the late 1990s to pay increased attention to securing the potential of administrative institutions called to carry out EU policies, particularly in new member states[4]. So, delegation mode of governance could be viewed as a Europeanization mechanism, which is particularly efficient in new member countries.

Delegation mode of governance could strengthen the **technocratic logic of EU integration**. The basis for its development lies in the independence of European technocratic institutions from an excessive influence by member states and in the supremacy of EU regulations over national laws. Public policies function within the framework of **policy networks**[5] , in which EU technocratic institutions hold a privileged position[6]. In that way European administration take responsibility and control of integration processes, and diminish importance of member states and democratic (*majoritarian*) institutions. It could systematically reduce significance of democracy in European Union and member countries. The democratic deficit in European system of governance could furthermore weaken effectiveness of EU policies.

Weak or Strong Europe

> *"The last decades of the XX century can be seen as the emergence of a dramatic dilemma—Strong versus Weak Europe. Strong Europe—being a grand, active and independent global player and Weak Europe—being a passive and dependent participant of the globalization processes. (...) Weak Europe will be reduced to the shadow of a new global periphery"*[7].

Strong—weak Europe dilemma applies to two fundamental dimensions: capacity of EU institutions to pursue public policies and their ability to function in a changing international and

[3] E. C. Page (2003): *Europeanization and the Persistence of Administrative Systems*, w: J. Hayward, A. Menon (eds.): *Governing Europe*. New York.

[4] Comp. J. P. Olsen (2003): *Towards a European administrative space?* Journal of European Public Policy, vol. 10, nr 4.

[5] R. A. W. Rhodes (1997): *Understanding Governance*, Buckingham: Open University Press, p. 32. J. Peterson (2003): *Policy Networks*, in A. Wiener and T. Diez (ed.), *European Integration Theory*, Oxford—New York: Oxford University Press.

[6] A. Héritier (1999): *Policy-Making and Diversity in Europe: Escape from Deadlock*, Cambridge and New York: Cambridge University Press, 97.

[7] A. Kukliński (2005): *ibid.*

internal environment. That second dimension is particularly significant. It implies the need to co-ordinate member-state activities with EU politics. In other words, creating conditions propitious to the co-ordination of the goals of national and EU policies, and reinforcing the compatibility of their executive instruments—narrowing the gap between both levels of public policy and between activities pursued by individual member-states. Strong Europe needs administrative and political capacity to change domestic institutional framework and develop efficient public policies, which could resolve various European problems and successfully answer to the global challenges.

The current stage of globalization is conducive to the decentralization of power within the frames of a network of national and international institutions.[8] That network is far from being a homogenous structure; rather it constitutes a set of interrelated or mutually pervading elements, a set of variables in time and internal construction of the network. Within the framework of this dynamic structure, there can be observed an increasing role of interrelations between particular states[9]. Similarly, the mutual relations of network public actors at various levels (including the relations between the State institutions and supranational organizations) are strengthened, which is mirrored in increasingly stronger and more popular networks of regional (continental) co-operation[10]. Simultaneously, there can be observed an intensified co-operation, on both the national and international level, between occupational groups, non-governmental and economic circles[11]. All the above processes become particularly visible in the context of the European Union. The way the process of European integration is described above is typical of the school of multi-level governance. According to this trend, in the course of European integration, national states have been gradually losing their sovereign competencies in order to participate in the decision-making process in co-operation with not only other countries, but also various institutions of supranational and self-governmental nature, economic corporations, and other lobby groups. Moreover, the states are losing their capacity to control the decision-making process, they have ceased to play a role of an intermediary between the EU institutions and the self-government authorities or social organizations from a given country. That way, they have also ceased to be the one and only promoter of national interests on a European policy forum.[12]

EU system of governance is developing into system of **network institutions**, i.e. stimulation of the capacity of various administrations and social partners participating in the execution of public policies, and construction of their co-operation mechanisms. The fundamental dilemma from the perspective of management in a network system is the issue of decision making. This includes two basic issues: (1) the establishment of procedures facilitating controllability and decisiveness of the entire system, and (2) determination of the bodies that can serve the cause of solving conflicts of interest. The power to make ultimate decisions as concerns the network model will determine the political system of the European Union. There exist at least three possibilities: (1) to give that decision-making power to the European Commission and technocratic institutions; (2) to strengthen

[8] Cf. Higgot R., Payne A. (2000): *Introduction: Towards a New Political Economy of Globalization* in: Higgot R., Payne A. (ed.), *The New Political Economy of Globalization*, Edward Elgar Publishing, Northampton.

[9] Zorska A. (2000): T*owards globalization? Transformation in transnational corporations and global economy*, Wydawnictwo Naukowe PWN, Warsaw, p. 41.

[10] As an example of such co-operation may serve: NAFTA—North American Free Trade Agreement, European Union, Mercosur—*Mercado Comun del Cono Sur*, ASEAN—The Association of Southeast Asian Nations, SAARC—The South Asian Association for Regional Cooperation, APEC—Asia–Pacific Economic Co-operation, Eurasian Economic Community (established under the auspices of Russia).

[11] Cf. Slaughter A.-M. (2004): *A New World Order*, Princeton University Press, Princeton.

[12] Marks G., Hooghe L., Blank K. (1996): *European Integration from the 1980s: State-Centric v. Multi-level Governance*, Journal of Common Market Studies, Vol. 34, Nr 4; Hooghe L., (ed.) (1996): *Cohesion Policy and European Integration: Building Multi-level Governance*, Oxford University Press, Oxford–New York; Le Gales P. (2003): *The Changing European State: Pressures from Within* w: Hayward J., Menon A. (ed.), *Governing Europe*, Oxford University Press, New York.

the competencies of the European Parliament and developing strong federal institutions in EU; or (3) to leave that power in the hands of the member-states, and intergovernmental modes of governance in EU.

Creativeness of the European Union governance

More and more frequently, public administrations of European countries participate in the process of either delegation or privatisation of their tasks and competencies. This process is of multidimensional nature. First, it pertains to the European level. Over time, EU Member States have commissioned an increasing number of sovereign competencies to various EU institutions. What is more, certain treaty institutions, including the European Commission, delegate part of their competencies to specialized European agencies. These institutions foster and monitor the functioning of the Common Market, frequently disposing of vast regulatory competencies. Other agencies play specific executive functions (e.g. translation and interpretation). There are also agencies which do not dispose of any regulatory competencies but merely gather information or promote social dialogue in Europe[13].

Second, the above process occurs at the national level. Some of the government administration competencies (so far realised at the ministry level) are delegated to the agencies. Other are delegated to the specialized institutions at the territorial level, which is known as de-concentration of administrative tasks. The promotion of delegation of certain administrative tasks to agencies was dictated by the drive to minimize direct political influence on their realisation. According to some specialists, certain public tasks not only require the highly qualified and specialized personnel, but also should not be dependent on the negative impact of the elections cycle. They call for the realisation of long-term policies based on credible commitment[14].

Another direction in the public sector governance is partial privatisation of public tasks, i.e. delegation of the latter from the public to the private sector. A variation in this trend is the marketisation of certain tasks performed by public administration, which can be achieved in several ways. First, it is public administration that performs the tasks, but it takes place on a quasi-free market basis (it refers to payments for provided services and competition with public enterprises offering similar services). Second, performance of a given public task is delegated to the private sector and commissioned—e.g. by way of tender—to a specialized company (i.e. outsourcing). Finally, partial marketisation of public tasks can be attained through the introduction into the administrative practice of the governance modes from the private sector (the so-called good governance). It pertains to the principles of financial management, personnel management, work performance management, etc.

It should be noted that a number of the above mentioned alterations in the functioning of public administration originated in the popularisation in 1980s of a neo-liberal doctrine promulgating the necessity to reduce the influence of public administration on economic processes and the need for marketisation of many public services provided by administration. Moreover, recent immense popularity of a new direction in the public sector governance (New Public Management) has also exerted evident impact on the discussed processes. The main objective of the above alterations was to improve the functioning of the public sector. Frequently, an implicit aim of administrative reforms was to reduce the State budget deficit, shake off the responsibility for social problems

[13] Pollack M. A. (2003): *The Engines of European Integration. Delegation, Agency, and Agenda Setting in the EU*, Oxford University Press, New York, pp. 75–155, 396

[14] Majone G. (2001): *Two Logics of Delegation: Agency and Fiduciary Relations in EU Governance*, European Union Politics no. 2.

solving and lay it on the private sector. That is why, the effects of some administrative reforms are quite dubious. According to Guy Peters[15] , the tendency to ascribe the quality of provided services solely to market effectiveness and budget efficiency has provoked a crisis over the true meaning of public interest and caused that the mission of administration ceased to be regarded as public service.

Another process taking place with reference to public administration governance is the participation of social partners in the administration's decisions and functioning, which responds to the need for the preservation of social legitimation of the functioning of the increasingly specialized and technocratic administration. The tendency to democratise administrative actions is mirrored in 'bringing administrative actions closer to the citizens', i.e. the decentralization of these actions and their delegation to the self-government level. Another example of the above mentioned process is the institutionalisation of social dialogue, also known as the corporate system, which means that there are created appropriate consultation procedures and dialogue institutions, e.g. tri-partite commissions.

What are agencies and the Agency System?

Agencies are specialized administrative institutions that take over specific public tasks to make their execution more effective. Agencies are more or less separate from **majoritarian** (i.e. elected) **institutions**. In the case of national states, this primarily means that they are independent from the government (ministries), hence also from government politicians. In reference to European agencies, one can speak of independence from two categories of entities: (1) national government and national administration, as a method of countering excessive influence of national policy and limiting costs ensuing from disputes between the interests of individual member states, (2) European Commission, treated as the EU equivalent of a government, with respect to which a specialized agency should be autonomous in terms of organization and competencies.

Based on the example of European agencies, experts list four main types of agencies divided along the lines of specificity of the public tasks they perform: (1) **regulatory agencies**, which within the extent of entrusted competencies and legal framework regulate the functioning of a particular sphere of public affairs, (2) **monitoring and informing agencies**, which monitor the correct implementation of EU regulations and disseminate information and best practices of the specific segment of European law, (3) **agencies that promote social dialogue** at the European level, (4) **executive agencies**, responsible for providing specialized public services (e.g. translation) or carrying out a specific public policy.

There are two **agency system** types in Europe. Both are associated with the **Europeanization of national agencies**, i.e. with the transfer of EU public management and policy standards to national agency routine operations.

(1) The first type includes agency networks at various EU administrative levels. Each network is composed of European and national agencies engaged in the same public policy area. This network system resembles a horizontal cooperation system, even though European agencies play the role of the network connector and coordinator[16]. Their tasks most often involve ensuring collaboration between regulatory, monitoring and information agencies. Network agency systems practice "soft" forms of management involving dissemination of information

[15] Peters B. G. (2003): *Dismantling and Rebuilding the Weberian State*, w: J. Hayward, A. Menon (eds.): *Governing Europe*, Oxford University Press, New York.

[16] Comp. G. Majone (2000): *The Credibility Crisis of Community Regulation*, Journal of Common Market Studies, vol. 38, no. 2.

about the application of European laws and monitoring how these laws are applied in national legislation. Agency networks also exemplify the development of the European Union as a **regulatory state**.[17] According to this idea, the European Union pursues its activities primarily by using policies of regulation rather than redistribution. An important element of this system is found in cooperation between European and national institutions on implementing European laws at national levels. Participants in this system include judiciary institutions, but also regulatory agencies and even private individuals and businesses.

(2) The second example of the European agency system is a network of cooperation between relevant European Commission management bodies and national executive agencies. This system deals primarily with EU redistribution policies.

Why public tasks are delegated to agencies?

One of the reasons for delegating power outside *majoritarian institutions* lies in the intention to restrict the influence exerted by political parties and government politicians on the execution of public tasks. It is believed[18] that such approach reduces transaction costs involved in negotiating the shape of policies between political actors. The approach is also based on the conviction that agencies better represent the public interest, i.e. the common good of all citizens, whereas institutions that rely on the outcome of elections represent particular interests of the elected majority[19].

Empirical studies confirm that delegating public tasks to agencies can improve the long-term vitality of public projects[20]. This is associated with the **credibility doctrine**[21] , which states that in order to ensure credibility of public commitments and long-term execution of public policies there is a need to create public institutions separate from an excessive influence by politicians and *majoritarian institutions*. Otherwise public activities will be summary and prone to change under the impact of electoral cycles.

The delegation of tasks to specialized agencies stems out of the complexity of public policy management. For it to be done properly, it must be supported by measures aimed at improving the professional skills of managing civil servants and concentrating the needed skills in separate administrative units. Only that can ensure the high effectiveness of public policy delivery.[22] The reason behind delegating tasks to agencies can also lie in politicians' reluctance to take responsibility for difficult and unpopular social decisions[23]. Another reason can be found in

[17] Comp. G. Majone (1996): *Regulating Europe,* London—New York: Routledge.

[18] D. Epstein, S. O'Halloran (2000): *Delegating Powers: A Transaction Cost Politics Approach to Policy Making under Separate Powers*, Cambridge: Cambridge University Press; A. Héritier (2003): *New Modes of Governance in Europe: Increasing political efficiency and policy effectiveness*, w: T. Börzel, R. A. Cichowski, (eds.), *The State of the European Union, 6—Law, Politics, and Society*, Oxford: Oxford University Press.

[19] Comp. G. Majone, M. Everson (2001): *Institutional reform: independent agencies, oversight, coordination and procedural control*, in: O. De Schutter, N. Lebessis, J. Paterson (ed.): *Governance in the European Union*, Office for Official Publications of the European Communities, Luxembourg; F. W. Scharpf (2003): *Problem-Solving Effectiveness and Democratic Accountability in the EU*, MPIfG Working Paper 03/1.

[20] E.g. F. Gilardi (2002): *Policy credibility and delegation to independent regulatory agencies: a comparative empirical analysis*, Journal of European Public Policy, December.

[21] G. Majone, M. Everson (2001): *ibid*; G. Majone, (2001): *Nonmajoritarian Institutions and the Limits of Democratic Governance: A Political Transaction-Cost Approach*, Journal of Institutional and Theoretical Economics 157; G. Majone (2001): *Two logics of delegation: agency and fiduciary relations in EU governance*, European Union Politics, 2 (1).

[22] A. Héritier (2003): *ibid*, p. 203.

[23] M. Thatcher (2002): *Delegation to Independent Regulatory Agencies: Pressures, Functions and Contextual Mediation*, West European Politics, vol. 25, no. 1, January; R. Elgie (2006): *Why Do Governments Delegate Authority*

politicians' desire to hand over to agencies those technical and routine matters that they find uninteresting.

"Political economy" of an agency

Four theories can be applied to analyze the relationship between agencies and other public institutions:

(1) The predominant one is the **Principal-Agency theory**[24]. The principal specifies the amount of power delegated to the agency and the agency delivers public policies in the principal's name. The principal also establishes mechanisms to oversee the agency's performance. Consequently, this theory assumes the principal's dominance of the agency. That dominance can be expressed by the nature of public tasks handed down to the agency, by controlling the budget set aside for their delivery, by scrutinizing the agency's performance, etc. The principal-agency theory is similar to the **concept of power dependency networks** existing between agencies and majoritarian institutions that oversee agency performance[25]. This idea assumes a less hierarchical relationship between the two sides, a relationship based on functional interdependence and homogenous cultural environment.

(2) The **concept of delegation to non-majoritarian institutions**[26] accentuates the independence of agencies from representative organs. That independence is expressed in the apolitical nature of agencies, for example in the fact that management positions therein must not be occupied by politicians or elected officials. The concept assumes a wider scope of agency independence than the principal-agency model. As a rule, that independence is constitutionally guaranteed, which puts agencies (e.g. central banks) on an equal footing with government institutions and frees them from hierarchical dominance by state administration. The concept reduces the range of control instruments to those ensuring the legality of agency performance or to "soft" means of supervision, such as annual reports addressed to parliament. Consequently, this concept places the primary mechanism of control in the balance of power between constitutional institutions[27] rather than in top-down control as in the principal-agency theory.

(3) The **trustee concept** replaces the agent from the principal-agency theory with a trustee[28]. The position of trustee creates a fiduciary relations between delegating institutions and agencies. They are based on mutual trust, high professionalism of the trustee and his much greater independence than that of the agent in the principal-agency model. The trustee is only accountable for the effect of his actions. How he organizes and conducts his activities is left totally up to him. This idea deals with delegation of powers from national to European institutions. What makes this concept more advanced than those mentioned earlier is that, in addition to handing over public tasks to European institutions, their national counterparts

to Quasi-Autonomous Agencies? The Case of Independent Administrative Authorities in France, Governance, vol. 19, no. 2, April; M. Thatcher, A. Stone Sweet (2002): *Theory and Practice of Delegation to Non-Majoritarian Institutions*, West European Politics, no. 25 (1).

[24] Comp. S. Ross (1973): *The Economic Theory of Agency: The Principal's Problem*, American Economic Review, vol. 63, no. 2; M. Pollack (1997): *Delegation, agency and agenda setting in the European Community*, International Organisation, vol. 51, no. 1; M. A. Pollack (2003): *The Engines of European Integration: Delegation, Agency, and Agenda Setting in the EU*, Oxford: Oxford University Press.

[25] D. Marsh, R. A. W. Rhodes (1992): *Policy Networks in British Government*, Oxford: Clarendon Press, p. 251.

[26] M. Thatcher, A. Stone Sweet (2002): *ibid.*

[27] M. Everson (1995): *Independent Agencies: Hierarchy Beaters?* European Law Journal, vol. 1, no. 2.

[28] G. Majone (2005): *Dilemmas of European integration. The ambiguities and pitfalls of integration by stealth*, Oxford—New York: Oxford University Press, pp. 64–106.

also transfer thereon their **political property rights** to these tasks. The logical consequence of this new approach is that the European Commission and European-level agencies gain a great deal of power over individual member states. In some areas of competency they are free to act as a **quasi-principal** in their relations with national majoritarian institutions. The European Commission acts this way as a supervisor of the performance of state powers in ensuring the assimilation of European legislation at the national level. In fact, it can coerce them into compliance. In addition, it has the power to introduce secondary legislation without consulting member states. It can come forward with European legislative initiatives and then control their implementation in member states.

Political scientists distinguish between three types of rivalry for political influence and power in the European Union, reflected in a competition for the institutional character of European agencies. The first potential area for conflict lies in the rivalry between member states, which act as political controllers (principals) and European technocracy (agents). This happens because the appointment of a new agency is accompanied by new organizational interests represented by agency officials. Consequently, the agency will strive toward maximizing its own bureaucratic interests, which can turn out to be at odds with its political mission or with the interests of particular member states[29]. Thus, delegation of competencies to the agency may lead to unexpected public policy consequences incompatible with the interests of individual countries[30].

Secondly, there is a rivalry between member states for influence in agencies and for the power to shape their nature or adjust their mode of operation. Therefore, European agencies are both an instrument and a field of mutual rivalry between countries. This stems from the conviction that the benefit achieved from an agency's existence may differ from one member state to the next. As a result, some countries will want to alter the way the agency operates and increase their influence over it, whereas others may stand in defence of the agency's autonomy and its current mode of operation, which benefits them more[31]. For example, states that subscribe to the market capitalism (neo-liberal) model will be inclined to support those European agency institutions that promote the liberalization of the common market. States where cooperative capitalism is in place will aim at restricting the autonomy of such agencies and at appointing new ones that will promote social dialogue at the European level[32]. Moreover, the large number of principals—and, particularly, their competing interests—give agencies more room for own decision-making, the so-called ***zone of discretion***[33]. This is in part why the European Commission is able to expand its field of independence—by playing on the differences between member state interests.

In literature[34], the European Commission is treated both as an *agent* appointed by member states to pursue certain public tasks on their behalf and as the *principal* for newly established agencies. This is why the third level where a potential dispute concerning the shape of European agencies can take place is between member states and the European Commission.[35] Member states would like to submit European agencies to a great intergovernmental control within the EU, for example by putting their representatives in agency management boards. At the same

[29] Comp. D. R. Kiewiet, M. D. McCubbins (1991): *The Logic of Delegation; Congressional Parties and the Appropriation Process*, Chicago: University of Chicago Press, s. 5.

[30] A. Menon (2003): *Member States and International Institutions: Institutionalizing Intergovernmentalism in the European Union*, Comparative European Politics, no. 1.

[31] A. Menon (2003): *ibid.*

[32] For a similar approach to the topic, see F. W. Scharpf (1999): *Governing In Europe: Effective and Democratic*? Oxford–New York: Oxford University Press, p. 49.

[33] M. Thatcher, A. Stone Sweet (2002): *ibid.*

[34] Comp. R. Dehousse (2002): *Misfits: EU Law and the Transformation of European Governance*, Jean Monnet Working Paper no. 2/02, New York University School of Law.

[35] R. Dehousse (2002): *ibid.*

time they are reluctant to transfer more powers to control agencies to the European Commission. The Commission, in turn, opposes this trend and objects to the establishment of new European technocratic structures. It would need to compete with them in a situation where it would not have much say about their organization or decision-making powers. The position advanced by member states is supported by the so-called **Meroni doctrine**. According to this legal formula based on the decisions of the European Court of Justice[36], member states can delegate powers only to community institutions specified in the treaties. That creates a problem as there is no clear definition for the time being of the range of competencies and control mechanisms which member states are expect to transfer under the European treaties. Meanwhile, the European Commission's position in the dispute with member states over European agencies is supported by the earlier-mentioned *credibility* doctrine.

The rivalry between member states and the European Commission for power over European agencies is also indicative of a larger dispute over the concept of management in the European Union. Two logical approaches are waging a battle here. One is the **intergovernmental logic**. It underlines the supreme role played by states in the EU power structure and assumes that the decisive impact on EU policy will be left to institutions that group national government representatives or technocratic institutions, but under a strict control by intergovernmental institutions[37]. The other is the **technocratic logic**. The basis for its development lies in the independence of European technocratic institutions from an excessive influence by member states and in the supremacy of EU regulations over national laws. Public policies function within the framework of *policy networks*, in which EU technocratic institutions hold a privileged position[38].

Dilemmas in ensuring agency effectiveness

The main instrument in ensuring effectiveness of agency operations is through their professionalization. This is done by creating separate units dedicated to collecting reference materials and delivering public policy. A part of that specialization is reserved for developing civil service managers—training them and ensuring their stable employment. Agencies have been also introducing cost-management techniques to improve the effectiveness of spending public funds. These are: (1) management methods borrowed from the private sector, (2) partial commercialization of public service management, (3) introduction of self-financing with the freedom to decide how to spend potential financial surplus. In some cases, however, these methods may contribute to reducing the standard of public services (from the perspective of the citizen who uses them). Such situation may happen when there are no standards set for the delivery of services by the given agency or when there is no proper quality control over that delivery. Financial self-management may also lead to the agency squandering public funds[39].

Another method meant to ensure the effectiveness of agency operations is by separating agencies from excessive influence by politicians and election politics. There are opinions[40] that excessive politicization of the European Commission, including the influence on its functioning by politicians who represent the interests of individual member states, as well as excessive

[36] Comp. Case 9/56 Meroni v. High Authority (1957–8), ECR 133.

[37] Comp. A. Moravcsik (1998): *The Choice for Europe. Social Purpose and State Power from Messina to Maastricht,* Ithaca—New York: Cornell University Press.

[38] A. Héritier (1999): *ibid*, 97.

[39] A. M. Bartelli (2006): *Delegating to the Quango: Ex Ante and Ex Post Ministerial Constrains*, Governance, vol. 19, no. 2, April.

[40] Comp. G. Majone (2000): *ibid.*

influence by the European Parliament and member states on European policies, reduces their effectiveness. It also threatens the credibility and long-term vitality of these policies. According to that view, building autonomous European agencies may be the remedy against excessive influence by member states and against politicization of the European Commission. It seems that the issue of separating agencies from political influence concerns mainly regulatory institutions, i.e. those that handle regulatory policies. That view applies not only to designing European institutions, but also relates to the practical functioning of national states.

The issue of the effectiveness of regulatory agencies free of political influence can be looked at from another perspective. *Majoritarian institutions* enjoy a higher level of societal legitimization in terms of public policy delivery. That may have a positive impact on the practical aspect of that function, particularly when it deals with systemic reforms. Social acceptance of such reforms prevents unrest and ensures the country's long-term political stability. That may have a positive effect the efficiency of regulatory policies. This argument speaks in favour of the fact that regulatory agencies cannot be completely independent of *majoritarian institutions*. Democratic institutions must have the power to adjust the functioning of agencies if their long-term efficiency is to be maintained. Consequently, systemic reforms attempted in specific public domains by elected politicians may relate not only to the way of delivering public policies by agencies but also to the very idea of regulatory agency autonomy.

Dilemmas of social participation and agency legitimization

Specialized literature provides the following methods of determining the boundaries of social participation in agency activities[41]:

(1) **Separation of the agency from social influence**. In other words, maintaining the apolitical nature of the agency and its separation from the influence by government politicians and majoritarian institutions. Some authors[42] also point out the possibility of reducing the influence by interest groups on agency activities. For example, in certain situations, majoritarian institutions have limited possibilities of effectively realizing certain public activities because community organizations (*veto players*) may successfully block them. Delegation of tasks to an autonomous agency, which is separated from the influence by such community groups, may render realization of public policies easier.

It should be kept in mind, however, that, in practical terms, agencies are not neutral with respect to social interests. More often than not there are "winners" and "losers" of the process of transferring power to non-majoritarian institutions[43]. For example, delegation of tasks to regulatory agencies dealing with financial markets is associated with a bias toward macro-economic stability and anti-inflationary measures than support economic growth and higher employment[44]. In other words, one should not expect agencies to execute public policies in an unbiased manner, because, in practice, their activities favour certain social interests. Independent central banks, for example, will favour groups connected to the financial sector or financial investors, and also social groups which live off their savings[45].

[41] In the case of executive agencies, we can distinguish between three forms of participation: (1) social consultations on the method of executing public tasks; (2) participation of social partners vs. implementation of public policies; (3) sharing information about agency activities with the public or social partners.

[42] E.g. M. Everson (1995): *ibid.*

[43] M. Thatcher, A. Stone Sweet (2002): *ibid.*

[44] Comp. K. Rogoff (1985): *The Optimal Degree of Commitment to an Intermediate Monetary Target*, Quarterly Journal of Economics, vol. 100, no. 4.

[45] J. B. Goodman (1991): *ibid*, K. R. McNamara (2002): *ibid.*

(2) **Balancing between various social interests.** This model searches for an equilibrium in agency activities to satisfy all benefiting social groups. A particularly good example of this is found in the balancing act performed by agencies that deal with service providers on one hand (for example utility companies) and users of public services on the other[46].

(3) **Steering the selection of social participants**[47]. The model in question assumes a preferential and steered inclusion of specific social groups in the participatory process by the agency management. The objective thereof is to increase social legitimization of agency activities without reducing the effectiveness of the execution of public tasks. Therefore, this selection process aims at attracting social partners who will join in the implementation of public policies and at limiting access to groups which may block or hinder an effective delivery of public tasks.

A steered approach to the selection of social participants in agency activities may, therefore, meet the expectations placed before new modes of governance, hence combine a higher social legitimization of public policies with a higher effectiveness of public activities[48]. However, it may also become a source of administrative pathologies—for example, it may lead to the occurrence of *agency capture*.

The agency's freedom from excessive influence by politicians and election politics does not guarantee that it will not succumb to influence by other interest groups. Experts[49] believe that a reduced control by political institutions increases the agency's *zone of discretion* and promotes access to it by interest groups. This may lead to the capture of control over the agency by particular interests, which I call ***agency capture***. This term refers to the phenomenon of ***state capture***, defined as pressure exerted by individuals or interest groups on the shaping of law or public policies for the purpose of achieving private gains[50]. It usually refers to pressure exerted on public decision-makers by business groups, particularly for the purpose of having them pass legislation favourable to the latter. Such legislation is meant to bring high economic benefits to business elites (also known as oligarchs) but at the same time is harmful to the rest of the economy. It carries high social costs and weakens state capacity and effectiveness of public policies. In the case of countries engaged in systemic transformations, the *state capture* phenomenon is associated with adopting a reform strategy that is expensive socially but beneficial only to a small economic and political elite[51]. The *state capture* definition applies primarily to regulatory agencies but can be expanded to cover executive agencies as well.

Consequently, *agency capture* can be defined as a systematic and dominant influence exerted by a particular interest group on the functioning of an agency. It is meant to take advantage of agency activities for the purpose of maximizing the group's profits at the expense of other social interests or public policies pursued by the agency. Topical literature[52] provides examples of "top-down" agency capture—by interest groups made up of large corporations that use the services of the agency and high-ranking government officials or parliamentary politicians who oversee the agency (the so-called *iron triangle*). An agency can be also captured "from the bottom

[46] M. Everson (1995): *ibid.*

[47] G. Majone, M. Everson (2001): *ibid.*

[48] A. Héritier (2003): *ibid.*

[49] M. Thatcher, A. Stone Sweet (2002): *ibid.*

[50] Comp. J. Hellman, D. Kaufmann (2001): *Confronting the Challenge of State Capture in Transition Economies*, Finance & Development, International Monetary Fund, September, vol. 38, no. 3; J. S. Hellman, G. Jones, D. Kaufmann (2000): *"Seize the State, Seize the Day". State capture, Corruption, and Influence in Transition*, Policy Research Working Paper, 2444 Synthesis, World Bank Institute.

[51] Comp. J. Hellman (1998): *Winners Take All: The Politics of Partial Reforms in Post-Communist Transitions*, World Politics, no. 50, January.

[52] G. McConnell (1967): *Private Power and American Democracy*, New York: Alfred A. Knopf.

up", i.e. by most influential local beneficiaries of its services, who most often create an interest group jointly with the agency management and supervisory board. Such occurrences, although based on examples drawn from the U.S. administration, can also be present on the old continent, where *agency systems* are modelled on American solutions.

It seems that effective *agency capture* countermeasures require an appropriate range of control over non-majoritarian institutions. It is generally accepted[53] that *agency capture* can be effectively combated by joining two control mechanisms: (1) proper supervision by *majoritarian institutions*[54] and (2) supervision of agency activities by a representative group of local recipients of its services. Agency politicization can increase the risk of *agency capture* and, consequently, its use for political-party ends. Particularly detrimental to the execution of public tasks is strong agency politicization combined with slack control by supervisory institutions, hence with a large amount of freedom left to the agency[55]. To sum up, we can distinguish three interest groups standing behind *agency capture:* (1) beneficiaries of assistance programs executed by executive agencies or enterprises dependant on decisions of regulatory agencies; (2) a group made up of agency officials who use the agency to maximize organizational or personal goals at the detriment of a proper delivery of public services; (3) politicians who manage or oversee agency activities and use their position for personal, party or election gains. Very often these interest groups cooperate with one another.

Poorly organized societal participation can be a source of pathologies in the functioning of the agency. For example, a social partnership may be a cover for favouring particular social interests, which in reality serve to reinforce the *agency capture* phenomenon. A steered selection of participants in social consultations may agree with the policy adopted by the agency management in accordance with the favoured organizational interest of the agency, whereas a proper representation of social partners can counteract *agency capture* or other forms of biases in agency activities. Such mechanism of social partnership may also have other functions regulating agency activities. It constitutes a form of social control over the correctness of the fulfilment of the agency's statutory tasks and over the effectiveness and quality of delivering public services. It can also play an important legitimizing role.

The societal participation in agency activities, therefore, could raise the legitimization of public policies pursued by the agency (*public accountability*) and gives opportunity to improve credibility to the functioning of the agency which is otherwise not subjected to democratic processes[56]. It seems that the perception of this issue is different in new EU member states than in West European countries. There are even times when making an agency separate from majoritarian institutions and election politics can win approval of the society. In Poland, for example, that can happen because of the very low level of trust in democratic institutions and politicians. Eurobarometer studies show that as many as 84% of Poles do not trust the government, 88%—the parliament, and 91%—political parties[57]. The same studies clearly indicate that new member states are characterized by a higher level of mistrust of politicians and majoritarian institutions than members of the "old" Union. In addition, new EU member states are decidedly less satisfied

[53] L. Raymond (2002): *Localism in environmental policy: New insights from an old case*, Policy Sciences, no. 35.

[54] In the case of EU it would be a supervision by member countries and intergovernmental institutions.

[55] Comp. A. M. Bartelli (2006): *ibid.*

[56] M. Everson (1995): *ibid.*

[57] Comp. *Eurobarometer 63. Public Opinion in the European Union*, Standard Eurobarometer, European Commission, September 2005, pp. 21, 24, tables: QA7.2, QA7.3, QA7.4. Also compare other relevant international studies: *Zaufanie do rządu, przedsiębiorstw, ONZ i organizacji pozarządowych w 20 krajach świata* (Trust in the Government, Enterprises, UNO and NGOs in 20 countries of the world), Centrum Badania Opinii Społecznej (CBOS), Warsaw, January 2006; *Zaufanie do instytucji publicznych w krajach Europy Środkowej i Wschodniej* (Trust in Public Institutions in Central and East European Countries), CBOS, Warsaw, October 2004.

with the functioning of democracy. No wonder, therefore, that a strong politicization of an agency is viewed in these countries as something negative—a pathology. Consequently, ensuring the autonomy of agencies in relation to unpopular political institutions may contribute to their better acceptance by the society. In new member states, the primary importance in delegating tasks to agencies lies in *external legitimization*, i.e. in legitimizing public policies to supranational institutions (including European) and foreign investors. Whereas *internal legitimization*, i.e. acceptance of public policies by local communities, is not treated by political elites as a serious problem or a political challenge.

Agency system as a way to harmonise administrative institutions in Europe

The successive group of reasons that justify delegating tasks to autonomous agencies is associated with the **concept of isomorphism**[58] —transfer of institutions from one country to another. The shift of regulatory or executive agencies between countries is particularly common at the time of administrative reforms, especially those accompanying systemic transformations in Central and East European countries. When discussing this topic, certain experts[59] bring into relief the significance of intellectual trends that accompany administrative reforms as well as the impact of supranational institutions on the directions of reforms being introduced. For example, the intellectual trend toward delegating public tasks to autonomous agencies has started in the late 1980s. It has its roots in American administration and was first implemented in Great Britain[60]. The trend is associated with the neo-liberal economic doctrine, introduction of private-sector management techniques in public administration and pursuit of ways to raise the effectiveness and frugality of managing public tasks[61]. Central and East European countries engaged in systemic transformations have been particularly vulnerable to western intellectual trends. In the 1990s, their administrative reforms were heavily influenced by advice received from international institutions such as the World Bank, International Monetary Fund, OCDE and later also the European Commission.

Theories about isomorphism[62] distinguish between two primary levels of institutional transfer: voluntary and coercive. For example, the first contains the mechanism of learning from the experience of other countries. Selected foreign practices are applied to operations of the national institutional system. The characteristic feature of that mechanism is that it uses an in-depth analysis of the costs and benefits involved in such application. In addition, only those practices are applied which meet the needs and fit into the administrative circumstances of the target country. A mechanism of blind mimicry also exists. Then foreign solutions are transposed to the target country without any prior analysis of its needs. This process is largely driven by intellectual

[58] Comp. J. Tallberg (2002): *Delegation to Supranational Institutions: Why, How, and with What Consequences?* West European Politics, vol. 25, no. 1, January.

[59] C. Radaelli (2000): *Policy Transfer in the European Union*, Governance, vol. 13, no. 1, January.

[60] M. A. Pollack (2002): *Learning from the Americanists (Again): Theory and Method in the Study of Delegation*, West European Politics, vol. 25, no. 1, January.

[61] Comp. M. Döhler (2002): *Institutional Choice and Bureaucratic Autonomy in Germany*, West European Politics, vol. 25, no. 1, January; K. Nakano (2004): *Cross-National Transfer of Policy Ideas: Agencification in Britain and Japan*, Governance, vol. 17, no. 2, April; M. Thatcher (2002): *ibid*, K. R. McNamara (2002): *Rational Fictions: Central Bank Independence and the Social Logic of Delegation*, West European Politics, vol. 25, no. 1, January.

[62] P. J. DiMaggio, W. W. Powel (2004): *The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields*, in: F. Dobbin (ed.) *The New Economic Sociology. A Reader*, Princeton University Press, Princeton and Oxford; also: M. Thatcher (2002): *ibid*.

trends and the desire of national and foreign elites to minimize the political uncertainty present in the country's situation. Foreign solutions are implemented largely out of the desire to raise the **external legitimization** of the reform process. The primary concern driving such conduct is to secure approval of international institutions, rating agencies, foreign investors, etc. for specific public activities. Another process mentioned in relevant literature[63] is the normative pressure exerted by scholars and specialists of the subject (*epistemic communities*), who come up with proposals of changes in currently performed public tasks based on their international expertise.

A country can be coerced into accepting institutions from abroad as a result of external political pressure or dependence on foreign entities, or because it has made international commitments. European integration is a good opportunity for exercising such coercion, and the European Commission certainly can coerce member states into applying institutional solutions of its choice[64]. Coercion also exists because some countries have enough economic muscle to impose their preferred economic institutions on other countries.

The way by which foreign institutions are implemented in a country is influenced by its internal circumstances[65]. Foreign institution models are "filtered" through the context of national culture: local bureaucratic standards and attitudes, administrative tradition, national administrative system, etc. As a rule, foreign institutions are also adapted to the *state model* operating in the given country[66].

The procedure involved in delegating tasks to an autonomous agency is an example of a diversified transfer of foreign institutional models to a particular country. Models borrowed from American administration, strongly influenced by the neo-liberal view of the role that the state should have in society and economy, were best applied in Great Britain.[67]. In other countries they had to be appropriately modified to fit the local circumstances. For example, the German government is hardly ever willing to outsource its public tasks to agencies. A few exceptions notwithstanding, the role of agencies is secondary and they are strictly supervised by relevant ministries. There are also informal dependencies between ministries and agencies. For example, most agency management personnel come from government institutions. As a consequence, agencies operate in the tradition of hierarchical administration management and there is a clear division of responsibilities between apolitical civil servants and supervising politicians. Also, the German federal system limits the possibility of creating central sectorial agencies (supervised by central ministries). It is interesting to know that one of rare autonomous regulatory agencies operating in Germany (the Federal Cartel Office) was created as a result of intense pressure exerted on the German government by the U.S. Administration[68]. In contrast to the German situation, agencies in France and Italy continue to be rather strongly politicized in the administrative tradition of those countries. Members of their management and supervisory boards are usually political

[63] P. J. DiMaggio, W. W. Powel (2004): *ibid.*

[64] E.g. C. Radaelli (2000): *ibid.*

[65] Comp. K. R. McNamara (2002): *ibid*, J. B. Goodman (1991): *The Politics of Central Bank Independence*, Comparative Politics, vol. 23, no. 3, April; M. Thatcher (2002): *ibid*; K. Nakano (2004): *ibid.*

[66] The definition of state model I have adopted refers to the following list of issues: (1) attitude of state administration toward social partners and the so-called civic society, (2) method of defining state capacity and state tasks in relation to social security and economic development, (3) internal rationality and functionality of the administrative system, e.g. is it based on hierarchical or network methods of operation, (4) administrative culture, mainly in relation to the transparency of administration, readiness to cooperate with social partners and the media, extent of administration politicization, etc. Comp. T. G. Grosse (2006): *New Modes of Governance in New European Union Member States. A report on social dialogue in selected European Union countries*, NewGov, Project no. CIT1-CT-2004-506392, ref. No. 17/D08.

[67] M. Thatcher (2005): *The Third Force? Independent Regulatory Agencies and Elected Politicians in Europe*, Governance, vol. 18, no. 3, July.

[68] M. Döhler (2002): *ibid.*

appointments, who, particularly in Italy, are replaced as soon as a new government coalition comes into power[69].

In closing the discussion of the role played by the national context in agency operations, let us mention the agency that comes closest to the ideal model by virtue of its apolitical nature and autonomy—the European Central Bank. There is nothing incidental in this fact: ECB is reputed to be freer of influence by majoritarian institutions and government economic policies than any other central bank in the world[70]. It may be that such vast autonomy of that institution stems in part from the fact that national context played no part in its establishment. Even though ECB was founded on the German model, it is not dominated by the German cultural or administrative tradition.

Dilemmas associated with the Europeanization of agencies

EU laws and policies affect the *modus operandi* and operational structures of member state administrations. These processes are referred to as Europeanization of member state administrations.[71] Under the influence of European integration, member states change their administrative structures to a larger or smaller degree. This is primarily associated with the need to implement EU policies and laws, and also with the growing interest of national and EU decision-makers in the effectiveness of EU policies and regulations.[72] Administrative changes are inspired by the European Commission and also ensue from a mutual observation of experiences between member states. As a result of these activities and in relation to the administrative reality in the given country, there takes place a process of selective introduction of changes in the administration.[73] However, these changes are most often neither revolutionary nor do they lead toward a unification of solutions applied in individual EU countries.[74] Strong institutional differences continue to persist at the level of national administration. They result mainly from the specificity of the organizational culture and different historical traditions that shape both legal structures and norms, as well as formal and informal conduct of the civil servants.[75]

The manner and extent of Europeanization of member state administrations and national policies depend on two fundamental factors. Firstly, on the pressure exerted by the EU on the given member state. That pressure consists of a few elements, the most important of which seems to be the formula of implementing the European law. Is it to be applied unconditionally and *en masse*, or with a certain interpretative freedom left to member states, or maybe only in the

[69] R. Elgie (2006): *ibid*; M. Thatcher (2005): *ibid*.

[70] Comp. K. R. McNamara (2002): *ibid*.

[71] The term "Europeanization" has at least a few connotations in political sciences. Europeanization of a national administration means adaptation of the administration to the conditions of the EU membership as well as all internal changes associated with the country's functioning inside the EU. Additionally, Europeanization means broadening the geographical borders of the EU (as the EU is successively enlarged), development of community institutions at the EU level, export of institutional solutions functioning within the EU to other countries or international organizations. Moreover, Europeanization also signifies the development of a political program in the EU. It consists in creating an integrated political organism in Europe covering various institutional structures (both EU and national) and a cohesive pan-European political system. See various definitions of Europeanization in Olsen J.P. (2002): *The many faces of Europeanization*, Journal of Common Market Studies, no. 40 (5).

[72] Kadelbach, S. (2002): *European administrative law and the law of a Europeanized administration*, w: Joerges C., Dehousse R. (red), *Good Governance in Europe's Integrated Market*, Oxford: Oxford University Press.

[73] Por. Olsen J.P. (2002): *The many faces of Europeanization*, Journal of Common Market Studies, no 40 (5).

[74] For more on this subject see: Légreid P., Steinthorsson R., S., Thorhallsson B. (2004): *Europeanization of Central Government Administration in the Nordic States*, Journal of Common Market Studies, Vol. 42, Nr 2.

[75] Comp. Olsen J.P. (2003): *Towards a European administrative space?* Journal of European Public Policy, no 10 (4), August.

form of recommended guidelines? Consequently, the extent of Europeanization depends on the specificity of the European policy and on whether it is dominated by "hard" or "soft" European law and governance methods associated therewith.[76]

Secondly, the extent of Europeanization of member state administrations depends on the specific features of the member state in question. An important factor here is the quality of the local administrative system, especially the quality of organizational structures and qualifications of civil servants responsible for European integration. A significant role is played by national long-term policies, the national legal system and the capitalist model functioning in the given country. The extent to which European laws and policies are compatible with national systems and policies will determine the scale of support given to the implementation of specific solutions. An important role is played by the administrative tradition of the given country as well as its administrative and political culture, which will influence the manner of implementing European blueprints. The overall attitude toward European integration is also an important criterion. In those countries where Euro-sceptical movements are strong (within the administration, society or political elites), there will be obstacles and delays in the process of Europeanization of the administration.

The Europeanization of national agencies is a process associated with each country's participation in European integration and with inclusion of national agencies in the *European agency system*. Agency Europeanization in new member states served the cause of an effective implementation of the European law (*acquis communautaire*) in the relevant area of public affairs practiced by the given agency[77]. This referred primarily to regulatory agencies, but also applied to executive agencies, which would often use EU financial resources in ensuring a proper assimilation of European law by individual nations. Also, the Europeanization of executive agencies is associated with a transposition of EU management standards, including a transfer of detailed regulations governing management of EU funds, auditing methods, control systems, etc. Using national agencies to implement EU policies is also associated with bending national public policies to EU policies.

European Commission is an active promoter of transferring various institutions and management modes to member states, including delegating tasks to autonomous agencies[78]. This is partly because the Europeanization of regulatory agencies and their inclusion in the *European agency system* reinforces the power of the European Commission (and European agencies) as concerns coordination of public policies in Europe[79]. The reinforcement of the position of EU technocracy in this area often occurs at the expense of the power of national governments, especially those which supervise the activities of national agencies less strictly. The Europeanization of agencies operating in new member states could reinforce their position in relation to ministries that oversee their activities. Indeed, agencies take advantage of the clout they enjoy by virtue of implementing European policies and having at their disposal EU financial resources. They also take advantage of the attention given by the European Commission to the improvement of their administrative potential and professionalism, and to eliminating operating irregularities that may hinder the delivery of European policy tasks.

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[76] More on "hard" and "soft" methods in European Union policies: D. M. Trubek, P. Cottrell, and M. Nance (2005): *"Soft Law," "Hard Law," and European Integration: Toward a Theory of Hybridity*, Jean Monnet Working Paper 02/05, NYU School of Law, New York.

[77] Comp. Ch. Koutalakis (2004): *"Smoothing" Eastern Enlargement through New Modes of Governance? Conceptualising the Role of Independent Regulatory Agencies and Non-Hierarchical Steering in Pre-accession Negotiations*, Project no. CIT1-CT-2004-506392, ref. No. 14/D01.

[78] Comp. C. Radaelli (2000): *ibid*, M. Thatcher (2002): *ibid*.

[79] E.g. C. Radaelli (2000): *ibid*.

It seems that the impact of the Europeanization of agencies in new member states on the transfer of EU regulations and management modes, and on directions of national public policies, is greater than in West European countries. A few factors cause this situation. Firstly, CEE countries discarded old administrative practices, particularly those of the socialist period, and were searching for new methods of managing public policies. This opened them up for adoption of models arriving from the European Union. Moreover, the implementation of European law and adoption of several organizational solutions in public administration were a pre-accession requirement. The fact that integration with European structures was an absolute priority for political elites in the countries of this region made the transfer of European institutions and management modes that much easier. Secondly, systemic transformations weakened the political leadership of administration and lowered the effectiveness of control mechanisms used by ministries to oversee subordinate executive agencies. This provided an atmosphere where European institutions could increase their influence over agencies. Thirdly, new member states spend less on public policies than the amount set aside for the same policies in the EU budget. This has increased the influence of European policies on the direction of national policies, including those executed by executive agencies.

It seems that the Europeanization of executive agencies in new member states can reinforce the sectoriality of management and deepen problems involved in coordination with other public policies[80]. This is associated with long-standing difficulties in EU policy coordination between particular European Commission Directorates General. This situation is exemplified by separating management and financing of the European rural development policy and the cohesion policy for 2007–2013, despite the fact that both policies deal for the most part with the same regions—those that lag behind in social and economic development[81].

Another consequence of the Europeanization of executive agencies may be found in the centralization of management and imposition of many organizational standards and substantive guidelines directly by the European Commission. This also implies a reduced possibility for a flexible insertion of local developmental needs to public policies and inability to adjust these policies at the local level. This, however, does not mean that agencies implementing European programs will not be vulnerable to the influence of local interest groups that benefit from European funds. In addition, in countries with a strong tradition of politicized administration (like Poland), one can expect a strong politicization of agencies, not necessarily associated with a stricter control by relevant ministries. To the contrary, Polish experience indicates that the level of control exerted over agencies is low[82] , which in combination with strong politicization creates conditions for *agency capture* by political parties.

[80] Management sciences distinguish between two basic models related to the organizational shape of the implementing agency system. The first is *unitary* (U-form model), which organizes the management process functionally, i.e. around main substantive issues. In public administration, this means around individual public policies and sectors (ministries). It is relatively strongly centralized. Whereas the *multidivisional* model (M-form) is organized geographically, around regional branches. This management model is more effective in responding to local conditions and development needs, and is better in coordinating individual public policies, both at the level of strategic planning and implementation. It is more flexible at introducing reforms and, hence, is more innovative and adaptable to changes in external conditions. It seems that the development of the executive agency system in a given country promotes introduction of the unitary management model. On the other hand, the decentralization of executive agency tasks down to local governments will relate to the multidivisional model. Comp. Y. Qian, G. Roland, Ch. Xu (2003): *Coordinating Tasks in M-form and U-form organizations*, Discussion Paper no TE/03/458, London School of Economics and Political Science, London.

[81] T. G. Grosse (2006): *Euro-Commentary: An Evaluation of the Regional Policy System in Poland: Challenges and Threats Emerging from Participation in the EU's Cohesion Policy*, European Urban and Regional Studies, April, vol. 13, no. 2: 151–165.

[82] Comp. *Informacja o wynikach kontroli wykorzystania środków finansowych Państwowego Funduszu Rehabilitacji Osób Niepełnosprawnych na realizację programów dotyczących rehabilitacji zawodowej i społecznej osób niepełnosprawnych ("Report on the inspection of the spending of resources of the State Fund for the Rehabilitation of the Handicapped on programs dealing with occupational and social rehabilitation of the handicapped")*, Najwyższa Izba Kontroli (Supreme Chamber of Control), Warsaw 2005; *Informacja o wynikach kontroli działalności Agencji*

It must be kept in mind that the scope and results of Europeanization of agencies in new member states depend on the specificity of the European policy and law under which the given agency operates. Moreover, they depend on governance methods associated with the given European policy and transferred to the member state, and the pressure exerted by the European Commission to implement these methods into the administrative practice. It can also be assumed that the functioning of regulatory agencies linked to the European agency network will be different than the functioning of agencies responsible for implementing EU redistribution policies. Regulatory agencies will be absorbed by the European agency network to a greater extent and achieve a greater autonomy from national governments and other national institutions. In the case of agencies implementing European redistribution policies, the situation may be different. This is because these agencies remain in a strong hierarchical relationship with respect to national ministries. At the same time, the national government position within the framework of these policies is that of the "gatekeeper".[83] It means that the national government is the centre of management of the given EU policy within the country and acts as an agent between EU institutions and the structures of national administration. In this case, the tendency to centralize and sectorialize the management of EU policies will be reinforcing the hierarchical dependency of executive agencies on ministries to which they are subordinate. In addition, such relations are made stronger by the conditioning of the administrative system in new member states, including the administrative tradition and culture, which originate from the socialist state period.

Concluding remarks

Current development of European integration, best manifested in an increasingly network and multi-level structure of public authorities that implement European policies, has four fundamental consequences. First, it has raised the significance of technocratic institutions, in particular, the European Commission. It plays a predominant role in the preparation of the European policies and legal regulations, it is endowed with most essential competencies as regards the implementation of policies and the monitoring of the Community law observance. Second, the European integration process is based mainly on the unified and arbitrarily imposed laws and formal procedures as well as judicial extortion of the enforcement of the EU law. This type of integration process is known as the *Community method* and is considered to be typical of the *regulatory state*. Third, the multi-level approach points to a significance an informal influence exerted on the decisions of the European institutions has to various interest groups. A particular impact is exerted by people and institutions able to provide exhaustive information invaluable when political decisions are to be made, as well as well-organized and adequately financed lobby groups[84]. However, it gives

Rozwoju Przemysłu SA na rzecz wspierania wybranych podmiotów gospodarczych (*"Report on the performance of the Industrial Development Agency in assisting selected economic entities"*), Najwyższa Izba Kontroli, Warsaw 2005, *Informacja o wynikach kontroli wykonywania zadań ustawowych przez Wojskową Agencję Mieszkaniową w latach 2001–2004 ("Report on the inspection of the performance of statutory tasks by the Military Housing Agency in 2001–2004")*, Najwyższa Izba Kontroli, Warsaw 2005.

[83] Comp. S. Bulmer, Ch. Lequesne (2005): *Introduction, Conclusion*, in: S. Bulmer, Ch. Lequesne (eds.). *The Member States of the European Union*, Oxford University Press; S. Bulmer, Ch. Lequesne (2002): New Perspectives on EU-Member State Relationships, Centre d'etudes et de recherches internationals, Research in Question, no 4, January. An example of the discused role played by member states is provided by the redistribution of EU resources under the cohesion policy: I. Bache (1999): "The extended gatekeeper: central government and the implementation of EC regional policy in the UK." *Journal of European Public Policy* 6, 1.

[84] Stone Sweet A., Sandholtz W. (1997): *European Integration and Supranational Governance*, Journal of European Public Policy, No 4 (3).

excessive preference to certain lobby groups as regards the decision-making process, while they are deprived of appropriate democratic or social mandate that would comply with the height of their influences[85]. Fourth, the technocratisation of the integration process has led to a substantial deficit of democratic legitimation of the functioning of public institutions at the EU level. The process of consultation with various lobby institutions, introduced at this level, as well as the procedures of decision-making in co-operation with the representatives of the national states' administrations (the so-called comitology) is known as a *technocratic legitimation*[86].

Delegation of public tasks to agency institutions, especially to European ones, as well as creation of networks of cooperation between the European technocracy and national agencies aims at increasing the effectiveness of the execution of public tasks. It also may have additional consequences, i.e. it may have an effect on the condition of the democratic system in Europe. Many scholars stress the fact that EU technocratic institutions suffer from a deficit of democratic legitimacy[87]. In spite of that, the European Commission is one of the greatest promoters of the transfer of administrative institutions to member states, and vigorously supports delegation of public tasks to autonomous agencies. The development of EU policies to date has been based not only on the evolution of the *regulatory state*, but also on shaping the *European agency system.* It is noteworthy that the establishment of these networks gradually weakens the national government impact on the execution of public policies and, at the same time, reinforces the position of the European Commission and European agencies in this field. In step with the *trustee concept* and based on the transfer of political property rights to agency institutions, they increasingly become *quasi-principals* in relation to member state *majoritarian institutions.* What is more, member state regulatory agencies that participate in European agency systems also evolve toward their new role of *quasi-principal* in relation to national institutions, including government administration. It seems that the process of steady reinforcement of the autonomy of agencies in relation to national supervisory institutions may involve not only regulatory agencies but also, to a growing extent, agencies that implement EU policies. All these remarks lead to the conclusion that the current state of mutual relations between member states and EU technocratic institutions, and between Europeanized national agencies and overseeing ministries, casts doubt on the assumptions of the current *Principal-Agent theory*. Maybe the time has come to formulate a new theoretical paradigm that will define these relations.

As I have mentioned earlier, the reason for delegating tasks to agencies may lie in politicians' desire to flee responsibility for difficult or unpopular social decisions. It is noteworthy that there is a growing trend in European countries to delegate tasks both to the European level and to autonomous national agencies. This may lead to a situation where politicians will be less and less involved in substantive issues concerning the shape of public policies and concentrate on personal rivalries, meanings of historical symbols and their own image. Will the society not lose interest in politics, which will gradually reduce its involvement in solving real social problems? This may lead to a crisis of confidence in democracy. This tendency is particularly visible in new member states, where the societal confidence in democratic institutions is low and where politics is treated more like a media spectacle than a forum for a public debate of genuine substantive problems.

And so, the popularity of delegating public tasks to autonomous agencies in unified Europe creates a double-track mechanism that is weakening democracy—on one hand, by reducing the

[85] Kohler-Koch B. (1997): *Organized interests in European integration: the evolution of a new type of governance* in: H. Wallace, A. Young (eds): *Participation and Policy-Making in the European Union*, Oxford University Press, Oxford—New York.

[86] Majone G. (1996): *ibid.*

[87] E.g. Ch. Crombez (2003): *The Democratic Deficit in the European Union. Much Ado about Nothing*? European Union Politics, vol. 4, no. 1; J. Weiler (1996): *European Democracy and Its Critique*, West European Politics, vol. 18, no. 1; F. Scharpf (1999): *ibid.*

competencies of national *majoritarian institutions* and undermining their position in the society; and on the other, by standing in the way to solving the democratic legitimacy deficit among Community institutions. The development of these processes would have to be associated with the tendency to depart from the *intergovernmental logic* in the European Union in favour of the *technocratic logic* based on the autonomy of European technocratic institutions and development of functional *policy networks*.

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FUTURE CHALLENGES AND INNOVATION IN EUROPE

A Discussion of the Lisbon Strategy, the Sustainability Strategy and the Commission's Communication on an Innovation Strategy

Introduction: Inherent Necessities and the Ignorance of Limits

More than 30 years after "Limits to Growth" the European Union follows a strategy for growth and jobs and even though ecological innovation has been included in the wording of the revised Lisbon Strategy in 2005 and in the Commission's communication on an innovation strategy, parts of both documents demonstrate very traditional thinking. 30 years is a long time and there must be important reasons why we did not take major steps towards a change of direction. The Update to "Limits to Growth" has clearly demonstrated that we are consuming much more than Earth can re-produce. Ecological footprint accounting[1] shows that, as of October 9th, 2006, humanity had already consumed the total amount of new resources nature produced in 2006. This is based on the world average, some countries have passed that point already in May 2006.

We find ourselves in a trap as a consequence of the design of our civilization. Competition induces a steady increase of efficiency of the economy, mainly an increase of labour efficiency. Demand for workforce decreases continuously. Two persons with two large machines manage to pull down a 6 floor city building within a half a day. Robots manufacture robots today and in the banking sector or in the retail sector we are still rather at the beginning of a phase of revolutionary rationalisation. But what can all the people do, being no longer needed to produce goods and services? If we don't share work and income (that option is not "en vogue"), we have to make the whole economy grow in order to have them re-employed. But our economy can only grow if it is highly competitive and more innovative than the economy of our neighbours. To sum it up: A competition-based economy automatically increases efficiency by innovation in enterprises. In order to maintain overall employment of the population, governments have to make the economy grow—by supporting innovation.

Having internalized the inherent necessities, our administration develops strategies for innovation, and so does the US administration and the Japanese and the Chinese. On the European level, this reads as following[2]: *"The world has become a more intensely competitive environment in a relatively short period of time as more and more countries have entered the global market place. Meeting at Hampton Court last October, Heads of State and Government recognised that to be successful in a global economy and achieve the rates of growth necessary to sustain our living standards, Europe must do more to harness its creative power and ability to convert knowledge into high quality products, services and new business models for which there is strong global demand. Progress on innovation will be central to the success of the renewed Lisbon Strategy for Growth and Jobs."* Growth, jobs and finally well-being of the population. This chain suggests unidirectional causality (of course it cannot be reversed to "well-being causes jobs, jobs cause growth") but isn't it possible that other items than growth can finally lead to well-being? Has not "working less" been the aim of humankind and the motivation for many innovators?

The Lisbon Strategy: Growth and Jobs

The Lisbon Strategy[3] was agreed upon by the Lisbon European Council in March 2000 and was designed as a new political strategy for the European Union *"in order to strengthen employment, economic reform and social cohesion as part of a knowledge-based economy"*. The Council stated that a *"radical transformation of the European economy"* was required as a consequence of globalisation and the challenges of a new knowledge-driven economy and defined as aims: *"preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market; modernising the European social model, investing in people and combating social exclusion; sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix."*

The European Union Strategy for Sustainable Development in 2001

Many of the problems of the European Union had become worse in the late 90s, but the Lisbon Strategy ignored some of the major challenges. Therefore the Stockholm European Council decided that a EU Sustainable Development Strategy[4] should complete the political commitment of the Lisbon Strategy by including an environmental dimension, recognising that in the long term, economic growth, social cohesion and environmental protection go hand in hand. The "European Union Strategy for Sustainable Development" was discussed at the Gothenburg Summit. It identified the main threats to sustainable development. Actually, the analysis by the European Commission was based on a holistic approach, social problems were mentioned as well as environmental ones.

Not Much Growth and Not Much Sustainability

Neither the 2000 Lisbon Strategy nor the 2001 EU Strategy for Sustainable Development were a success story. It became soon obvious that the European Union did not reach the economic growth it aimed at and in the area of sustainable development, negative trends continued. The technology-based optimism of the Lisbon Strategy proved to be inadequate. A better quality of life and a better environment should have been the consequences of the application of the new information technologies. But this did not happen as expected. Some areas in which information technology related environmental problems became visible were energy consumption and electronic waste. There are even more[5]: travel did not decrease, people are today as mobile as they have never been before and our "paperless offices" use surprising amounts of that old fashioned material. It is not an accident that the release of the Lisbon Strategy in March 2000 coincided with the peak of the IT-hype at the stock exchanges. On March 10th, 2000, the NEMAX All Share peaked at 8546 points and then began to follow the trend shown by the NASDAQ which lost 2/3 of value between March 2000 and April 2001. The original Lisbon strategy was clearly a child of the euphoric mood related to information technology which dominated discussions at the turn of the century.

The Revision of the Lisbon Strategy in 2005: Some Steps Towards Sustainability

In March 2005 the European Council met in Brussels[6] and stated that five years after the launch of the Lisbon Strategy, the results were mixed. Alongside undeniable progress, shortcomings and obvious delays were detected. Therefore the Council called for urgent action. To that end, it was regarded to be essential to relaunch the Lisbon Strategy without delay and re-focus priorities on growth and employment. Europe should renew the basis of its competitiveness, increase its growth potential and its productivity and strengthen social cohesion, placing the main emphasis on knowledge, innovation and the optimisation of human capital. The Council also reaffirmed at the occasion of the relaunch of the Lisbon Strategy that it is to be seen in the wider context of the sustainable development requirement that present needs be met without compromising the ability of future generations to meet their own needs. An essential step towards sustainability in the renewed Lisbon Strategy was the inclusion of environmental technology as a potential engine for growth and jobs. This was added to the however still dominating role of information technology: "*The European Council reiterates the important contribution of environment policy to growth and employment, and also to the quality of life, in particular through the development of eco-innovation and eco-technology as well as the sustainable management of natural resources, which lead to the creation of new outlets and new jobs. It emphasises the importance of energy efficiency as a factor in competitiveness and sustainable development ...Eco-innovation and environmental technology should be strongly encouraged, particularly in energy and transport, with particular attention paid to SMEs and to promoting eco-technology in public procurement.*"

The Revision of the EU Strategy for Sustainable Development in 2006

During the review of the Strategy for Sustainable Development[7], there were several stakeholder events with civil society representatives, one of them organized by the European Support Centre and the Brussels-EU Chapter of the Club of Rome. (Civil Society Monitoring the EU Strategy for Sustainable Development: http://esc.clubofrome.org/sharing). Representatives from civil society criticised the dominance of the Lisbon Strategy and the lack of progress towards sustainable development.

Finally, the renewed Strategy for Sustainable Development was decided upon. It has 7 priority areas, some of them being more or less related to the priority areas of the 2001 strategy: climate change and clean energy, sustainable transport, sustainable production and consumption, conservation and management of natural resources, public health, social inclusion, demography and migration, global poverty and sustainable development challenges.

Very important changes compared to the 2001 strategy were the inclusion of both the EU-internal and the global dimension of sustainable development in one document and the inclusion of the priority area on "sustainable production and consumption: "*The main challenge is to gradually change our unsustainable consumption and production patterns...*". Production and consumption are thus not left just to the Lisbon Strategy, the Sustainable Development Strategy tries to direct also the economic sector. A step towards the Lisbon Strategy is also done in a section on "cross cutting Policies Contributing to the Knowledge Society". But like in the economic area, even though taking up some terminology of the Lisbon agenda, there is a special focus and a special interpretation in the EU Strategy for Sustainable Development, for example: *Education is a prerequisite for promoting the behavioural changes and providing all citizens with the key competences needed to achieve sustainable development. Success in reversing unsustainable trends will to a large extent depend on high-quality education for sustainable development at all levels of education including education on issues such as the sustainable use of energies and transport systems, sustainable consumption and production patterns, health, media competence and responsible global citizenship."*

The EU Innovation Strategy Document—Conventional or Innovative?

National governments and institutions on the European level are very concerned about Europe's capacity to innovate. The European Commission has published in September 2006 the Communication on "Putting knowledge into practice: A broad-based innovation strategy for the EU[2].

The document states: *"In a remarkably short period of time, economic globalisation has changed the world economic order, bringing new opportunities and new challenges. In this new economic order, Europe cannot compete unless it becomes more inventive, reacts better to consumer needs and preferences and innovates more" and "Europe has to become a truly knowledge-based and innovation-friendly society where innovation is not feared by the public but welcomed, is not hindered but encouraged...."*

This is not the language of self-conscious winners, it is the language of concerned politicians who find that the population feels comfortable in a situation, about which they (the politicians) know that it won't last long any more. Innovation is proposed as a tool to secure the living

standard of the population. However, a society with an increase of pensioners that is unique in human history and a smaller younger generation which shows less interest in "difficult" items like maths and engineering, is unlikely to create a boom of innovation. The Commission admits in a Communication to the European Council on Oct. 20th, 2006[8]: *Demographic change will have wider implications for Europe. Less than twenty years from now about half of Europe's population will be over 50 years old compared to only one in three today, fewer younger people will inevitably affect society's ability to reform and innovate.*

In spite of the principal need of an in-depth revision of Europe's strategies for innovation as a consequence of the challenge of ageing, the 10 actions of high political priority[2] which are emphasized by the Commission look rather like "innovation business as usual":

— *tackling obstacles in the education system to promoting an innovation friendly society*
— *establishment of a European Institute of Technology*
— *create an open, single and competitive European labour market for researchers*
— *promote knowledge transfer between universities and industry*
— *the EU cohesion policy will be mobilized in support of regional innovation.*
— *A new framework for state aid to research, development and innovation, tax incentives for R&D*
— *preparation of a more comprehensive IPR strategy*
— *ensure that legal framework is conducive to the development of new digital products, services and business models*
— *test a strategy to facilitate the emergence of innovation-friendly lead-markets*
— *handbook on how pre-commercial and commercial procurement can stimulate Member States*

(abbreviated citations)

And whereas eco-innovation is emphasized in the text of the communication on an innovation strategy[2], there is no reference to the EU Strategy for Sustainable Development and reference to the challenge of sustainable development is missing among the 10 high priority actions.

Innovators—And Different Innovators: The Open Source Approach

Europe is a highly diversified and segmented society, the different social groups live rather in parallel spaces. Any approach to the Europeans which does not take their differentiation sufficiently into account will face problems sooner or later. Unfortunately, the Commission's communication on the broad-based innovation strategy does not discuss the heterogeneity among innovators. The Commission states[2]: *"Protection of intellectual property is another sine qua non for innovation. Without adequate protection of inventions and creations, there is no motivation to invest in them."*

Of course, for many people, the commercial exploitation of their innovation is a priority, but there are others, who deliberately provide the results of their work to the society for free. Thousands of programmers contribute to innovation within Open Source projects. They publish their work under the GNU Public License (GPL), which enforces the free availability of their innovation[9]:

"The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. ...When we speak of free software, we are referring to freedom,

not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things."

One of the major features of the GPL license is that if code having been published under GPL is included in other programmes, the GPL has to apply to these, too. This is frequently called the viral property of the license. It avoids that someone uses the work of the earlier programmer for creating exclusive products. The underlying thinking can be compared to someone who makes a donation to a charity organisation. Of course he wishes that the organisation uses all of the money, not only his own donation, in a legitimate way.

But how to explain the motivation for the "donation" of innovation? Research on that topic has revealed some interesting results. There are various components which reward the programmers for their efforts and compensate for the absence of financial benefits which many of them accept. Among them are.

— to get exactly the product which is needed. This is frequently the reason for starting a project,
— fun by programming,
— freedom: the working style in open source project differers from the common IT working place structures,
— positive feedback by the group and by users. Most projects consist of a developing team and related user groups, who communicate on-line via fora,
— learning,
— altruistic attitudes.

The European Parliament adopted a resolution based on an own-initiative report on the Commission Communication entitled "Implementing the Community Lisbon Programme: More Research and Innovation—Investing for growth and employment: A common approach"[10]: *"The Parliament took note of the Commissions' view that the EU must acquire a cost-effective, legally watertight and user-friendly system of intellectual property protection so as to attract technologically advanced companies; considers that the protection of intellectual property must not interfere with open access to public goods and public knowledge; urged the Commission to promote a socially inclusive knowledge-based society by supporting, for example, free and open source software and licensing concepts like the General Public License (GPL) and the Public Documentation Licence (PDL)"*

The Open Source concept is a new form of innovation. The community is highly productive, the products are competitive or even better than their commercial counterparts. The online portal SourceForge includes more than 100.000 projects. Unfortunately, the EU Communication on an innovation strategy emphasizes the role of knowledge society but does not discuss Open Source.

Conclusion

Europe needs more innovative strategies for innovation. Parts of the Communication by the Commission on a broad-based innovation strategy follow conventional thinking within the framework of the "inherent necessities" of a growth oriented economy. Even though referring to ecological innovation, the Commission document does not include the EU Strategy for Sustainable Development: the Commission states that the framework for the implementation of the 10 high priority actions (which themselves lack reference to ecological challenges) is the renewed Lisbon Strategy. A more innovative strategy should also include support for the highly active open source community and their contributions to the knowledge society.

References

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[2] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: Putting knowledge into practice: A broad-based innovation strategy for the EU, COM(2006) 502 final

[3] Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000

[4] The European Union Strategy for Sustainable Development, Office for Official Publications of the European Communities, Luxembourg 2002, ISBN 92-894-1676-9

[5] The Sustainable Information Society, Thomas Schauer 2003, ISBN 3-89559-042-8

[6] Presidency Conclusions of the Brussels European Council (22 and 23 march 2005) 7619/1/05

[7] Council of the European Union, Brussels 2006, 10348/06

[8] Communication from the Commission to the European Council: "An innovation-friendly, modern Europe" Com (1006)) 589

[9] http://www.gnu.org/licenses/gpl.html

[10] European Parliament resolution on implementing the Community Lisbon Programme: more research and innovation—investing for growth and employment: A common approach, P6_TA-PROV(2006)0301

The documents related to the Lisbon Strategy and the Sustainable Development Strategy can also be accessed on http://strategies.eu.tf or http://esc.clubofrome.org/sharing/guide.html

KRZYSZTOF PORWIT

PERSONAL WISDOM, GOODWILL AND HONESTY AS BASIC FEATURES FOR A CREATIVE EUROPE*

PART I

(A) It seems obvious that our present concern for finding an adequate route *"Towards a New Innovative and Creative Europe"* is motivated by the will to overcome difficulties encountered in the implementation of Lisbon Strategy and to cope with related challenges. It is assumed that an extent of progress along that route would depend on favorably conducive changes in behavioral patterns of Europeans as well as on growing intensities of such qualitative attributes within European societies as Knowledge, Imagination and Freedom.[1]

(i) [2] I suppose that such a concept would have more chances to become real and fruitful if the following assumptions were accepted and proved to be true in reality:

The issues in question cannot be adequately tackled from the viewpoints of politics and policy-making; which are usually holistic in nature and centralist in preferences. They are often biased in favor of hierarchical chains of dependence, whereas their roles, although important, have the best chances for success if they are subsidiary in their nature. Their natural tasks

* Part I of this text is almost identical to my contribution (pp. 108–115) to a volume prepared before the **Warsaw Conference "Towards a New Creative and Innovative Europe"**, as a "pre-conference publication, edited by Antoni Kuklinski, Cezary Lusinski, Krzysztof Pawlowski, Wyzsza Szkola Biznesu—National-Louis University. Nowy Sącz–Warszawa, November 2006. Part II offers several supplementary arguments and comments concerned, mainly, with the chances to overcome visible obstacles on the road to desirable development of European economic and social systems. I am referring in that context to some issues discussed by other participants of the Conference. I am drawing attention (in part II) to some issues seemingly relevant for essays to overcome barriers because they seem particularly worth to be considered within an European Research Program (if the latter is started as a follow up to this conference (see A.Kuklinski's contribution in the above-mentioned volume, pp. 139–148)

[1] A. Kukliński 's contribution to the same volume, p.135

[2] The substance of my text in sections **(A)** and **(B)** is based to a large extent on social teaching of Pope John Paul II (in His encyclicals *"Dives in Misericordia"* and *"Centesimus Annus"* as well as presented by other authors in "Jan Paweł II Encyklopedia Nauczania Społecznego" (John Paul II Encyclopedia of Social Teaching) edited by Rev.Andrzej Zwolinski, Polwen Radom 2003). My narrative is, of course, greatly simplified so there are no direct citations. Wider essays to tackle these issues were presented earlier in my contributions to the volume "Przyszłość Europy — Wyzwania Globalne — Wybory Strategiczne" (The Future of Europe—Global Challenges—Strategic Choices) edited by A.Kuklinski, K. Pawlowski, WSB–NLU, Nowy Sacz 2006, pp. 13–48. I was considering there an interdependence between the spirits of liberty and solidarity as well as the crucial role of stronger and steadier conscience of Europeans as conditions for a brighter future.

are primarily to assist and complement with respect to micro "grass-roots" processes which are decisive and of crucial importance. The matters discussed here are primarily involved in the substance of changes in human behavior patterns, in micro-activities and interrelations, in social structures, in institutional aspects of economic and social life; historical experiences show that detrimental results follow the essays to submit all such issues under centralized political orders.

Qualitative features of micro processes are heavily dependent on a moral backbone of foundations and motives, which are leading people to innovate and to be creative (using for such purposes, willingly and efficiently, their personal knowledge, imagination and freedom.)

The substance of morality defends human persons against being ruled only by impulses or by alien orders, usually harmful for their own personal dignity. Trustworthy moral standards should not be changeable at will, according to political criteria determined at a governmental level, nor according to personal preferences of people engaged in micro processes. The difference between right and wrong must be considered by personal minds as objectively true. The practice differs from such postulates, so that there are various cases located along an axis between extremes, expressed either by high moral standards, which would enhance not only egoistic interests but also strong concern for common well-being, or—at the other extreme—a neglect for moral standards—i.e. dependence on impulses and emphasis only at one-sided egoistic success, without concern for heavy external societal costs.

(ii) The people, seen as multiple sets of persons within societies, are certainly diverse in their behavioral features. From the viewpoint of presently discussed matters one meets emphasis on a division between those "pro-" or "anti-" for spontaneous engagement in innovative and creative activities, which leads also to suggestions that those "anti-" should be somehow persuaded and motivated to become "pro-".[3]

However, in my opinion this line of arguments should be closely connected with another border line, that between intentionally right and wrong, morally opposite, types of innovativeness and creativeness (with correspondingly higher or lower moral standards).[4]

I think that this is a crucial condition for a desirable kind of creativeness and innovative activities to emerge, such which will be consistent with voices of strong and responsible personal conscience of human beings wishing to follow unchangeable Commandments of God as transcendental foundations for ethics and moral standards[5].

Practical solutions of these issues are often questioned and considered disputable because above mentioned transcendental foundations are neglected, whereas detailed codifications (in obligatory laws) of respectively "right" and "wrong" intentions and behaviors can not only be accused, as barriers to freedom, but also their correct formulations are often practically not feasible (because many aspects of specific future cases cannot be ex ante identified and assessed). This leads to a an illusion of choosing a seemingly the easiest way—to forget then about moral standards and to assume that every legally acceptable innovation (or creative endeavor) is potentially desirable

[3] This approach was suggested by A.Kuklinski in his notes on innovations being preferable than imitations (typescript known from personal communication)

[4] I remember being told by somebody in England, long ago, just after World War II, that one of the most known and esteemed British field commanders used to say that the worst type of his staff officers, he had met,, were those very active and diligent but unfortunately rather poorly equipped with wisdom. Lack of wisdom was less dangerous if the people in question were lazy and less ambitious. It may be useful to consider in our deliberations whether promoting pro-creative (and pro-innovative) behavioral attitudes would be safe without qualitative qualifications—with warnings against any innovations and creations dangerous for common weal (common good), or for "public interest" (although unambiguous definitions of these notions are not easy, especially if they are supposed to be used in formal institutions (as elements of obligatory law)

[5] Most important are the spiritual forces of such moral standards, because for a person believing in God it is evident that human intentions are completely known to God so that it is impossible to be insincere and to try any double-dealing in pretending right intentions for wrong deeds.

for common good. Unfortunately, however, there are—at the same time—numerous cases where experiences indicate that "new" is not necessarily a synonym for "better than in the past" [6]. One wonders even whether our generally conceived sense of desirable innovations and of effects expected from knowledge achievements are really the best for the mankind, for our future, with the chances for success or ...survival.

(B) Wishing to intensify our abilities to enrich our knowledge, and to increase our skills to use knowledge creatively, we should spare enough time to think about the ultimate sense and aim of that intentions, about our hierarchy of values attached to expected effects of our endeavors. Are they supposed to serve primarily our greed for wealth and power, as the instruments to reach satisfaction from catching up and getting ahead of our neighbors, or even from trying to attain authority to use other people, their life, time and labor, for our benefit, according to our will? Is there much sense in human essays to learn everything about material world around us, with illusions that knowledge will make us masters of that world ? while at the same time every human being, as a mortal, must be aware that an inevitable death makes meaningless for a dying person all material elements and mundane features of wealth and power.

Thoughtless hedonistic preferences for short-term satisfaction lead to a nihilistic approach, which leaves no room for spiritual values, for moral standards as foundations of a human conscience, and for the concern about qualitative features in condition of human souls. Considerable numbers of persons in many European societies are decided to defend spiritual health of their conscience and soul. One must take into consideration that In doing so they are certainly motivated primarily by their faith in God and determination to remain in close relationship with God and His Grace. At the same time, however, it is evident to my mind that expansion of such attitudes would become a crucially important factor for improvement in quality of markets and other elements of socio-economic systems, by means of curing the ailments and of renewals in the moral backbones of these mundane systemic arrangements [7].

I think, however, that in these areas we cannot reckon that any version of political programs or technocratic projects and procedures will be able to introduce such desirable changes, but there are important possibilities to support and promote curative processes by means of changing a general cultural atmosphere and an attitude of media in influencing public opinion—from skeptical and hostile into more friendly towards ideas that without engaging in political arguments and quarrels we would gain quite a lot if we encounter large proliferation of personal moral health oriented at spiritual renewals in the consciences and souls of our societies.

If this happens we shall be approaching a new kind of civilization described as **"a civilization of charity and love"** in the sense of mutual love among people being a response to God's love for human beings, of love being—at the same time—a tribute to the essence of goodness, truth and beauty, of love determined to improve predominantly the conditions of life of the people with weakest chances in mundane contests for success.

This vision of a new civilization is meant to open hope for a more people-friendly and personal dignity oriented societal arrangements, which look more promising in comparison with existing mutations of civilizations, which one way or another are accepting inevitable sequence of conflicts among people, with various assumptions for being ready to fight against some aggression or being first to attack potential aggressor or getting less vulnerable to aggression thanks to a reputation of being sufficiently strong and powerful. Various versions of hypocrisy become in present practice

[6] Relevant diagnostic opinions are offered e.g. in Z. Bauman "*Work, Consumerism and the New Poor*" Open University Press, UK 2004.

[7] Some essential conclusions (formed in a similar context) were included in June 2006 by Pope John Paul II into His Apostolic Adhortation "*Ecclesia in Europa*", especially in fragments related to solidarity in international economic relations within Europe

a frequent tool in fighting for success or even for survival. Every potential or real aggressor would certainly proclaim his most noble motives. Democracy seems at present to be the most popular and relatively most desirable form of foundation for social order and a form of government, but a rule by the people for the well being and welfare of the people boils down usually to a habit of politicians to present their ideas and preferences as a true reflection of what happens in minds and consciences of the people (without effective means to check the substance of such pretences).

Many notions concerned with **common goodness**, **solidarity**, **fairness and justice** are certainly of crucial importance if conceived in a grass-root oriented manner, as generalized terms for virtues resulting from correspondingly love and good-will interrelations of personal virtuous feelings and acts, but they are too often misused—serving as artificial constructs—by politicians, who feel entitled to know best what individual persons should feel and do.

In many models for considerations of economic and social matters personal behavioral features are somehow predetermined (as stochastically probable), which may be understandable for some holistic considerations but is certainly questionable if it is leading to opinions which neglect concern for personal conscience, will and behavior in cases dealing with vital micro-issues.

(C)[8] **(i)** According to LISBON strategy it was assumed that the aim of overcoming by Europe main competitors (in global markets) will be approached in an European way, characterized by a following statement: *"The Union must shape these changes in a manner consistent with its own values and concepts of society"*

Innovations and stronger inventiveness, brought by means of permeating knowledge throughout economies and societies, were supposed not only to result in ever increasing competitiveness of Europe in global arena, but also to proceed together with improvements of societal aims of more employment, cohesion, safety etc.

European Commission volume on implementation of Lisbon strategy (Third European Report 2003, pp 9–10) refers in this context to some important lines of thought, which were meant to look for chances of Union countries, to harness such effects of their strife for higher competitiveness and for more market successes which were undesirable for societal aims.

Attention was focused primarily on measures helpful in matching structures of labor markets supply and demand sides. This line of action included endeavors to increase: **(i)** mobility of persons looking for employment and also (**ii**) their ability and flexibility in mastering new professional skills and in adapting to new places of employment. More measures were undertaken in the area of education and of continuous training. Their effectiveness was dependent—in turn—on various surrounding conditions (in terms of enhancing their friendliness to the chances of achieving the basic aims).

The section entitled *"Competitiveness with high social cohesion?"* ends with the following sentences (p.10):

> *"However, thinking that the population, via education and training, can be adapted to new market conditions and that education and training will, thus, resolve the social problem, is a fallacy. Investment in education, training and life-long learning might be inefficient if it is not backed up by social investment: children's ability to learn and success in school depend directly and powerfully on the social situation within their families. Lingering social inequalities unavoidably produce educational and cognitive inequalities. Active social investment is also an answer to new needs created by changes in the family structure: new household forms and*

[8] Some elements of the text in the initial part of this section are taken (together with quotations) from my contribution to the volume "EUROPE—The Strategic Choices". editors Antoni Kuklinski, Krzysztof Pawlowski, WSB=NLU, Nowy Sacz 2003, pp.433–435

life style patterns... Therefore, it appears to be important to redefine social policy in order to nurture strong and viable families adapted to the new and rapidly changing working conditions"

(ii) Complementary measures were expected for improvements to be coming from somewhere else. As the problems to be solved one can envisage: **(a)** essays to protect the effects of social investments, as well as of enhancing effectiveness of disseminating new knowledge, from being spoiled by tendencies in market processes to exclude previously employed, whose knowledge and qualifications were becoming obsolete or simply not needed (in view of radical changes in global trade), **(b)** ways to find some additional potentially feasible resources (and funds) so that the amounts needed respectively for social investment and for social assistance and—on the other hand—for knowledge intensive market investment and for basic research & development outlays were jointly available (not excluding each other, being in fact too scarce in relation to wishes). The chances may hopefully occur alongside with strengthening of moral backbones for the participants of market processes, of public sector activities and of politics.

(D) The heritage from non-democratic and non-market social systems forms in some European countries unfavorable environment for creative and innovative endeavors. That heritage includes a wide spread feeling (or even conviction) that achievements of personal success and welfare are depending considerably on political connections with and adequate support from the politicians of a ruling party and/or from appropriate officials in governmental structures. That experience was particularly strong in respect to all kinds of social organizations, i.e. networks of persons willing to be active for a specific purpose; who were either under strict political control of the state or were treated as illegal and vulnerable to persecution.

One could hope for spontaneous changes of such attitudes, towards similar to those known in old democracies alongside with transition towards democracy and market-friendly social order.. But in practice that proved to be hardly feasible, not only due to institutional weaknesses (in law and justice arrangements), but also because of lacking experience in many kinds of "free world", socially desirable, networks of interpersonal connections (formal and informal alike, but particularly the latter), as well as—because of very scarce endogenous capital in private hands (particularly essential for privatization of formerly state owned property).

The first mentioned of these gaps was of crucial importance (in a negative sense) because spontaneous networks for a common purpose would be very important for successful democracy and for market order. They are wide spread In societies with long tradition of democracy and well developed economies. In the absence of them in earlier transition periods in post-socialist countries, one noticed not only endeavors to build them from scratch, but also various pathological mutations of networks, which were arising instead (They were partly oriented towards coalitions of morally suspect business and politics, or—towards crime and clandestine vice business).

Unfortunately—these pathological versions were—of course—very distant in their nature from socially positive civic society arrangements. They were far away from societal self-organizations with aims to contribute to common well being. They did not resemble various social capital clusters, known in ethically stronger societies, which arise among people using their team spirit of trustful cooperation in business, in local matters, in civil service, etc.

It seems likely, that such unfortunate circumstances were partly caused by generally low income and difficult conditions of living, characteristic for a major part of population. Most people were probably too heavily concerned with their personal fight for providing means to meet their families basic needs, so that they could not afford to devote time to social work for common well being. On the other hand, those who could afford, being affluent enough, showed quite often other preferences i.e. going on to multiply their personal wealth. The former part of population was stepwise falling into relatively distinct two categories, i.e. of poverty and of slightly above

acceptable standards—respectively, but the distance towards the sphere of high affluence was increasing. Too feeble were the voices of conscience which could persuade more fortunate people to feel morally obliged to share with less fortunate some parts of wealth obtained thanks to relatively more successful use of unevenly distributed personal talents, virtues and professional skills. Similarly rarely some parts of their time and abilities were offered for putting in motion and for operating socially desirable arrangements.

(E) Centrally devised remedies for social ailments, through progressive taxation and income transfers within public budgets, have well known drawbacks, because they are provoking negative, anti-productive and tax-avoiding, motivations among richer tax-payers and also—because most extensive transfer schemes prove in practice less effective (like a "leaking bucket").

Consequently—one should not forget a potentially feasible alternative (although evidently more difficult and demanding), which is based on four assumptions: **(a)** that anti-poverty measures can concentrate predominantly on promoting earning capacities (so that eventually relief allowances may decrease), **(b)** that entrepreneurial and personal (civic) strategies of more affluent people (combined with incentives from potentially flattened income-tax rates) would increasingly include non-profit, public-welfare aimed, investments, at least instead of never-ending drive to multiply their own personal wealth, **(c)** that a tendency to devolution of government and of a growing part of public financing responsibility will be prevailing, **(d)** that the trends, which are generally prevailing in public opinion, can become less hedonistic and less cynically short-term in their nature, can start to deliberate the future of mankind issues with such questions as possible perspective of replacing the spirit of fighting for leadership (by means of eliminating opponents) through the spirit of charitable love and compassion (by means of considering own personal talents, wisdom and skills—with ensuing remuneration of their effects, as well as inherited wealth—as obligations to offer assistance to people in less favorable positions). Similarly—the knowledge, as the basis for economies and societies, should not be valued for offering more effective instruments for gaining power and destroying. all obstacles, human lives included, but rather for more abilities to protect humanity together with its biological and spiritual environment.

In that context I am inclined to argue for addressing an International Research Program to the issues of selective treatment of innovations (and emphasis in their promotion), depending on the manner of using potential powers of knowledge and human minds with regard to the well being and future prospects of humanity. This approach offers much more promising prospects for Europe in a global context—in comparison with continuing service to a civilization of contests (and wars?) among powerful leaders.

(F) Several decades ago one was able to hope for a desirable order and efficiency brought by various set-ups composed of an "invisible hand" of markets and of duly performed functions of the state and public bodies, with fairly respected "rules of the game" on both sides, i.e.: of a "free" competitive market and of a truly democratic state. That could make the people fairly safe in expecting that the practice may move within a "trade-off" range of changes, between a scheme for higher growth & efficiency but less egalitarian outcomes, lower social benefits and distributional peace and vice versa.

At that time—the systemic structures of markets (with a legal assistance from the state) were not yet suffering organic ailments, but the latter were becoming gradually wider and stronger, which eventually was lowering a feasibility of even approaching ideal states[9]. One is hearing

[9] According to competent diagnostic opinions one can notice a wide-spread falling tendency in socially progressive innovations, which allow to combine adequate business profitability with corresponding qualitative real effects, allowing to increase common welfare (in terms of living conditions for population as well as qualitative features of culture and of public life). Another kind of innovations dominates, that applying new ingenious speculative ways to take away from someone else a part from his potential share in common welfare. There are growingly numerous examples of such

and reading a continuously flowing stream of news about various examples of human weakness, failure, erring and vice. It is possible that impressions of their strength and ubiquity are largely exaggerated, but nevertheless their impacts on societal health are detrimental. One cannot help thinking, how much harm follows from a continuous shrinkage of the belief and conviction, that a person should and is able to keep decency and ethical fairness in a successful practice of taking care for his own and his family welfare. Falling down are also feelings of esteem and trust towards efficacy of such factors of success as knowledge, diligence, personal integrity. More frequent become the attitudes to be clever in cheating and relentless in relations with everyone around.

There are voices about visible symptoms of capitalism being in a stage of "twilight" or even a decline[10], which happens after centuries of successes in the role of a motive power for progress in material civilization, which were considered as sufficiently strong merits in comparison with inherently inseparable defects (in terms of large and growing social costs, in particular—disadvantages of large and growing differentiation in distributional features of income and of living conditions). The latter have been supposed to become less severe thanks to apparent advantages of political systems, ensuring democracy and equalizing endeavors in social matters[11].

It seems increasingly harder to keep assuming long lasting viability of such a set-up. Growth promoting advantages are weakening because the qualitative features of markets are deteriorating. "Invisible hand" hypothesis does not work correctly without its moral backbone (in terms of adequately ethical behavioral features), as well alongside with tremendous diversification of goods and services participating in transactions, which were supposedly able to self-compose into harmonized demand-supply-prices interrelations. There are numerous reasons to question validity of an assumption that equivalent exchanges can be attained nowadays through spontaneous horizontal interactions of sellers and buyers, in particular with a growing role of time-lags in transaction activities.

In essays to handle these matters we are witnessing—on the one hand—a growing emphasis on trust and more widely—on social capital—as a hopeful remedy, together with intensive search for more effective ways to get more knowledge and more management abilities in the field of dealing with uncertainty and risk[12], as well with an ubiquitous speed of proliferating variety[13]. On the other hand—markets are no longer wishing to rely entirely on any "invisible hand" and

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mischievous innovations, not only in so-called market "bubbles" or "creative" bookkeeping malpractice or successful marketing of products which prove to be harmful to consumers or users, but also in certain generally approved and applauded business practices which although profitable are contributing to harmful societal phenomena (growing unemployment, social exclusion, destruction of families, growing juvenile delinquency etc.

[10] e.g. diagnostic opinions expressed by Immanuel Wallerstein in interview given to Jacek Żakowski in a supplement to a weekly POLITYKA nr 12, 25 March 2006

[11] We are also aware how tragic were the consequences of revolutionary schemes to implant ideologically predetermined models of economic and social systems, which wanted to replace existing order by a "new brave world". This gives a lesson to limit our dreams about a better future to grass-roots, remedial, evolutionary concepts.

[12] E.g. there is a widespread tendency to transform various features of enterprises into more flexible systems, which pertains also to employment, to outsourcing of various previously internal services and corresponding organizational structures. This is considered profitable for entrepreneurs, because of cost cutting merits. At the same time—the impacts on societal environment (particularly in terms of employment) are highly destructive. According to recent comments, that one-sided cost cutting approach proves to be questionable also for entrepreneurs if it is assessed in a longer time perspective (It is lowering qualitative standards of products and is harmful for internal industrial labor relations. I am referring to John Gray article on "Global illusions" (in EUROPA weekly, 10.05.2006), with comments to recent research published in USA, in Susan Berger book "How we compete")

[13] Increasing variety in assortments of marketable goods and servives seems to be partly artificial because differently named and priced items are often very similar, differing often only in some details or by invisible qualitative features, but the offers are making believe potential buyers that they are facing mutually competitive differently named items.

to be relatively separated in business matters from the state and politics. On the contrary such interrelations are valued as devices to gain some insights and measures for more stability and risk management.

Many politicians are tempted, by the last mentioned tendencies, to offer and promise much more services (tasks) from the state than practically feasible. This feasibility is objectively limited because a wide extent of uncertainty and of vagueness, as disadvantages, in social systems are reflecting an extremely complex nature of the latter, so that any essays to tackle them from above, through hierarchical chains of command and according to predetermined blue-prints, must be doomed to fail. It seems that many politicians are applying somewhat business-like attitude of marketing their potential services to the electorate, unfortunately without concern for feasibility of their promises The promises and also—endeavors to multiply and enlarge functions of the state, and the role of politics, are much more likely to deteriorate the substance of functions and the quality of their performance. Unfortunately, this deterioration covers also the qualitative aspects of such functions of the state which are of basic importance and are indispensable for the system.

It is well known that the state must be equipped with adequate resources, provided by means of taxes and other funds (called "public" because of their public aims), which are collected from the population as legally levied contribution to State revenue.

I am reminding this well known detail, because—as proved by human history[14]—large amounts of money (as treasury) are usually a source of alluring temptations for some persons, either cynically rapacious or extremely possessed by a pugnacious ideology, to pretend engagement in politics as a devotion to public service, while in fact wishing primarily to grasp ruling power, quite often together with a desire to attain access to public money (for personal purposes or for a particular political organization). Less dramatic cases can be met frequently, even without elements of evil intentions, when there are strong pressures to expand public expenses without adequate concern for feasibility, in terms of being able to afford them (together with repayment of debts).

Critical situations are hardly avoidable if the market sphere societal functions are failing by not providing adequate employment and earning opportunities, whereas existing opportunities of that kind are likely to be still decreased by additional taxation needed by the state for taking over more social care functions. It seems that there are various experiences concerning relations between business attitudes towards profitability on the one hand and towards social responsibility on the other. Their nature depends perhaps mainly on the kind of most frequent business strategies applied by the entrepreneurs in response to their assessment of stability and predictability in systemic conditions (i.e. indirectly also—in exogenous impacts) These strategies differ alongside with preferences either for longer term aims to gain stronger market position or of short term flexibility in speedy adaptations to market challenges, including mobility in shifting business activities from one segment of markets (in terms of product missions, branches or space areas) to another, which means that enterprises become footloose, interested only in monetary effects. The latter case means that there are no reasons to care for any real terms aspects of bounds between business activities and societal matters. Social responsibility within markets is forgotten and shifted into the realm of politics and state functions.. If one adds tendencies to destruction of moral rules in business and public behaviors, then there is no wonder that one hears warnings about twilight or decline of existing order for social systems. That road leads

[14] Relevant in that context are the arguments (referring to Greek and Roman philosophers) in the book of Joseph Cardinal Ratzinger "Czas przemian w Europie" (The Time for Transformations in Europe), Polish translation, Wyd. M, Kraków 2005, pp 117–120, with a conclusion that the state can be governed differently than by a band of robbers if this is done in obedience to the rules of an objective justice, I. e. not pretended only to be legally binding through acceptance of a sufficiently powerful band. Tragic examples of such pathologies were experienced under totalitarian rule, but other milder cases can be met also in supposedly democratic conditions,

nowhere, through illusions of utopian ideologies and can revive ghosts of totalitarian regimes and visions of Armageddon. However, there are still other, hopefully more promising, options at our future cross-roads.

PART II

(G) There are justified reasons to wonder[15], whether Europe is really in danger of grave crises (or doomed to face them soon). One may argue, that the present condition of Europe and—barring some calamitous accidents—our prospects for a near future seem much better, and certainly not worse in most respects, than in a majority of other regions of our world.[16] However, our second thoughts are likely to bring several reflections: that we should try to be provident enough (looking at the future not only through an eyeglass of optimism versus pessimism), that even a generally good situation is always—in holistic assessments—a total result which includes some much worse elements (which deserve attention—to get improved and not to be left for eventual decay), and finally—that it would be dangerous to feel proud and happy, because of a leading position in all attributes of a good fortune while being aware that there are around us so many places full of poverty and misfortune. There are many arguments for a grave concern to be practically shown towards our European tasks, interests and moral obligations, leading to feasible effects in promoting global conditions, with ensuing activities, which would visibly decrease existing now extremely huge contrasts on a poverty-wealth axis.

European concern for such a future scenario should not be understood in a manner implying any symptoms of our self-conceit (as if we were feeling "natural leaders" in such global matters) but rather it should emphasize our deeper and an ages old cultural tradition[17], as an essential attribute to promote an universal approval for promoting a civilization based on foundations of a peaceful and friendly humanity.

Looking at these issues in the context of Warsaw Conference and of a Pre-conference publication (characteristic for a wide range of problems raised and discussed) I am particularly interested in such matters, which would refer to a question: what is the basic reason for introducing the notion of **"creativity"**, as a new catchword supposed to emphasize some special features, as important for Europe besides the notion of "innovativeness" which has been widely used recently (e.g. in line of Lisbon strategy ideas). Evidently—something must have been lacking in endeavors to be more and more innovative. It seems that being creative implies at least two

[15] see interesting opinions of Louis Emmerij contribution in this volume (pp 116–121—in a pre-conference publication "Warsaw Conference *Towards a New Creative and Innovative Europe*")

[16] Such impressions are quite likely for a reader of *The Economist* issues of February 3rd–9th and February 10th–16th—The former announced on the front page a special report on Britain with "You have never had it so good".* *motto*, although the inside text included also some warnings for the future. The latter offered a special report on European business, with a final section concluding that *"European business has improved out of recognition"*. Here one finds also indications at various darker shades in the picture, whereas both issues offer some other articles and comments which inform about various grave difficulties in other parts of world, as well as about certain symptoms within successful present days, which may turn into heralds of future troubles.

[17] With enough goodwill it would be possible to show that desirable changes in our civilization have their natural roots in major values of the Christian Faith (particularly as practiced within the Catholic Church after *Vaticanum Secundum)* as well as in lay premises of the triad "Liberty—Equality—Fraternity" (particularly in a deeper, peace loving version, without revolutionary bloodshed preferences). The former of these values are indispensable as essential sources of spiritual foundations for the present European canon of culture and perception of humanism (the arguments for that opinion are presented e..g. by Rev. Archbishop J. Zycinski—*Aksjologiczny fundament humanizmu* ("Axiological Foundations of Humanism") in **Rzecz o przyszlosci Europy**; MSZ (Foreiign Office), Warszawa 2005. My additional comments are offered below—in the final section (L).

additional features. Firstly—the effects of being innovative are seen as longer lasting, which means that some new elements of reality are created not only for a quickly passing while but to stay and are somehow relevant for longer, they are relevant as created "products' (in a wider sense, not only material). Secondly—the issues of an adequate evaluation of newly created effects, the values of products, becomes more relevant[18]. Consequently some questions arise, concerned with the criteria applied to determine values and also—with the range of acceptance for particular criteria. How wide they are—approximately universal, or narrow and differentiated? What foundations are used (and how widely are they accepted) to discern positive from negative effects of creativity, good from bad, right from wrong?

If it happens that the ranges of acceptance are smaller, with differentiated evaluations, then the same effects of creativity are considered desirable for some groups of people, whereas—undesirable for others. It is necessary then to attain at least an universal agreement, how to proceed in order to reach conclusions from differentiated and controversial evaluations for the practice of societal life (in decisions ex ante and in judgments ex post.). In my opinion—the answers to such questions are essential, and frequently not easy, for most farther reaching, societal impacts of creativity and—it would be misleading to assume that the answers are simply determined by the monetary benefits obtained (obtainable) from the sales of creativity products at respective markets.

(H) Referring to the prospects[19] for intensifying European endeavors to attain Lisbon Strategy aims It seems to me that there are at least two issues of special importance. On the one hand = there are projects (particularly relevant from the view point of substantial effects hopefully attainable) which may need to be directly determined and monitored by respective central EU bodies. On the other hand there are manifold indirect policy measures, meant to influence activities performed within the member countries as business projects (within market premises of action) or as public sectors projects in respective countries (under a sovereignty of choice in respective countries, but within the framework of Union-wide laws). I am assuming, that the former type of projects could have been rightly chosen and managed up till now (being not confronted with any systemic obstacles)[20]. The causes for an unsatisfactory implementation of Lisbon Strategy are more likely to be found within the latter type of innovative activities. It seems that diverse, largely numerous and dispersed decisions, which are forming together the picture of the whole Union, must have been much stronger motivated otherwise than foreseen by the policies destined to implement Lisbon directives. Information available from professional opinions and from media may incline to a supposition that within the markets respective decisions were much more strongly striving for short term quickly gained monetary benefits[21] (frequently—without constraints against using methods which are legal but hardly following moral standards and

[18] One may refer here to Edward Nęcka ;Psychologia Twórczości" (Psychology of Creativity), Gdańskie Wydawnictwo Psychologiczne, Gdansk 2005, p,13, who argues that creativity, as a process and its product, are defined by their novelty and by the values of products (material and immaterial respectively).

[19] See: Henri Delanghe and Ugur Muldur *"Beyond the Lisbon European Council—Towards a "New Deal" for an Effective European Research Policy"*. in this volume (pp. 3–19 in the Pre-conference Publication, op.cit.)

[20] If there were any shortcomings or if some problem are likely to occur—they do not fall into the scope of present text and of the conference on creativity., because any comments or opinion would have to refer to the issues beyond our knowledge, i.e. specific research projects.

[21] These controversial issues of choice in business strategies were earlier mentioned in first part of my paper (in section F with comments in footnote 13). In describing the range of questionable practical phenomena one may add various cases of speculative stock-exchange and other capital gains (e.g. through "hostile takeovers"), some features of "bubble economy" and—more recently the phenomena related to growing private equity firms, dealing mainly in gaining through "buy outs" of existing companies (widely commented upon in recent issues of "*The Economist*", already cited above in footnote 17). There are, of course, just opposite cases of countries with remarkable performance proceeding along the route of Lisbon strategy—experience of Finnland reported in several papers in this volume constitute a good example,

hardly deserving a fair-play name). Anyway, even if such constraints were present and not being trespassed, there are some other problems and obstacles to such actions as foreseen by Lisbon concepts. They arise if the decision makers do not wish to be patient enough to prefer longer term market strategies[22] of improving their own status through requisite new qualitative merits. (Similar "counterproductive" effects follow in the public sector if the decisions are politically inspired while predominantly motivated by partisan interests, instead of more objective criteria of benefit-cost analysis for attainment of well-defined public aims.)

These controversial issues are relevant not only from the viewpoint of the elements of Lisbon strategy concerned with innovations valuable for economic growth and for productivity of applied technologies. Comparatively—even more difficult (in prospects to resolve controversial problems) are the issues concerned with families, children care, residential housing matters, education (in consecutive grades), health service, cultural facilities, transport and communication facilities, ecological protection matters—as seen in various perspectives i.e. the roles of private, private & public and public responsibilities and corresponding financing, the institutional set-ups concerned with these matters and their changes over time (particularly related to the areas of private self financing and of public finances, to the transfers between them etc).

All these issues—similarly to some aspects of agricultural, economic and social, problems—are still much more diversified, strongly influenced by particular countries path-dependence factors while—at the same time—having many interdependencies with relatively more intensively unifying economic matters (mentioned earlier) as well as with monetary systems partly unified and partly on the route to unity.

It seems to me that this whole sphere still awaits essays to become more systematically presented, assessed and discussed, particularly in the contexts of interfaces with the spheres being farther advanced on the road to an Union wide institutional coherence (if not unification).

Innovational endeavors in these spheres deserve more attention[23], at least in view of their strong interrelations amongst them and institutional, behavioral, cultural and political factors—respectively. Lisbon strategy and its aftermath included some righteous postulates in these spheres, but it seems that—being rather general and entering rather at the margin—they could not yet start desirable disputes over related issues.

Creative and innovative activities in the last mentioned areas seem to differ basically from those frequently met elsewhere (e.g, in technological and entrepreneurial aspects of economic and business areas) because they seem to have tighter and stronger interdependence with potentially less lightly changeable factors (which are at the base of institutions, human behavior, culture as well as of a better side of politics, that concerned really with human welfare). Consequently—all these matters have to be considered as naturally "path dependent", so that history derived factors may either help to promote or rather oppose the newer concepts. In the former case one meets informal institutions, which serve as factors strengthening a base for changes in formal institutions, whereas in the latter case certain new concepts of change will meet obstacles. Essential problems will have to be solved to solve this controversy in order to avoid institutional changes which would cause harmful "secondary effects" although formally considered and declared effects were supposed to make people more satisfied.

(I) The mutual relations between different, grass-roots and holistic, approaches to systemic matters. discussed at the beginning of Part I (in section **(A)—(1)**) are very often in bad shape,

[22] Excessively short-term gains strategies may be considered, from a holistic societal viewpoint, as vulnerable to errors of a wasteful exploitation of resources directly employed in respective processes, which is harmful for younger and next generations.

[23] Valuable opinions and suggestions concerned with social innovation and related issues were pressented in Paul Drewe paper *"Innovation—More than just a Sound Bite"* in this volume pp.37–51 in the Pre-conference publication

vulnerable to acute ailments, which may be pushing societal systems towards certain pathological deviations. Unfortunately, in grass-roots, micro sphere of activities there are tendencies, in the past and present practice, to claim "from above". (the governmental centers mainly) more assistance than it would be necessary if autonomous regulation and grass-roots initiatives were more effective.

The practice is too much burdened with various pathologies in that micro-sphere, as well as in results of hypertrophy in political partisan hierarchical arrangements (and in related bureaucracy).. Higher level politicians prefer to have more to say in various local matters, to make many processes dependent on their decisions, whereas the same dependency is profitable for lower level politicians, because good connections with someone near the top would give them a better position in local political circles.

I think that—within postulated post-conference research—it would be useful to devote enough attention to such inter-level relations and practically evolving arrangements. I think however that one should not concentrate on postulates of a normative approach (saying what, why, how, when should happen or be done), but rather try to indicate what kinds of deviations and ailments are most likely to be met, outlining also requisite elements of respective prophylactic and sanative activities.

My arguments for a greater concern directed towards personal "grass-roots" matters, and particularly—their moral backbone, are not meant to imply neglect of holistic approaches, as well as of teleological inspirations for some activities devised and set in motion somehow "from above"[24]. Both of them ("from below" and "from above") are essential, but crucially important are the qualities of people engaged on both sides, because here can be found most indispensable conditions for the desirable benefits to become feasible. What more—the above mentioned grass-root forces and qualitative features of human behavior cannot be just created by adequately clever, holistically inspired actions. Particularly disputable—or sometimes simply dangerous—are the concepts to implement "from above" far reaching, revolutionary changes in "grass-roots" matters under the banners of forcing a "moral revolution" (even if proclaimed catchwords seem promising). Such desirable changes must have an autonomous origin (to be found in personal human souls and minds) because that can create the foundations of ethics and morally strong behavior, which determine qualitative features of "human factor" aspects in both areas: "from below" and "from above".

In grass-roots activities—these "human factor" values follow predominantly from the merits of the persons involved, based on their behavioral virtues and knowledge, whereas in holistic approaches they are reflecting—besides personal moral merits—a larger extent of adequate professional skills, of analytical and programming kind as well as greater abilities to understand political matters and participate in them aptly. The practice differs frequently, as always in human matters, from ideal states but looking at probable prevailing tendencies in human factors qualities one may assume that in cases of their harmonious cooperation, caused by honesty, goodwill and reciprocal understanding, the effects are likely to approach desirable common welfare and

[24] One must add here that in some micro-level activities, within related creative projects, the role of exogenous motives and initiatives is relatively larger. This happens e.g. in various socially less complex projects, with rather clearly identified and pre-determined goal (ultimate product, such as a construction of a material object with well identified desired qualities, where the tasks of creation pertain mainly to optimizing the way in which the goal will be reached). Relatively large and strong components of programming, planning and comprehensive control over implementation are usually included into such creative tasks. Autonomous self -regulation in the field of inter-personal relations remains essential but the quality of a human factor depends not only on being innovative but also on a conviction that a responsible behavior (within a team) must include the motive of following predetermined blue-prints and orders from supervisors. Historical experiences show, however, that it is wiser to abstain from utopian dreams which would enlarge the scope of "a pre-determined goal", so that an ideology appears, which is applied—in politics and governmental practice-to some profoundly more complex social systems. This proves, as a rule, to be a dangerous pretext for a nonsense of extending everywhere some elements of hierarchical command.

satisfaction. At another extreme—aggressive attitudes and evil intentions, wrong judgments and misbehavior are leading to mischief, societal aberration and diseases, as well as to manifold other calamities[25]

(J) These interdependent issues seem particularly challenging in conditions demanding pro-creative and pro-innovative societal and economic changes. A chance for a reference plane in terms of a common moral backbone for human conscience, civic society and respective basic governmental policies becomes especially essential with respect to such challenges.

(1) It may prove useful to consider in that context some observations taken from the psychology of creativity,[26] which draw attention to the primordial role of new values expected to be obtained through various processes of creativity.

Cognitive values are focused in the domain of scientific creativity at an attainment of **truth**, through approaching the knowledge to answer **what is objectively correct and true**,

Pragmatic values, resulting from creative inventions, are inspired by the search for **new utility gains. Aesthetic values** in the domain of artistic creativity are expressed through a search for **beauty**.

Ethical values, in creative public activities, are identified through increasing **rightness** and **welfare** characterizing human interrelations within the societies (leading—hopefully—to similar values entering also the sphere of peaceful international relations). Ethical values are evidently essential in such public activities, characteristic for the realm of politics, which are concerned with the qualitative features of formal societal institutions, necessary for an adequate institutional order, brought by setting respective laws and by making them observed in practice (through provision of manifold public services). Ethical values are also important, perhaps particularly, in the field of informal institutions (as universally known "rules of the game" for a human behavior) and in the practice of human relations everywhere: within families, schools, health service and other social services as well as within offices, factories and other workshops. Such informally accepted, conscience derived, ethical values are of crucial importance for all the kinds of earlier mentioned activities, with relevant values expected from all respective pro-creative and pro-innovative behaviors. They are decisive for the qualities found in persons, who are active as scientists, inventors, artists, politicians, members of families (parents, children, brothers, sisters etc), teachers and pupils in schools, doctors, nurses and patients in hospitals, bosses and workers, employers and employees in various kinds of offices and enterprises etc. There are two reasons for these remarks to be reminded, because they refer to real facts of life, which are usually somehow taken for granted and neglected.

(2) At the one hand—a wide spread neglect for basic qualitative features of (conscience derived) ethical values is necessarily leading to far reaching societal disorder, because implementation of

[25] The great role of grass-roots motives (as compared with centrally derived orders) could be seen even within the frameworks of highly autocratic and centralistic regimes i.e. in conditions when the higher levels of command were supposed to be omniscient and omnipotent, being also armed with various means of forcing grass-roots entities to follow respective orders. I am reminding these facts, because in diametrically different, democratic conditions there is an unfavorable tendency to neglect diverse qualitative factors shaping grass-roots activities from the bottom, as if they could be programmed to react in a predetermined manner to holistically devised policy measures. It seems wiser to assume that normally sane human persons retain always a large extent of internal liberty of their conscience and minds so that we are inevitably faced with two separate issues i.e. (i) that of looking at bottom-up micro reactions to respective policies and their measures from the viewpoint of policy makers preferences, (ii) that of assuming another viewpoint i.e considering interactions between personal liberty to decide in reacting according to internal arguments of personal conscience and of considering reasonable arguments for and against respective policies from the viewpoint of civic criteria of assessment.

[26] E. Nęcka, op.cit. pp.14–18. These notions seem applicable also to wider social issues (discussed here) because they refer somehow not only to individual personal cases but also to generalized features of "a human factor" present in wider societal issues (outlined in this text, but discussed more thoroughly elsewhere, e,g. in E,Nęcka (op,cit., chapters on "societal contexts" and on "systemic concepts" of creativity)

formally binding law and ensuring sufficient formal justice and order does not suffice and proves not feasible without strong natural foundations in, and assistance from, personal conscience and goodwill, What more—historical experience shows that remedies for such ailments of disorder are usually sought in essays to exert a stronger, more powerful influence of governmental orders, in the sense of forcing upon people desired ways of behavior, by using harsher punishment & more police, while reducing the scope of civic liberties. Such tendencies—if neglected—are often (if not usually) counterproductive in bringing desired effects while leading to many faults of pseudo-democratic or visibly autocratic governments, or even towards totalitarian regimes[27].

On the other hand, it is well known that utopian are thoughts about applying in practice a successful centralized regulation. The practical features of current functioning and in longer term development of economies and societies (in regions, countries and multi-country unions, federations etc) are much too complex, exceedingly multidimensional, diversified in various respects. They are, besides, so widely and quickly changing in their manifold features that it is absolutely impossible to assume (and to try in practice) their deliberate, somehow centrally envisaged, teleological & predetermined regulation.

The chances for avoiding disorder, anarchy and chaos are depending predominantly on the achievable extent of self-regulation composed of autonomous regulatory forces (such as—but not exclusively—an "invisible hand" of the well working and efficient market, sufficiently competitive and morally sane), supplemented with other types of autonomous regulation as well as an adequate additional information, prospective estimates and prognostics coming from analytical & research centers, think-tanks etc (diagnostic, prognostic, providing future oriented variants of scenarios or simulations etc).

Other (non-market) effective autonomous regulation seems also indispensable because: (i) an universally prevailing market type of regulation, based on equivalent exchange adaptive forces, cannot tackle all spheres of human lives and interactions, (ii) the state, and all public services, cannot manage the tasks of a complementary force, which would have to take care for every issue either not covered by the market or troublesome due to market failures. Regulatory potential of the state [together with its public sector] is always limited and its various failures are likely to increase alongside with a hypertrophy in numbers and scope of its tasks and obligations. Non-market autonomous regulatory forces in human mutual relations and interactions are frequently quite strong in manifold cases when respective pairs of persons (forming often more numerous groups) are filled, in their minds and spirits, with a mutual love[28] and/or trust, esteem, feeling of a team spirit, of a common responsibility for commonly felt and accepted values.

The last mentioned type of regulatory forces (those of a commonly felt responsibility) seems to be particularly relevant in the matters of creativity, when the latter is considered as a process, which in its very nature is producing something new (in a respective period) and that newly created product is subject to be assessed, hopefully accepted (or not) as useful and correspondingly evaluated either through spontaneous market processes or in respective procedures by adequately competent groups of persons.[29] Such assessments are inevitably based on a diagnosis, which reflects practical experiences, and the latter may be seriously biased if persons responsible for promotion of newly introduced products are not sufficiently honest to abstain from some swindling tricks. In some other cases evaluations may be influenced by subjective opinions, which may be also biased by some interpersonal preferences favorable or discriminative towards the authors of

[27] Warnings of that kind (how dangerous results follow the neglect of moral values in personal behavior) were evidently given in the teaching of the late Pope John Paul II.

[28] I have in mind here love of such kind as described by St. Paul in His letter to Corinthians (1 Cor. 13, 1–8)

[29] Such a definition is discussed by E.Nęcka (op.cit. p.17) with the reference to M.I. Stein "Creativity and culture" *Journal if Psychology* 1953, 36

respective newly created products. Unfortunately the notion of creativity happened also to be used for certain ingeniously harmful and illegal schemes and activities. Thus—one must remember that creativity and its effects may be sometimes a source of troubles and more frequently—be exposed to particular kinds of uncertainty and risk for the authors and users of new products.

(K)—(1) In that context one must also take also into consideration that most processes of creativity involve some costs, which have to be covered, either being financed from incomes derived from the sales of new products introduced thanks to that creativity or through the transfers from other sources, partly as research & development investment in business or from governmental basic R&D projects, partly from public funds for socially desirable outlays.

Consequently there are two channels of potential scrutiny directed towards particular creativity processes, one concerned with their diverse substantive effects and merits (in terms of values brought by their potential contribution for the welfare of respective persons, groups, societies, or generally—humanity) and—another, synthetic in measurement and expression, concerned with their financial feasibility and eventual profitability (or other benefits expressed in monetary terms).

Correspondingly it seems, that the approach to the role of creativity can be seen in various versions which—placed on a horizontal axis, are characterized—at the one extreme—by an emphasis on its value seen through monetary, market oriented, cost-benefit and effectiveness criteria (with other diverse expression of benefits pushed aside) whereas at the opposite extreme the weights attached to various criteria are reversed *i..e.* the weight of monetary values and effects goes down and that of other differently specified values goes up. One may argue that preferable are practical solutions which are attaching sufficient attention to both kinds of criteria, but in a manner which is. considering specific, non-monetary values (indicated above in section **(J)—(1)**) as deserving primordial attention whereas market criteria and monetary calculations are sufficiently taken into consideration but as complementary requested features or as estimates of constraining conditions for the feasibility of creativity effects becoming available in practice.[30].

(2) One can observe in practice some discrepancies in more general opinions about economic and societal systems. They are occurring because of various ways to understand and explain the reasons of differences (gaps) between idealistic model assumptions, or postulates, which indicate desired features, structures and behavioral characteristics *versus* widely prevailing facts of life. The models are necessarily simplified (abstract) presentations of reality which is too complex to be copied in all details. Any policy instruments (derived from such a model) are leaving undetermined space for interpretation and complementary measures to be introduced by the persons being near to real conditions, who react making their own choices. Besides, the people dealing with various micro-matters can play a kind of a game with policy makers (and users of models) by means of sending to them somehow biased information (among others—through provoking some measures helpful for micro-units i.e. involving shift some internal costs outside to be external and be covered by someone else). Consequently—quite a lot depends on nature of behavioral features on both parts, in particular on their moral backbone, which will provide sufficient mutual trust. Similar situations are met in all the kinds of transactions.

However. there are widely prevailing views that various morally questionable kinds of behavior, even clearly cases of dishonesty are normal and hardly avoidable in practice, so they are tolerated unless they can be open for prosecution as criminal offences. In other words it is widely assumed that there are no reasons to suspect dishonesty (any immoral behavior) until someone is prosecuted and punished for a criminal offence. Even more—it is assumed normal and ethical for anybody vulnerable to prosecution to use all available tricks to be found not guilty, even it often happens

[30] One can remind in that context a popular saying that having enough money is always very useful but this is not necessarily tantamount for a promise of happiness and satisfaction in life.

that success of such operations depends on amount of money paid as fees to sufficiently clever lawyers.

The practice is tantamount to a highly skeptical attitude towards any hopes for improvement of presently existing amount of ethics and morals in the practice of human behavior.. This seems an attitude which necessarily includes certain nihilistic elements, it is promoting a hedonistic way of life.

Any remedies without evident efforts to strengthen autonomously valid ethics and morals, which cannot be shaped and changed within the realm of law making and judiciary procedures, would involve grave dangers, indicated above in section **(J)—(2)** This seems tantamount to acceptance of nihilism, while the practical global conditions of life leave many reasons for concern.[31]

In the realm of such views there are tendencies to belittle or to ignore any warnings against pending ailments and any corresponding appeals for desired sanative processes within grass-roots processes, particularly through spiritual revival. This practically means that it is thought useless and superfluous to look farther into the future of societal matters and deeper into their substance than it is usually done in short & medium term policy considerations.

Particularly strong objections (or even—hostile attitudes) are widely voiced against diagnostic and prophylactic suggestions based on religious foundations, especially if they are far from nihilistic or hedonist preferences. Usually met approaches in assessment of these matters are treating the substance of religions and of their relevance for societal systems as if they were referring simply to the rules adopted by some out of many organizations with entirely mundane goals (i.e. striving for specific desired effects in terms of material benefits, of political power, of social status etc.). It is true that sometimes the notion of religion happens to be misused, because the real aims are directed at mundane effects (financial benefit or political power) and are far distant from concerning transcendental matters to obtain a hopeful revival of morally strong human minds and souls. There are evident arguments that the latter would be able to become available thanks to a wider proliferation and to a more serious following of Christian faith (which in its basic foundations is warning its followers against temptations of doing harm to other people and to their own souls, as the costs or by-products in striving for their mundane carriers, wealth, power and higher social status).

(L)—(1) Intuition indicates some arguments for the need of a longer time perspective and for a deeper range of looking in a search for presumable sources of ailments and for trying to find remedies to societal problems. I suppose that it may be useful to remind here, in a general and crude manner, some features of serious complexity (supplemented lately with an accelerated proliferation of variety) which may contribute to the causes for frequent difficulties

[31] According to arguments used in discussions concerned with the past XXth century the conditions of living of the people were in general growingly differentiating and getting unequal. The income of the richest 20% of the world population which in 1960 was about 30-times greater in relation to that of the poorest 20% increased to being (in the same relation) 83-times greater at the end of that century.. The gap between an average length of human life in rich and poor countries respectively is estimated presently at 25 years, i.e. being born in a more promising place gives chances for a longer and nicer life. The biggest pharmaceutical firms introduced in the final 20 years of the XX-th century more than 1200 new medicaments, but only 14 were directed against tropical diseases—although the latter are a serious threat for three quarters of this world population. Around one milliard people cannot find anywhere any steady work. Hunger, lack of any food, is continuously the cause of large numbers of death casualties although it is known that the amount of food disposable globally would suffice to feed 20% more than the total number of the world population. (These are examples used in April 2000, by a well known Polish author Ryszard Kapuścinski (recently deceased) during a discussion organized in Krakow to arrive at a judgment for the XXthth Century, at the occasion of 55 Anniversary of a popular Krakow weekly "Tygodnik Powszechny" (my source are the fragments of proceedings at that meeting published in Literary Supplement to that weekly (nr 5—February 4, 2007)

and conflicts which are arising in the sphere of manifold interdependencies between markets and public activities.

In section **(E)** above there was already an outline of these problems, together with some assumptions of probable conditions helpful in essays to solve them or at least—to make them less acute. I am returning now to these issues in order to remind also that one can notice here (as elsewhere in our area of interests) that available positive science does not provide us with any objectively true and effective capacities to shape out future in a manner allowing us to avoid serious existential dangers or to neutralize their impacts. It is better thus to acknowledge that we may try—at the most—to learn, hopefully, more about the nature of consecutively changing processes (with time passing by) which influence and shape most essential features of unavoidable uncertainty and risk we are doomed to be faced with in the future to come.

Let us remind that in the sphere of markets we are witnessing a growing extent of market failures, which can be seen, not only in a traditionally known field of public goods, but in all kinds of activities, in terms of growing transaction costs, together with a far reaching decline of mutual trust in business, of harmful novelties in labor markets (which lead to perturbing increases in unemployment, even to long lasting losses of employment chances (with ensuing societal exclusion), of growing speculative operations (which do not contribute to over-all welfare and growth but only to unfair redistribution of income and wealth) etc.

As the result of the above mentioned ailments, and until effective remedies are found and become active, there are objectively growing needs for some practically effective social assistance for many families in critical conditions, for children and youth left without care or even already exposed to dangers of delinquency and crime, for young people who are not able to afford expenses for several years of higher education and for living until remuneration starts coming (and stays for good), for young couples who are afraid to take responsibility of marriage with children and family life, etc.

At the same time, however. there is an understandable tendency to tighten public expenses i.e. relatively to comprise traditional sources for satisfying socially understandable demands. There are well known, similarly reasonable arguments, that wishing to back up economic growth and monetary stability, essential for economic and social development, one should be against such increases of public expenses, which do not keep within the range of feasible growth of GDP but are involving also some increases of public debt or growing taxation burdens.

If the last mentioned situation is allowed to occur then this is tantamount either to a discrimination of people whose performance is the most essential for growth, and who happen to be smart and lucky enough to have sufficiently considerable, honestly acquired, earnings, from their own business or from sufficiently steady and well paid employment, or—to additional misfortunes which are likely to worsen living conditions within the earlier mentioned sphere of already less fortunate part of population (potentially in need of assistance).

(2) It seems justified to assume, even in such a vague kind of reasoning, that the search for solutions may have some chances for success if it focused on feasible ways to eliminate failures in markets, as well as in previously mentioned other kinds of self-regulation, at least in presumably numerous cases when the major factors of failures, and of probable remedies, are mainly related to human behavior.

Similar way of reasoning applies to the other side of the story, i.e. to an availability of means to render requisite social assistance, where one can envisage at least two kinds of remedies. Firstly—one may consider various ways to repair "a leaking bucket". i.e. to eliminate all cases of wasteful or corrupt use of available public funds. Secondly—there is a chance of such changes in income spending and wealth using preferences of relatively more affluent people (with respect to their non-tax expenses), which would allocate more privately-owned resources towards NGO

or other private & public projects respectively increasing social assistance potential or allowing to replace a part from basic public expenses for social services (i.e. allowing to re-allocate state-budget expenditure).

The chances of the latter kind may materialize if the persons in question would consider their honestly acquired wealth and affluence level as resulting (at least—partly) from their personal talents and good luck, which would make them feeling morally obliged to help other people (in need of assistance without their own guilt)

In other words, we are entitled—in my opinion—to assume that a large part of the facts of viable large societal systems being so greatly complex (hardly definite) can be explained by reminding that these systems are composed of various kinds of activities with strong roles of "a human factor", while the nature and practical behavior of the latter are so complex themselves, so greatly diversified, composed of mutually contradictory elements, unpredictable etc. Consequently—our chances will increase through any hopes to find a way of making that human factor somewhat more recognizable. Then we would face the questions concerned with the roles of ethics and of morality as highly probable conditions in shaping the qualities in all kinds of self-regulation (its market-type and others respectively). These roles can be essential through highly probable chances to attain (increasingly) more mutual trust (based on adequately honest, fair and responsible human behavior expectable from all—i.e. increasingly growing number of—persons participating in less or more numerous kinds of partnership, teams, clusters or organizations).

(3) In my view—this line of reasoning goes in a similar direction to those discernable in some opinions and conclusions of Roman Galar[32], especially in the fragment (op.cit, p.107) which reads:

"Creativeness is a plant growing in the specific cultural soil and in the specific social and business climate. The key words are adaptation and social capital..."

I agree that it cannot be a climate with a quick attainment of success (with a "catch as you can.." recipe). No desirable plant will grow in a cultural soil, which presently tends to be dominated by the will to reflect all the darkest sides of human nature, to use the most brutal forms of every-day language and to cherish symptoms of art concentrated on shocking the public with yet more widely unknown sights, quite often—without any concern for a bit of beauty.

The key word of social capital is evidently crucial, with an additional remark that—... preferably based on a personal conscience base for trust, together with motives to attain common welfare, i.e. being "social" with a grass-roots personal foundation (neither individualist nor collectivist in nature). Adaptation—as a key word—is also well chosen—in the sense of being spiritually linked to tradition and to the values[33]—basically unchangeable, although with certain interpretations being occasionally adapted (in rather long intervals) to some new or changing "signs of time".

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[32] see *"Conceptual Barriers on the Path of European Creativeness"* in this volume (pp. 102–107 in the pre-conference publication

[33] I am using the notion of values in a philosophic sense (see e.g. Didier Julia "Słownik filozoficzny" 1992 (original French "Dictionnaire de la philosophie" Librairie Larousse 1984)—as that what is worth striving for (i.e. not only what is desirable) for a human person. Generally, three basic values are discerned: truth, rightness and beauty.. Psychology is adding a fourth type of value, pragmatic in nature and concerned with utility gains (see section **(J—1)** above) I am considering this notions of value in the context of ethics as the base for moral behavior. Somewhat different sense is given to the notion of value in holistic consideration and evaluation of societal systems (as in *Changing Value System* by Jadwiga Koralewicz and Marek Ziólkowski, Chapter 5, in NEW EUROPE, The Impact of the First Decade, Vol.1' Trends and Prospects, where values are defined (op.cit.p.177) as *"...images of objects, events, states and processes that are considered right, just, moral and desirable"* and they serve as a comparatively ideal reference plane for assessments of respective gaps, between diagnosed reality (as determined by respective sociological surveys)and an ideal.

It seems to me also that the approach suggested above in this text may be useful in farther consideration on the practical ways in which the concept of **a trans-disciplinary approach**[34] to studies on creativity may be applied. I think that there are convincing arguments in favor of this concept, which are indicating at its desirable general features, but it is not quite clear what new issues are supposed to be discussed, which used to be omitted in traditional approaches up till now. May be an emphasis on a human factor could be an example, as seen in personally behavioral-ethical-moral-conscience derived spiritual perspective, especially if Christian (Catholic) faith approach to this issues were applied. This Faith motivated approach may allow to diminish complexity in the nature of human persons, by assuming that many of them may be sufficiently motivated and inclined to introduce some self-accepted rules of behavior which will restrict unpredictability of final outcomes from multidimensional features in human behavior. Quite of lot seems to depend on the manner in which some dilemmas in human minds are resolved (in a relative majority of cases). One is concerned with the choice between an acceptance of defined values (see footnote 34) as the rules for behavior which are worth striving for them in real practice or—on the other hand—an assumption that values are just reflecting dominating desires and they are reached just through the feelings of utilitarian satisfaction.

Another dilemma is concerned with the components within notions "right" and "good", as expressions of value (spiritual, sensual, utilitarian, respectively), as well as with the scope of liberty (as a personal freedom) to make manifold choices in everyday life in striving for these notions of value.

The choices are between considering a component of a given value (or a given hierarchy of components) as an internally accepted rule worth striving for and—on the other hand—applying additional screening of sensual and utilitarian satisfaction values which eliminates some of them as a kind of low-grade or apparent, sham values—so that only higher grade sensual and utilitarian values are thought to be worth striving for (if in a given case they are not pushed aside as competing with still more important spiritual values to be attained)[35].

The dilemma concerned with the scope of liberty (being often identified through a difference between a "negative" and "positive" version of liberty)[36] is referring mainly (in my view) to the relations between a human person and respective higher level rulers in the society—in a sense that in a "negative" version the latter are only excluding some types of personal behavior as forbidden (undesired) which means that all other choices are left to be decided without constraints, whereas a "positive" version would involve also some directives saying what preferences should govern the personal decisionx. In my view one can say that—in line with the Christian (Catholic) Faith—the relations between a person and respective mundane authorities are set according to the "negative" version whereas—the sovereign choices of a personal conscience are only bound to follow spiritually determined indications in striving for relevant values (indicating their preferable hierarchy, which would have more chances to be in conformance with Commandments of God and with our human will to show our love and devotion to God).. The teaching of the Church (Catholic in my case) does not order specific behaviors, because personal freedom of choice and respective

[34] They are presented by Anna Gąsior-Niemiec in the paper "*Creative and Innovative Europe of the XXI Century: Towards a European Research Program*" (type-script, pp 1–11)), which is an enlarged version of the outline published in the pre-conference volume (pp.234–236)

[35] These issues are in practice so difficult and controversial for human minds because—as in was noticed by one of the most esteemed older Polish statesmen, Władysław Bartoszewski—it is worth (striving) to be honest although that usually does not pay.

[36] I suppose that some of next steps in this discussion will have to go deeper into some of many mutually contrasting arguments in that field. My views are similar to those expressed—in a presently considered context—in the essay of Andrzej Walicki published as the epilogue to Isaiah Berlin "Rosyjscy myśliciele" (Russian Thinkers)—Polish translation Warszawa 2003, pp. 317–352

spiritual responsibility remains sovereign in personal conscience. The Church renders spiritual assistance services, which are essential but are not supposed to incapacitate individual persons, making them less responsible, and this seems—especially at present—the only practically feasible arrangement because the variety of detailed acts in human behavior is so tremendously great, and the mundane conditions tend to make that variety growing. Each faithful person has the great chance of having transcendent relations with God—through personal prayers.

Of course—I am trying to make here only small initial steps on the long and difficult track of farther deliberations, and hopefully also changes in societal systems, which—in my view—would be inevitable sooner or later—but preferably better not too late for humanity to survive.

PIOTR MAZURKIEWICZ

EUROPE — THE CLOSED TIME—THE OPEN TIME Christian thinking about time and about the future of the Old Continent

Many bitter words can be heard nowadays on the subject of the state of European culture. Some people even go as far as to say that the crisis is so profound that Europe should never recover. Not only are we witnesses of the "dwarfing" of Europe (A. J. Toynbee) but also of the fading away of European civilisation. Noteworthy, the authors of such analyses do not limit themselves to the Old Continent but most often predict the dawn of the West, the decline of technical civilisation or the agony of Christendom. Within the Western world, the worst picture of all is the one of "the effeminate Europe" not capable of any sacrifice in the name of its future. It is much worse a picture than that of America which continues with its hopeless struggles to defend its hegemony.

This bitter note is also present in the texts of John Paul II. In the exhortation on the subject of Europe, he writes about a "period of bewilderment", "temptation of dimming of hope", "the loss of Europe's Christian memory and heritage" as a result of which many Europeans are "without spiritual roots and somehow like heirs who have squandered a patrimony entrusted to them by history"[1]. The loss of the Christian memory often produces a kind of fear of the future. This results among others in a dramatic decline in the number of births or a difficulty in making definite life choices, including that about marriage.

Sinister prophecies are in fact not a recent development. Many of the quoted pessimist statements come from the books first published about a hundred years before. A century has gone down since those visions, full of doom and gloom, were unveiled and yet Western civilisation continues although it experienced, what is often forgotten, two great totalitarianisms and lived through two cruel civil wars. These two premises make us realise that also today an attitude of a pseudo-prophet sowing pessimism all around is not profitable. That being said, given all the painful experience, hope must be invoked with great humility.

[1] John Paul II, *Apostolic Exhortation Ecclesia in Europa*, 7–8, www.vatican.va/holy_fahter/john_paul_II/apost_exhortations/documents/hf-jp_exh_20030628_ecclesia-in-europa_en.html.

An open time—a closed time

In trying to answer the question about the Christian point of departure in the thinking about the future of the Old Continent one should start perhaps with recalling two classical approaches to the category of time-flow. Often, putting the matter in over-simplistic terms, we associate this with the Greek and the Jewish understanding of time. Under the first, the time flow should be cyclical by its nature, under the second—it should be linear. According to G.E.R. Lloyd—this is an utter misunderstanding since there are data corroborating that in Greece both the cyclical and the linear concept of time co-existed[2]. But on the other hand, the distinction between the two visions is legitimate. It is founded on two different kinds of human experience. The first one is about experiencing time measured by the sequence of cycles of nature (the cosmic time). The latter is about experiencing time as something that is filled with man's choices, decisions and deeds (the historical time) The first of the two times is cyclical whereas the other is linear. The first one is measured by the rhythm of nature: succession of nights and days and recurrent seasons of the year. The other one is measured by God's and man's deeds which are entirely non-recurrent since they originate in the internal freedom. The cyclical nature of time secures order. "To every thing there is a season, and to every purpose under the heaven"—with these words Kohelet begins his reflection about time (Koh 3, 1). But the cyclical nature also involves an eternal circuit from which there is no escape. "The sun also ariseth and the sun goeth down, and hasteth to his place where he ariseth. The wind goeth toward the south, and turneth about unto the north; it turneth about continually in its circuit, and the wind returneth again to its circuits. All the rivers run into the sea, yet the sea is not full, unto the place whither rivers go, thither they go again. (...) That which hath been is that which shall be, and that which hath been done, is that which shall be done; and there is nothing new under the sun. Is there a thing whereof it is said: 'See, this is new'?—it hath been already in the ages which were before us." (Koh 1, 5–10). The eternal perpetual cycle of things offers a man a kind of monotonous order but also infects man with doldrums and pessimism. "Nothing new under the sun" this is a sad conclusion that all things are old and worn out. At the same time, this is the deepest description of man's helplessness in the face of time. The cyclical time is the closed time where nothing unexpected can ever happen. In it there is no room for human freedom. There is not room for God, either. Janusz Pasierb sees it as a "remote impact of the oldest and very unclear Greek myths which claimed that Cronos (Time) existed before anything else that he was the father of Chaos who—long before other gods appeared—gave birth to Uranos (Sky) and Gaya (Earth)"[3].

In the Bible, such a pessimism is, nevertheless, a unique feature. Gianfranco Ravasi underscores that the horizon which is invoked by Ecclesiastes covers only everything that is "under the sun" but "it does not ascend above the sun"; the Creator being the Great Absent in this gigantic fresco"[4]. This repetitive monotony does not affect Him. The closed time is man's lot only to the extent to which man himself is a part of nature, "to the extent ma himself is like a natural element, a blind object subjected to biological flows"[5]. The Old Testament does not speak about the cosmic revelation. God reveals Himself in the historical time which has its beginning and its end. History is not subordinated to the law of eternal circuit. It is marked by events of God's making and man's making which are not repetitive. God's teophanies in the Old Testament are

[2] See: G.E.R. Lloyd, Czas w myśli greckiej /*Time in the Greek thought*/, [in:] Czas w kulturze /*Time in culture*/, A. Zajączkowski (ed.), Państwowy Instytut Wydawniczy, Warszawa 1988, p. 208.

[3] J.S. Pasierb, Czas otwarty /*The open time*/, Wydawnictwo Diecezjalne, Pelplin 1992, p. 18.

[4] G. Ravasi, Kohelet. Najbardziej oryginalna i "skandaliczna" księga Starego Testamentu /*Qohelet. The most ingenious and "scandalous" book of the Old Testament*/, Wydawnictwo Salwator, Kraków 2003, p. 66.

[5] Ibidem, p. 68.

unique. There is just one Abraham, one Moses, and one day of exodus from the Egyptian slavery, unique historic events are subject to liturgical celebration, they are remembered but not repeated. The historical time is qualitatively different from the cosmic time which is self-consuming. It gives sense to the latter. .

The value of the historical time is particularly enhanced by the event of incarnation of God's Son. Christian liturgy which makes these events manifest does not refer to the mythical but to the historical time. A very particular moment is referred to: "while Quirinius was governor of Syria" (Luke 2.2). Also Pontius Pilate did not come to appear by accident in the Christian *Credo*. The time of Christ and the time for Christ, as Germano Pàttaro writes, is dated and is open, it is embedded in human events and can be measured by the rhythm of epochs"[6].

In Christianity, the open time receives a dramatic dimension. As Paul Ricoeur puts it, the Christian revelation outraged the Greeks with the description of «holy events»: the creation, decline, covenant, prophecies, and in particular the Christian events: incarnation, crossing, resurrection, descent of Holy Spirit... In the light of those unique events man discovered some aspects of his own decisions that he had failed to see before : also his own purely human time emerged as a sequence of events and decisions chartered with the most basic choices: whether to rebel or to convert, whether to lose or to win one' s own life. Thanks to this, the choices gained value because they became particular histories where something was happening, where nations also had a personality to be gained or to be lost[7]. If nothing happens twice each decision taken by man is unique. Therefore it also entails some responsibility. As Janusz Pasierb writes, reincarnation brings some comfort that an unsuccessful life can be repeated the way one repeats the same grade at school. This means that nothing is ever lost, that life does not have to be an awful stress and a race against time, a dreadful lottery when all can be won or lost once and for all irrevocably[8]. But there is a terrible price to be paid for the sense of peace thus gained. If human life and human choice resemble a computer game which can be always restarted in the event of mistake or failure, then such a life and the choices made have no significance at all. They do not matter anything, they do not leave any stamp on the course of history. Christianity by the opening of time gave freedom to man but also gave man's actions the gravity that is only becoming to things which are not repeatable. It made man a protagonist of a drama." We do not love enough and we love to late ..."[9]. But would it be better not to experience love at all?

The uniqueness of man's actions and feelings makes man capable of imprinting his individual stamp on the story thus transforming it into history. But this is an entirely different stamp than a fossil left in a rock. This is a stamp of culture imprinted on the nature which thus becomes humanized. The witness of an autonomous decision which was born inside. A trace of freedom. Thanks to this, the cosmic time is transformed in the likeness of man, humanised. As much as man is made in the likeness of God, the same way the nature is at least partially transformed in the likeness of man. From that time on, it bears marks of human presence, human dreams and ambitions, human victories and failures. The symbolic expression of that is the establishment of a calendar which not only reflects the rhythm of nature but also imposes on it the holy order: the recollection of miraculous God's interventions.

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[6] G. Pàttaro, Pojmowanie czasu w chrześcijaństwie /*The Christian Conception of Time*/, [in:] Czas w kulturze /*Time in culture*/, A. Zajączkowski (ed.), p. 294.

[7] P. Ricoeur, Podług nadziei /*Histoire et vérité*/, Instytut Wydawniczy Pax, Warszawa 1991, p. 182.

[8] J.S. Pasierb, Czas otwarty /*The open time*/, p. 21.

[9] J. Twardowski, Śpieszmy się, [in:] Ibidem, Wiersze /*Poems*/, Wydawnictwo Łuk, Białystok 1995, p. 152.

Periodization of time

The open time, spread between the creation of the world and the moment of its ultimate redemption, is the history featuring constant changes. Not only do generations come and go, but also the whole imperia appear and disappear in destruction. Is it a chaotic process, utterly unpredictable and void of any sense or is there any order in it so that it can be comprehended? The cycles of nature not only assumed that nothing new would happen but also that collective memory would be cyclically destroyed, that knowledge would not be transferred and that it would be necessary for each generation to start from scratch. As Ravasi writes, every generation is separate, has a number of years in store for it and no possibility to contact the preceding and the following generation (...) Neither memory nor cognition nor fame nor experience can get across beyond those circles And this is why each generation and also each man repeat the entire human experience, the experience of happiness and pain, love and hatred, loneliness and community, greatness and littleness, justice and injustice, wisdom and stupidity, wealth and poverty[10].

Two answers can be attempted to the question about time' s internal structure: a laic answer though it is not made laic because it does not refer to God as an ultimate author of history. It is laic because it resembles the contemporary manner of building theories based on social sciences. The anonymous author of the Book of Daniel tries to periodize time this way. The Book was edited during the persecutions at the times of Antioch Epihanes, 167–164 A.C. but it describes events from the Babylonian and Persian captivity.[11] In the dream related there, king Nebuchadnezzar sees a statute whose head was "made of fine gold, its chest and arms were of sliver, its belly and thighs were of bronze, ,its legs of iron and its feet part iron, part earthenware" (Dn 2, 32–33). That statute is destroyed and Daniel thus explains the dream to the king: "After you another kingdom will rise ...not so great as you, and then a third of bronze which will rule the whole world. There will be a forth kingdom, hard as iron... The feet you saw part iron part earthenware, are a kingdom which will be split into two. The feet were part iron, part earthenware : the kingdom will partly be strong and partly weak" (Dn 2, 39–42). The words of the prophet refer to the four subsequent empires: Babylon, Media, Persia and Greece of Alexander of Macedonia and his successors. The author thus performs a periodisation of history seen as a succession of empires. He is neither an advocate of the circular theory of time and of regular "eternal returns" of the same thing nor of a "chaotic time", void of internal structure, since he assures the readers that one day, empires will be finally replaced by the kingdom of God filling the entire gold (see: Dn 2, 44; 7, 27)[12].

The other way of imposing some order onto history is treating it as an entirety. According to the latter approach, history of the world develops in various phases whose progress is linked to the concept of close covenant between God and Adam, Noah, Abraham, Isaac, Jacob, Moses and David[13]. Each of those covenants was broken by man. That is why God announces an ultiamt4

[10] G. Ravasi, Kohelet */Qohelet/*, p. 80–81.

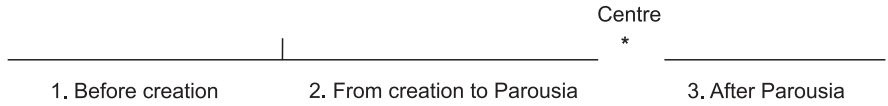
[11] See: E. Voegelin, History of Political Ideas. Vol. I. Hellenism, Rome, and Early Christianity, University of Missouri Press, Columbia and London 1997,p. 122; The Book contains passages which come from the 6th and 2nd century B.C. It was finally edited hen Antioch banned all Jewish religious practices and when to circumcise a boy was tantamount to condemning him to death. That is why the readers were not mislead by the names of Nebuchadnezzar, Belteshasar or Darius neither by mythical monsters and animal hybrids. They read them as encrypted political comments (See: A. LaCocque, Księga Daniela, [in:] W. R. Farmer (ed.), Międzynarodowy komentarz do Pisma Świętego. Komentarz katolicki i ekumeniczny na XXI wiek, Wydawnictwo Księży Werbistów Verbinum, Warszawa 2000, p. 968 */A. LaCocque, Book of Daniel, [in:] W. R. Farmer (ed.), Commentarium Biblicum Catholicum Internationale. International Catholic Bible Commentary/*).

[12] See: E. Voegelin, History of Political Ideas. Vol. I. Hellenism, Rome, and Early Christianity, p. 122; A. LaCocque, Księga Daniela */Book of Daniel/*, p. 973.

[13] See: A. Jankowski, Biblijna teologia przymierza */The Byblical Theology of Covenant/*, Księgarnia św. Jacka, Katowice 1985.

covenant, a covenant so strong that nothing can ever break it. It is made by God with the new and ultimate David, i.e. Jesus Christ. His arrival initiates the time of all promises coming true, the time of passage from slavery to freedom, from anger to grace, from image to reality. The ultimate time begins.

The redemption performed in the historical time changes the structure of time in relation to the impressions contained in the Old Testament. As much as in the Jewish thought there is only one decisive determinant of time: the Parousia which should happen in the future and open up a new eon, as much for the Christians, the centre of time is not in the future but in the past or in the time contemporary to Jesus Christ and to the Apostles. Christ's incarnation is a "pulsating heart of time"[14]. In both visions, the moment of Parousia can be interpreted as the end of man's history in its contemporary form, such a fundamental change of the world and of man which can e termed as the end of history. The difference between the two concepts can be graphically presented in the following way:



The pictures were taken from Joseph Ratzinger's book: Eschatologia — śmierć i życie wieczne, Księgarnia Świętego Wojciecha, Poznań 1984, p. 69 /*J. Ratzinger, Eschatology—Death and Eternal Life*/.

Fig. 1. Division of time under the Old Testament

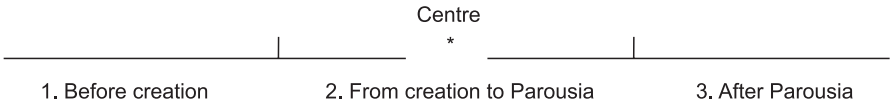


Fig. 2. Division of time under the New Testament

As Ratzinger writes, the division of Centre and the end of time and the shifting of the Centre to the past means a proclamation of a new time: this is the time "already" and the time "not yet", the time when the Centre appeared and when the end is expected (...) The core of Jesus' message contains a diastases between the «centre» and «the end» of time. The cosmic break-through and the Kingdom come do not overlap [15]. The separation of the two events and living in the time in-between bears uncertainty, impatience, and often a temptation to accelerate the moment of Parousia .

The End of History—Gnostic Vision of History

The "in between period" which lasted longer than the first disciples expected, brought about, with the passing of time, various heretic visions of history. Eric Voegelin sees the origins of this new approach in the false interpretation of an excerpt from the Apocalypse of Saint John (Ap 20, 1–6), which proclaims one thousand years of Christ's Kingdom. It is true that Saint Augustine disposed of the literal belief in a thousand year-long Kingdom of Christ on Earth,

[14] John Paul II, The Apostolic Letter *Novo Millennio Ineunte*, 5, http://www.vatican.va/holy_father/john_paul_ii/apost_letters/documents/hf_jp-ii_apl_20010106_novo-millennio-ineunte_en.html.

[15] Ibidem, p. 70 i 76.

considering it a ridiculous fairy tale and proving that the above-mentioned pericope referred to the time of the Church which was going to last until the day of the Final Judgment, and that the proclaimed Kingdom would come into being outside the sphere of the earthly time[16]. In the late 12th century, however, Joachim of Fiore broke ties with the Augustinian tradition of interpretation of the Revelation and introduced the symbolism of the Holy Trinity into description of human history. In his view the history of mankind can be divided into three eras corresponding to three persons of the Holy Trinity. The era of the Father lasted from the creation of the world till the coming of Christ. It was followed by the era of the Son. The latter one is not final either, as it will be followed by the era of the Holy Spirit. Voegelin wrote that these three eras were a clear sign of the accumulation of spiritual fulfillment. The first one was dominated by a layman, the second brought about an active contemplative life of a clergyman, whereas the third one was going to reveal a perfect spiritual life of a monk[17]. Each of the eras was characterized by comparable structures and measurable period of time. Each of them was initiated by three guides: two forerunners followed by a spiritual leader. According to calculations, the era of the Son would come to an end in 1260. Abraham was the leader of the first era, Christ headed the second one, whereas year 1260 would see the rise of the third leader, *Dux e Babylone*.

The linear concept of time which makes history a space where human drama unfolds, which however has already reached its climax at the moment of death and resurrection of Christ and is now merely awaiting its happy ending, should, as it seems, be full of optimism. However, as proved for instance in the work by Saint Augustine, it was often accompanied by a characteristic historiosophic pessimism. Although it is not cyclical, history is going through different phases as it unfolds. In his periodization of time, Bishop Hippony compares human history to six periods in life of a man (*infantia*, *pueritia*, *adolescentia*, *iuventus*, *aetas senior* and *senectus*) which correspond to biblical eras (from Adam's times to the Flood, from the Flood to Abraham, from Abraham do David, from David to the resettlement in Babylon, from the resettlement till the birth of Christ in human body). Hence, pre-Christian times played a preparatory role for the coming of Jesus Christ. At which point in history are we right now, though? According to Saint Augustine, we have already experienced five days. The sixth day is unfolding right now[18]. The sixth day means that we are nearing the end of history. The world has grown old and is drawing to an end. History brings no more hope. It has run out of its dynamism whereas humanity is standing on the verge of the world, looking into the face of nothing. It is true that there are still day seventh (and eighth) left, filled with joy and happiness, but in the meantime human being experiences all kinds of discomfort of the old age, such as cough, trembling hands, dimmed eyesight, fearfulness and immense tiredness[19] . Indeed, the cycle of imminent returns has been overcome as God is the master of both: space and history, the course of which unfolds according to His plan until it is fulfilled. But if the said fulfillment happens outside the sphere of time, then nothing more should be expected from time; deprived of its internal structure, it does not run anywhere, as if it

[16] See: Św. Augustyn, Państwo Boże, XX, 7–9, Wydawnictwo Antyk, Kęty 1998, p. 809–819. /*Saint Augustine, The City of God*/.

[17] E. Voegelin, Nowa nauka polityki, Biblioteka Aletheia, Warszawa 1992, p. 106. /*E. Voegelin, New Science of Politics*/.

[18] Św. Augustyn, Państwo Boże, XXII, 30, p. 966. /*Saint Augustine, The City of God*/.

[19] See: P. Brown, Augustyn z Hippony, Państwowy Instytut Wydawniczy, Warszawa 1993, p. 301 (Saint Augustine, *Sermones*, 81, 8); *In this life we are all mortal but the last day of this life is always uncertain for everyone. In childhood however one hopes to achieve the age of boyhood; in boyhood the age of adolescence; in adolescence the age of manhood; in manhood the age of maturity, and in the age of maturity one hopes to achieve seniority. One is of course not sure but hopes to achieve it. Seniority on the contrary does not have any period it could look forward to; its very lasting is uncertain. The only sure thing is the fact that there is no other period in life left which can follow seniority.* (Saint Augustine, *Epistola*, 213, 1, [after:] A. Trapë, Święty Augustyn. Człowiek — duszpasterz — mistyk, Instytut Wydawniczy Pax, Warszawa 1987, p. 303 /*A. Trapë, A. Agostino, Lhuomo, il pastore, il mistico*/).

stopped in the monotony of *senescens saeculum,* merely waiting for the moment when the lights go out[20].

By making distinction between lay history, which is a scene of the rise and collapse of empires, and sacred history, which finds its fulfillment in the coming of Christ and emergence of the Church, Saint Augustine imparts a sense of direction only to the latter one. The said direction is an eschatological fulfillment of history. In other words, lay history, deprived of the point it is supposed to reach, is also deprived of significance as a whole. It does not necessarily entail that it is just like "a tale told by an idiot, full of sound and fury, signifying nothing" (W. Shakespeare, Macbeth, V, V). Nevertheless, since it lacks teleology, its events cannot be arranged into one sensible story, it cannot be understood as a whole. Joachim found it difficult to accept such vision of lay history. His speculation constituted an attempt at lending sense to an immanent course of time, the element missing in Augustan's vision[21]. The proclamation of a thousand-year-long earthly Kingdom within historic time, being the fulfillment of history, an immanent hipostasis of the Christian eschaton, bestows also upon current times a sense of understandability and explicitness. The up to date history gains a sense of direction and destiny. Lay history, in accordance with the laws which can be discovered by a human being, aims at its worldly telos. Thanks to accumulation of human achievements, the world becomes a scene which is witnessing a constant progress, a quantitative and qualitative increase in contemporary good, until attaining the state of absolute perfection in which history, having reached its end, will come to an abrupt halt. Hence, not only is history sensible, but redolent of optimism as well.

By reminding the conception of Joachim of Fiore, Voegelin does not aim at enhancing the level of our knowledge about the Middle Ages. In his opinion, this gnostic vision of times, which has as its goal deification of the society and immanentization of the idea of salvation, has dominated the modern way of thinking about politics and gives it a hazardously utopian character. Voegelin follows the continuation of gnostic utopianism in all progressivistic visions of history, starting from Encyclopedists through Heglism, Marxism, right to the idea of national socialism. At every stage we come across a distinct sequence of development stages and mysticism of the kingdom of freedom. Starting with Turgot, through Condorcet, Comte, Fichteg, Hegel, Schelling, right to Marks. From the Third Roman Empire till the Third Reich. No matter what vision each single author has of the state following the end of history, should it be the fulfillment of history in the form of a thousand-year-old Reich, a communist society of "starvelings from slumbers", or last but not least, Kant's liberal republic, all of these concepts bear a "bite" of the above-mentioned gnosticism. If we ponder more deeply about the worthiness of these generally three-fold visions of times, and particularly about the consequences of attempts at their implementation, they turn out to be not so much a key to understanding history, as a picklock in the hands of burglars. What makes them most dangerous is the explicitness of these concepts, strong conviction about imminence of this particular and no other course of events, which seems to be enough to excuse also referring to violence in order to "speed up" things which must happen anyway .

Christian faith, unlike gnosticism-based political ideologies, is in possession of no reliable knowledge, either about the direction, or sensibility, or rules underlying the development of contemporary history. "We do not know the time for the consummation of the earth and of humanity nor the way the universe will be transformed"[22]—says " Pastoral Constitution on the Church in the Modern World". Unlike some Old Testament visions of political messianism,

[20] See: E. Voegelin, History of Political Ideas. Vol. I. Hellenism, Rome, and Early Christianity, p. 210–213.

[21] See: E. Voegelin, Nowa nauka polityki, p. 113 */New Science of Politics/.*

[22] Sobór Watykański II, Konstytucja duszpasterska o Kościele w świecie współczesnym, 39, [w:] Tenże, Konstytucje. Deklaracje. Dekrety, Wydawnictwo Pallottinum, Poznań 2002, p. 554 */The Second Vatican Council, Pastoral Constitution on the Church in the Modern World, 39/.*

Christian faith does not await its fulfillment within the current eon. Christian memory of the crucifixion of Christ, the most just of all people, reminds His disciples about the limitation of human mind and the need of keeping eschatological distance towards all political goals, as it is impossible to introduce into earthly life things which may only be fully implemented in eternity[23].

Eschatological Distance

In order to express this idea in un unambiguous way, let us recall two more reservations expressed by Joseph Ratzinger in the context of political references made to the Christian faith. According to J. Ratzinger, if Christianity was interpreted as a strategy of hope, then the following question had to be asked: what kind of hope is meant? God's Kingdom is not a political notion, hence it does not constitute a political criterion either, a criterion according to which political *praxis* could directly be shaped, or according to which political implementations could be assessed. The construction of God's Kingdom is not a political process. If it is viewed this way, then both: false theology and false politics come as a result. False messianisms are created which, due to their nature and their messianistic claims, appear on a false plane and are transformed into totalitarian regimes. First of the above mentioned reservations holds that converting eschatology into political utopianism depreciates Christian hope. (...) The other reservation says that in this way also issues political by nature are falsified: the mystery of God's Kingdom is abused to justify different kinds of irrational political ideas, which result in changing mystery into pseudo-mystery. For, where things achievable merely by a miracle of grace: a change in human nature accompanied by a change of the world in general, become a rule applied to the entire political activity, where the unfeasible is supposed to mark out the path for reality, then violence, destruction of nature combined with destruction of the human being inevitably has to appear[24].

The above—written words do not mean, however that no justified relationship exists between Christian faith and political engagement. The afore—quoted Pastoral Constitution says: "Hence, while earthly progress must be carefully distinguished from the growth of Christ's Kingdom, to the extent that the former can contribute to the better ordering of human society if it is of vital concern to the Kingdom of God"[25]. The relationship between Christian faith and political engagement does not happen through eschatology but rather through political ethics. Joseph Ratzinger writes that admittedly God's Kingdom does not constitute a political norm for political issues, but it constitutes its moral norm (...) In other words, one can say that the message on God's Kingdom is important for politics, not through eschatology, though, but through political ethics. The issue of Christian responsibility for politics is not a matter of eschatology, but rather an issue related to moral theology and it is in this way that the message on God's Kingdom is to provide politics with decisive content. Politics is all about the non-eschatological [26]. Hence,

[23] "After Christ absolutization of the society as a collective value which absorbs human being together with his inalienable destiny is no longer possible. Society, state, political power all constitute a part of this world—changeable and always subjected to perfection. No social program will ever establish the Kingdom of God i.e. the state of eschatological perfection on Earth. Political messianisms most often lead to the worst forms of tyranny. Structures adopted by society never have the supreme value, neither can they on their own cater for all goods that a man desires. In particular they cannot substitute his conscience or meet the need of truth and the absolute (John Paul II, Speech in the European Parliament, Strasburg, 11 October 1988 r., 9, [in:] ibid., Przemówienia i homilie Ojca Świętego Jana Pawła II, Wydawnictwo Znak, Kraków 1997, p. 149) /*Speeches and Homilies of His Holiness John Paul II*/.

[24] J. Ratzinger, Eschatologia—śmierć i życie wieczne, p. 75–76 /*J .Ratzinger, Eschatology—Heath and Eternal Life*/.

[25] Sobór Watykański II, Konstytucja duszpasterska o Kościele w świecie współczesnym, 39, p. 554 /*The Second Vatican Council, Pastoral Constitution on the Church in the Modern World*/.

[26] J. Ratzinger, Eschatologia—śmierć i życie wieczne, p. 76. /*J. Ratzinger, Eschatology—Death and Eternal Life*/.

drawing a distinctive line between things eschatological and things political constitutes a major task of Christian theology. This line means setting politics free from excessive expectations, which it is not able to meet, either in its present shape or in general. Ethics on the other hand, is a tool which allows to do both: assess the value of the past cultural heritage accompanied by a responsible decision on which part of it deserves creative continuation, and to keep freedom in the context of the current projects of change; freedom which comes from human ability to pass judgments.

Progress versus Development—Ways of Accumulating Human Achievements

Either does keeping distance towards progressivistic visions of human history mean that no progress can be seen in the world. How can the very progress be defined, though? Paul Ricoeur stated that a change could be regarded as progress when two conditions were met at the same time: accumulation of property and improvement[27]. It can be proved beyond any doubt that when it comes to tools used by human beings, we have to do with the activities of storing and capitalizing. Whereas human being himself disappears and reappears again, human tools and works last[28]. Ricoeur claims that in this case we are dealing not only with quantitative growth, but also with the qualitative one, hence—an improvement. Technical progress leads to liberating masses from basic poverty and opens a gateway to prosperity. It leaves a permanent trace not only in the realm of material goods, but also liberates crowds from illiteracy and provides them with access to basic cultural achievements. This phenomenon can be observed both within societies (providing access to goods so far reserved exclusively for the elite), as well as on global scale (general access to goods which were previously reserved only for the representatives of the western world). According to Ricoeur, so far humanity has lived *per procura in* a sense, either via few privileged societies or via narrow elites[29]. Thanks to progress these goods are becoming more widely available.

Ricoeur does not use the term "tool" in a primitive sense of the word, which would establish a link merely with the material tools, and as a result of which progress would only be limited to the sphere of technology. He also makes human knowledge a part of the instrumental world. Everything a human being has learned, all he knows, everything he can analyze, say, feel and do—all this constitutes his «property », knowledge accumulates and gains an established character, just like tools and objects manufactured with the aid of tools[30]. Thanks to the writing system, particularly the print, also cognition leaves its permanent imprint and adds up[31]. Our contemporary way of thinking is embedded in all achievements of the past, in the stream of reflection provoked for thousands of years. A word uttered by us constitutes a voice in the great debate with the past and future generations. It makes the cognitive adventure of mankind equally irreversible as the technological one. It allows to view the history of civilization as if it was a story of one person who never dies and never stops to deepen and further his/her knowledge. However, it is a key fact that the accumulation of property also concerns moral and spiritual experience of humanity: Deeper reflection, getting to know oneself, understanding human condition—all these

[27] See: P. Ricoeur, Podług nadziei /*Histoire et vérité*/, p. 166.
[28] Ibidem, p. 180.
[29] Ibidem, p. 167.
[30] Ibidem, p. 180.
[31] Ibidem,

notions undergo accumulation as instruments of life. There is a moral and spiritual «experience» of humanity which gets capitalized in a similar way the material wealth does[32].

But can a justified conclusion be drawn that contemporary people and social as well as cultural environment which they create are undoubtedly better than the ones of their ancestors? Unfortunately not. The fact that the 20th century was the most cruel one in history proves that moral development of humanity falls behind its technological advancement; that material tools improved by the man may be utilized for his good, but they can also contribute to the total annihilation of humanity. Moreover, because development of technology, and as a result, an increase in material resources can go hand in hand with growing moral underdevelopment of individuals and societies, the said development can contribute to destruction of "not just traditional cultures (which would be an evil which could be diverted), but also of what Ricour calls a creative core of great civilizations, great cultures, the core which gives birth to our understanding of life, the ethical and mystical core of humanity[33]. Easily do we forget that the development of civilization and culture does not follow a single, western line and that other answers to questions about the sense of human life and death also convey valuable content and are worthy of protection. John Paul II warned against such effect, perceiving it as one of the main reasons of radicalization of cultures: "This is a phenomenon of vast proportions, sustained by powerful media campaigns and designed to propagate lifestyles, social and economic programs and, in the last analysis, a comprehensive world-view which erodes from within other estimable cultures and civilizations. Western cultural models are enticing and alluring because of their remarkable scientific and technical cast, but regrettably there is growing evidence of their deepening human, spiritual and moral impoverishment".[34] The words of Jan Patoéka seem to be justified with respect to the western world. He says that modern development strives at democratic equalization, at equal chances, at placing prosperity above «greatness»[35]. One should confront this opinion with a reservation made by Ricoeur who wrote that in an extreme situation the triumph of consumer culture which is equal and completely anonymous everywhere, would mean level zero for creative culture, victory of prosperity would bring about global skepticism and absolute nihilism. One has to admit that such a threat is at least as realistic or perhaps even more probable than a threat of nuclear disaster.[36]

Paradoxically, in spite of the clear accumulation of "tools", we currently run no lesser risk of having to restart everything from scratch. Ricoeur provides the following, quite simple explanation: (...) progress refers merely to an anonymous, abstract essence, to the dynamism of human works which are detached from the actual drama of will and suffering of an individual, from the drama of blooming and withering civilizations[37]. We are therefore faced with a plane of individual decisions, events and deeds, where human being starts time and time again, as if from scratch, where each and every descending individual closes his/her own experience and where entire civilizations perish as a result of exhaustion, unable to reach for that spiritual sustenance which is right at their side[38]. On the other hand though, we are confronted with the plane of traditions, imprinted

[32] Ibidem, p. 181.

[33] Ibidem, p. 168.

[34] Jan Paweł II, Dialog między kulturami drogą do cywilizacji miłości i pokoju. Orędzie na Światowy Dzień Pokoju, 1 stycznia 2001 r., 9, [in:] ibidem, Świat nie jest zamęt..., Akademia Dyplomatyczna Ministerstwa Spraw Zagranicznych, Warszawa 2003, s. 296 /*John Paul II, Dialogue Between Cultures for a Civilization of Love and Peace, Message for the Word Day of Peace, 1 January 2001, 9, ibidem., Świat nie jest zamęt..., Diplomatic Academy of the Ministry of Foreign Affairs, Warsaw 2003, p. 296*/.

[35] J. Patoéka, Eseje heretyckie z filozofii dziejów, Fundacja Aletheia, Warszawa 1998, p. 149 /*J. Patoèka, Heretical Essays in the Philosophy of History*/.

[36] P. Ricoeur, Podług nadziei /*Histoire et vérité*/, p. 170.

[37] Ibidem, p. 182.

[38] Ibidem, p. 181.

material traces of achievements of the human spirit and mind. What of the fact that we posses wonderful books if nobody reads them, and even if they do, they do not understand them? They are not understood mainly because, due to figures such as Rousseau or Nietzsche, people have learned to treat them with suspiciousness, like "deceitful books" of foreign and mutually hostile tribes[39]. One may die of thirst lying on green grass next to a gushing stream. Since nobody can force anyone to draw water from the stream. Some day however, others will come, those currently deemed to be barbarians. They will settle on our ground, drink water from our wells, admire ruins of our palaces and churches, read our books with delight—the books which before grew foreign and incomprehensible for us.

European Union as an Incarnation of the End of Times—Decline or Fulfillment?

On the end of the 1980s, the beginning of the 1990s, while developing his vision of "the end of history" Francis Fukuyama made close references to Hegel, expressing a statement that "the Battle of Jena in 1806 marked the end of history"[40]. Fukuyama goes beyond that opinion moving from Hegel to Marks and Kojéve in order to—by elaborating on the sense of the original statement— finally agree with Hegel saying that the ideas of liberty and equality that had driven the French Revolution and were realized in the form of the institution which Kojéve named «a universal hegemonic state»—created the final stage of ideological evolution after which there would be no more progress[41]. Everything that came later on, including Bolshevik and Chinese revolutions was merely "reshuffle in the provinces". Kojéve stated that by observing events happening around him and thinking what happened in the world after the Battle of Jena, he came to understand that Hegel was right seeing the end of History, in the proper meaning of the word, at that point. During the Battle and thanks to it, the avant-garde of mankind reached its potential end and the aim, i.e. the end of historical evolution of the Human Being. Since then we have been facing merely a spatial expansion of a general, revolutionary power, which Robespierre – Napoleon wielded in France. From purely historical point of view, two world wars, along with small and big revolutions which accompanied them, resulted merely in retarded civilizations of peripheral provinces occupying successive posts at the forerunning European historical positions (real or potential ones)[42]. Humanity has already reached the state of absolute self-knowledge and having removed all internal contradictions, has also removed great goals of the political struggle. From that moment on, it can concentrate purely on its economic growth. One could even say that, looking from a certain perspective, the United States has already arrived at the final stage of the Marxist «communism» as, in practical terms, all members of the«classless society» can purchase anything they like without the need to work for it more than their heart tells them to[43].

Fukuyama also quotes significant facts from the life of Kojéve, who, quite paradoxically, decided to meet the eternal demand of wisdom-loving populations to enthrone philosophy. He gave up his university career and became an official working for the European Community. In his opinion though, the end of History cannot be boiled down merely to disappearance of significant

[39] See: J.-J. Rousseau, Rozprawa o pochodzeniu i podstawach nierówności między ludźmi, [in:] ibidem, Trzy rozprawy o filozofii społecznej, Państwowe Wydawnictwo Naukowe, Warszawa 1956, p. 142.

[40] F. Fukuyama, Koniec historii, Wydawnictwo Zysk i S-ka, Poznań 1996, p. 103.

[41] Ibidem, p. 105.

[42] A. Kojéve, Wstęp do wykładów o Heglu, Fundacja Aletheia, Warszawa 1999, p. 455 /*A. Kojève, Introduction to the Reading of Hegel*/.

[43] Ibidem.

political struggle, it also means the end of philosophy. The European Community is in turn the incarnation of the end of times. This way of interpretation of the sense of existence of the European Community—if it can in fact be attributed to Kojéve—would constitute a part of gnostic interpretation of the end of times. Immanentization of the idea of salvation and pointing a finger at the Community, or today rather at the European Union, as its concrete expression, would be a signal for Christians to increase their alertness. As no matter how much they value the Union, they do not expect it to live up to the promise of eternal salvation.

However, it is nor merely the risk of political instrumentalization of the idea of salvation that keeps Christians living on the Old Continent awake. The envisaged end of history is associated by many not just with fulfillment of the promise, but rather with decline of the European civilization and culture, with its final collapse. At this point we can refer both to the words of John Paul II quoted at the beginning of this work, as well as to much more pessimistic assessments made by Cardinal Joseph Ratzinger. Cultural crises experienced by Europe today was described by him as "a hatred of the West towards itself".[44] In the opinion of Cardinal Ratzinger, the aim of a number of steps taken by various European groups, which sometimes also take advantage of institutions as serious as the European Parliament, is a major change in the paradigm of culture and vision of the human being, which can be well expressed with the words of Nietzsche as "revaluation of all values". It refers in the first place to issues such as legalization of abortion, euthanasia, experiments on human embryos, depreciation of the institution of marriage as a monogamous relationship between a man and a woman. This tendency finds its symbolic expression in the open reluctance of politicians towards the idea of including in the EU Constitutional Treaty a reference to the role Christianity played in creation of European identity. An attempt at renouncing from the memory the Christian past and cutting off one own roots can perhaps be seen as an equivalent of what doctors term an autoimmunity of the immunological system: as a result of strong irritation the system can no longer discern between itself and external bodies—hence it attacks everything. Not a lesser role in the radical criticism of the current state of European culture is played by the above-mentioned consumerism. For, resigning from the noble kills the very creative core of culture. Patoéka warned that: "A life can be said to be decadent when it loses its grasp on the innermost nerve of its functioning process, when it is disrupted at its innermost core"[45].

The end of history predicted after the Victory of Jena had an optimistic overtone. A universal, homogenous state as a historic culmination of the victory of liberalism and an unlimited consumerism as a sign of the triumph of free-market economy became a part of progressivistic vision of times. Today these proofs of success are sometimes depicted in a pessimistic scenario as examples of decline, or at least as signs ambivalent in their significance.

It is not just empires, but also civilizations that are mortal. The heritage of ancestors, no matter how splendid and valuable it may be, can be wasted. When analyzing cultural changes on the Old Continent, John Paul II mentioned "«silent apostatsy» on the part of people who have all they need and who live as if God does not exist"[46]. While wishing to protect and develop one's own civilization and culture, one should remember the mentioned ambivalence which is brought about by any change: technological progress does not necessarily equal cultural development. Technical increase in longevity of a given community, in its ability to triumph when confronted with competitive groups may include a not yet revealed "germ of extermination". Hence, according to Ricoeur, humanity passes time in two ways. Civilization develops a particular feeling of time

[44] J. Ratzinger, Europa. Jej podwaliny dzisiaj i jutro, Wydawnictwo Jedność, Kielce 2005, p. 31 /*J. Ratzinger Europa. I suoi fondamenti oggi e domani, Edizioni San Paolo, Milano 2004*/.

[45] J. Patoéka, Eseje heretyckie z filozofii dziejów, p. 132 /*J. Patoèka, Heretical Essays in the Philosophy of History*/.

[46] John Paul II, *Apostolic Exhortation Ecclesia in Europa, 9.*

which forms the basis of accumulation and progress, while peoples develop their cultures in a way subjected to the rule of faithfulness and creativity—culture withers when it ceases to revive, recreate itself, and then comes the time when a writer, a thinker, a sage, a spiritual leader appears, who is able to lend momentum to the culture and push it, with the whole risk connected with it, on the track of a new adventure[47]. Also in case of the European civilization it is only creative faithfulness that can constitute the source of future hope as, although the end of history will not happen within the sphere of time, we can still witness the end of Europe.

During the debate on the Constitutional Treaty, both France and Belgium protested against including in it a reference to the common Christian heritage because it could raise serious philosophical, political and constitutional problems in those countries which are lay by nature. If however it should be controversial to refer to Christian dimension of the European heritage while defining cultural identity of the continent, a dimension without which Europe would not have appeared on the cultural map of the world, then one can ask a question if it is still justified to use the term "Europe" to describe events happening on the Old Continent. One must become aware of the fact that not every stretch of history on the land "between the Atlantic Ocean and the Ural Mountains" can be regarded as the next stage in the development of the European culture. Hence, Europe and its culture may be destroyed although Europe in its geographical or political sense may still last. Europe which would get rid of the idea of the Absolute, of things unconditional, and as a result of the subjective idea of the human being, would cease to be Europe and remain merely a name on the map of the world. According to Robert Spaemann, it would simply be a name of the place where elimination of the human being witnessed its beginning[48]. These words are not exaggerated since Europe which does not share its faith with the world, will unavoidably export its lack of faith, i.e. a conviction that no truth, no law or Good exist, and by doing so it will destroy great religious and moral traditions of humanity, a foundation of the notion of «being human» and bend others to the law leading to destruction of Europe itself[49]. Therefore, the calling of Christians does not consist just in differentiating between politics and eschatology, but also in guarding the ethical content of the European project. Hence, we may face a situation where the culture of the Old Continent is dominated by elements which can be termed post-European or even anti-European. And Europe as a post-Christian continent could in turn also become a post-European continent.

It is characteristic though that given the amount of bitterness which is easily detectable in a number of works on the state of the European civilization and culture quoted above, neither of the authors dares drive home the point. In his final statement Jan Patoéka says that that the entire question of decline of civilization may have simply been presented in an incorrect way[50]. Paul Ricoeur concludes that civilization does not cease to develop or experience stagnation in all of its aspects simultaneously. It is composed of a number of paths of development, the course of which can be viewed separately to a certain extent[51]. Therefore, radical assessments can be true but in some aspects only. It is never certain which of the aspects: the positive or the negative one will prevail and play a decisive role in continuation and development or in decline of the civilization.

John Paul II provides his enyclical on Europe with the following subtitle: "On Jesus Christ Alive in His Church. The Source of Hope for Europe". Cardinal Ratzinger states that: "the fate of

[47] P. Ricoeur, Podług nadziei /*Histoire et vérité*/, p. 173.

[48] R. Spaemann, Uniwersalizm czy europocentryzm? /*Universalism or Eurocentrism?*/, [in:] Michalski K. (ed.), Europa i co z tego wynika? /*Europe: what does it mean?*/, Res Publica, Warszawa, p. 341.

[49] J. Ratzinger, Powołanie i przeznaczenie Europy. Europa obietnicą czy zagrożeniem? /*Vocation and predestination of Europe. Europe as a promise or as a threat*/, *Znaki Czasu*, Rzym–Warszawa, 19/1990, s. 6.

[50] See: J. Patoéka, Eseje heretyckie z filozofii dziejów, p. 162 /*J. Patoèka, Heretical Essays in the Philosophy of History*/.

[51] P. Ricoeur, Podług nadziei /*Histoire et vérité*/, p. 187.

the society always depends on its creative minorities"[52]. The name adopted by Cardinal Ratzinger as the Head of the Church refers to the times of deep crisis of the European civilization, which was finally overcome greatly thanks to small Benedictine communities. We wish to believe that also today Europe can look with hope towards the future. Its time is open and ambiguous, it conceals both: a risk of defeat and a hope for successive victories the source of which lies in self-acceptance.

Kojéve wrote that the history of humanity, i.e. time, will last as long as the *difference* between «knowledge» (subjective) and «truth» (objective), i.e. *reality*-revealed-by-knowledge, is sustained. Hence, history will last as long as a being who *makes mistakes* and gradually eliminates them, lasts[53] . This in turn means that a human being will never experience the end of history. However, we want to believe that if we are mistaken in the assessment of the current European condition, in forecasting the future fate of the European homeland, then it is only by being over pessimistic. While the true calling of Christians is the task to become "«morning watchmen» at the dawn of the new millennium"[54].

[52] J. Ratzinger, Europa. Jej podwaliny dzisiaj i jutro /*J. Ratzinger Europa. I suoi fondamenti oggi e domani*/, p. 32.

[53] A. Kojéve, Wstęp do wykładów o Heglu, p. 437 /*A. Kojève, Introduction to the Reading of Hegel*/.

[54] John Paul II, The Apostolic Letter *Novo Millennio Ineunte*, 9.

Part V:
Cities and regions

JAN LAMBOOY

INNOVATIVE COMPETITIVE CITIES AS COMPLEX ADAPTIVE SYSTEMS; AN EVOLUTIONARY ECONOMICS APPROACH

1. Introduction

In the 1980s many people were convinced that cities as centres for social and economic dynamism were a disappearing fact of live. Wealthier people wanted to live outside the cities, in larger villages or in suburban areas. The car and the rise of ICT, but also the concentration of the socially and economically disadvantaged made many observers think that we would see a complete transformation of communication, spatial configurations, social and economic structures. The end of distance and the end of spatial concentration seemed near. The current view is completely different. The views on urban development are now that distance still matters and that urban concentration still continues (van Oort 2006). As one looks at the arguments behind this latter view, one finds two major approaches. The first is based on the theory of agglomeration economies (Jacobs 1969; 1984; Lambooy and van Oort 2005). The second is based on the idea that (larger) cities are strong because they claim to be the physical concentration of the knowledge workers and the creative class (Gottmann 1961; Lambooy 1998; Florida 2002). In a recent ESPON project it was documented that the largest cities, more in particular in the so-called Pentagon area (London–Paris–Milan–München–Frankfort–Amsterdam–London), contributed much more to their national GDPs than could be expected by looking at their population sizes. The total share of GDP of the European GDP is very large, due to agglomeration economies.

Of course, there are some pessimists also. They see many cities as concentrations of the socially and economically disadvantaged, previously named the poor. Others focus on the assumed negative effects of urban dispersal (Graham and Marvin 2001). Politicians often sustain one of the perspectives to get support by their voters. They use lists of ranking of cities made by various research groups, in order to show that their ranking improved due to their good policies, or declined because the voters did not listen to their words.

The concepts of **'innovative cities'** and **'competitive cities'** are widely used in this debate. What does 'competition' mean in this arena of competing cities? Are they innovative and hence competitive? Are they competing in markets, or for national and European funds? The question may be raised whether cities or actors in cities are competing. Michael Porter argues that not countries compete, but firms. However, cities can have a specific position by their direct or indirect opportunities for public intervention in spatial planning, land policy and education. In general,

however, it can be argued that actors (producers, workers, consumers, or organisations like universities and city governments) are the relevant units. Another point is what we understand by 'cities': the municipalities or the city-regions, or even polycentric urban regions (PURs)? Viewed from an economic perspective, the city-region is the best geographical entity to investigate economic structure and performance.

Innovative and competitive cities (better: city regions) have (at least) the following five important properties: **size, productivity, connectivity, attractiveness** and **adaptiveness**.

All five concepts can be related with innovative and competitive cities (city-regions). *Size* is an important factor, already recognised by Adam Smith. It offers opportunities for differentiation of activities and the division of labour.

Productivity (often linked with the concept of agglomeration advantages) means that firms are more innovative in their use of input resources (for instance human resources and information) more efficiently and sometimes acquire them cheaper than in other places. However, it is necessary to emphasise that the urban growth and incomes are dependent on knowledge-intensive business services and high-tech manufacturing. The highly productive sectors agriculture and manufacturing industry are less concentrated in cities.

Connectivity means that the (inter-) national links by air, road and rail are available and efficiently organised. Combined with modern ICT, this offers many opportunities for firms and residents to be connected internationally, with the consequent widening of competitive markets.

In general productivity and connectivity are strongly dependent on technological development, especially that of General Purpose Technologies, that pervade the production system.

Attractiveness can be distinguished for producers and workers (a strong variety of outsourcing opportunities, architectural beauty of office buildings and residential areas, preferred location of business or for investment, access to a diversity of jobs). It is increasingly recognised that cities have to attract consumers too (nice environment, good amenities, access to a varied labour market with high wages). Many people are attracted to cities with a past, to be seen in the urban lay-out, the buildings, restaurants and theatres. This was emphasised as a critical factor by Florida (2002) in his book on The Rise of the Creative Class.

Adaptiveness means that the actors in the city are able to see and realise new opportunities when the social and economic contexts change. They are open for novelties and innovation. They want and can **'re-shape the city'**. The individual actors dynamically interact with each other and with structures. In this perspective the concept of '*self-organisation*' can be used. The concept of'*self-organisation*' is used to indicate the structural impact of decentralised decision-making of urban actors, without determination from a centre of authority. This can lead to influence the process of decision-making by temporary coalitions and interest groups, and to an impact on various markets. The competencies of urban actors and their organisations are decisive for the adjustment processes of urban systems.

Another important aspect of the investigation of competitiveness is the kind of the urban economic base. Put differently, whether we should see cities primarily as linked to a production system or to the availability of consumption opportunities, which create a strong demand for the production and import of goods and services. The first perspective has been dominant. Often there is a mix of arguments based on the perspectives of cities as places of production and the creation of wealth by increasing productivity (van Oort 2006; Scott 2006). However, in the last decades we can observe a shift in attention from production to consumption as an important driver of urbanisation and agglomeration forces. Klaassen (1968) analysed the role of amenities, Castells (1977) discussed the issue of 'collective consumption', Florida (2002) and Glaeser and Gottlieb (2006) have emphasised the issue of the driving force of consumption. In the words of Glaeser and Gottlieb (2006: 29): 'The success and failure of big cities depends in a large part on

the urban edge in consumption, not production'. This can be related to the rise of incomes as a result of technological development and more effective organisational structures. Florida (2002) even contends that urban economic growth relates strongly with (physically and socially) attractive cities as a 'driver of economic development'. However, the distinction between productive and consumptive cities is too simple, both drivers of economic success are dynamically tied together. It is better to conceive cities as integrated and dynamic systems, or complex adaptive systems. In the following sections this concept is used to investigate the competitiveness of cities.

2. Cities as complex adaptive systems

The concept of *'reshaping cities'* can be used to denote the process that actors and cities are confronted with changing conditions and new developments in all fields of life. Change is the basis for reorganisation and innovation in products, processes, organisations and institutions. Urban regions are engaged in a continuous evolutionary process of change and selection of the new varieties of economic activities and new institutional structures, although there also are many stable elements. Infrastructure, the stock of houses and many institutions remain relatively stable (slow changes). But cities, technology and economic activities change faster, which can give rise to conflicts between groups of urban actors, like enterprises and governments. Many people are attracted to cities because of this dynamic position, but also because of their variety and agglomeration advantages offering a range of new learning processes and economic opportunities. Retaining and regaining *'vitality'* needs the optimal use of the *'competence base'*, or *'the pool of actors with certain capabilities'* of the urban actors. Vitality needs that actors adapt in periods of strong changes in the composition of the economy (for instance de-industrialisation) and in the external contexts (for instance new political structures). Many changes are of a technological nature, but also economical, institutional, social and spatial changes have to be faced. Cities are the main locus of many socio-cultural, institutional and economic networks in national and global contexts. In order to remain competitive it becomes increasingly necessary to improve the *'profile of attractiveness'*, or in economic terminology, to improve the supply side of factors in order to attract the demand of the best and wanted actors. An important feature of this process is the increasing importance of knowledge and creativity (Lambooy 1998; Florida 2002). Many urban regions are adjusting themselves to improve their attractiveness, not only for firms, but also for 'knowledge workers' and the 'creative class', with an emphasis on cultural openness, the quality of housing and the availability of amenities, medical and educational facilities. Firms can be attracted, not only by low costs, but also increasingly by the opportunities offered by the availability of highly qualified labour and a diversified economic structure, together indicated with the concept of 'agglomeration advantages'. However, metropolitan regions with agglomeration advantages also have agglomeration *disadvantages*. *'Urban vitality'* has many attributes, not all of them positive, but urban inhabitants, organisations and governments have to face this variety and continue to improve their profiles of attractiveness.

Governments are often not the essential organisations to determine the profiles of attractiveness, although they have an important position in facilitating processes and in co-ordinating contrasting interests, more in particular in the case of market failures.

Related to the concept of self-organisation is the perspective that cities can be seen as **'complex adaptive systems'**, which need a continuous reshaping, not only by politics but in the first place by a heterogeneous group of local actors. This concept is based on the view of evolutionary economics and emergence theory (Lambooy 2002; Sawyer 2005; Metcalfe 1999; Metcalfe, Ramlogan and Bekar 2006).

The *first* approach starts with the concepts of the 'emergence of novelty' (in economics: **innovation**), like new technologies, new products, new kinds of people, organisations and institutions. It also emphasises the process of selection of 'successful forms of novelties'. The selection processes can be seen as functioning in three kinds of environment: (1) the market; (2) the institutional structures; and (3) the spatial structures (Boschma and Lambooy 1999).

The *second* approach emphasises society as an emergent system, built upon the interrelations between individuals, structures and their interaction itself (Sawyer 2005). Societies and economic systems emerge from actors and their interactions. Emergence theory attempts to explain the nature of society as a complex system by investigating how individuals and their interrelations give rise to meso- and macro-social and economic phenomena like markets, institutions and educational and economic organisations. Cities are specific spatial, social and economic systems, built by past and present actors, but also parts of networks of relations of many kinds of actors and structures.

In this paper an attempt is made to use these perspectives to understand the phenomenon of urban competitiveness.

3. Pervasive technologies and urban development

Urban development reflects technology and the rise of new economic sectors in various ways, but often with a certain time lag. Spatial patterns persist over a very long time. Therefore it seems that urban physical layouts, street patterns and buildings are so important for attractiveness (Grosveld 2002). Spatial structures seem to evolve more gradually, over longer time paths, than do technological and economic development. The concept of General Purpose Technology can be used to investigate this development. A General Purpose Technology (GPT) is a set of technologies that is pervasive to all economic production and consumption. Lipsey, Carlaw and Bekar (2005: 12–13) describe GPTs as follows. 'They begin as fairly crude technologies with a limited number of uses and they evolve into much more complex technologies with dramatic increases in the range of their use across the economy and in the range of economic outputs that they help to produce. As they diffuse through the economy, their efficiency is steadily improved. As mature technologies, they are used for a number of different purposes, and have many complementarities in the sense of cooperating with many other technologies'. As such, a GPT can be conceived as the basis for new waves of improving productivity (Dosi 1982; Dosi a.o. 1988). The development of cities strongly depends on the adoption of new technology systems. These influence the competitiveness of cities even more than public policies. Technological development has three principal influences on economic and spatial structures:

(1) *rising productivity,* with concomitantly increasing incomes and consumption opportunities, for houses, cars and household appliances; it also leads to important shifts in the configuration of manufacturing industries and services; combined these shifts have a strong impact on the location of firms and households;
(2) *declining costs of distance*, because of the declining costs for the transportation of basic materials and produced goods, giving rise to a quite different location pattern for manufacturing; to realise this effect enormous investments in infrastructure have been made; and
(3) *stronger agglomeration advantages*. The combination of rising incomes and lower transport costs with the availability of trains and cars has led to strong urbanisation. This is also connected with higher productivity.

Evolutionary economics focuses on the continuous emergence of novelties and selection processes with unpredictable outcomes, later on often resulting in path-dependent, self-reinforcing or cumulative processes (Arthur 1994; Boschma and Frenken 2006). It is a long-term emergent

process, caused by serendipity and exogenous events but also by endogenous self-reinforcing processes with an interactive feedback nature (Leidig 2002). Sometimes new spatial patterns emerge, like the famous example of Silicon Valley. However, existing spatial patterns can condition the development paths of economies, due to the huge costs of relocation and urban renewal. This latter interrelation can be investigated as '*path-dependence*' (Arthur 1994; Martin and Sunye 2006) or '*spatial lock-in*' (Boschma and Lambooy 1999). In 1937 and 1945 Hayek (Caldwell 2004) came to the conclusion that many social phenomena were examples of '*self-organising adaptive complex structures*'. Metcalfe indicates the specific value of an evolutionary approach. In his words (Metcalfe 1994: 933): 'A distinctive feature of the evolutionary approach is its adoption of a behavioural theory of the firm and its focus upon learning processes and adaptive behaviour'. The topic of change and adaptive behaviour, with concepts like 'non-linear dynamics', 'structural change', 'heterogeneity', 'uncertainty', 'novelty', 'innovation', 'learning', 'selection' and 'diffusion', belongs to the core of evolutionary and institutional economics. In economic geography this approach influences the view on spatial structures and cities.

In Economic Geography, spatial structures can be investigated in two ways: first as a '*physical space*' and second as a '*space of actors*'. The '*physical space*' is not equal to 'nature', because it is partially made by man and displays man-made structures (like infrastructure and buildings, and moving objects. Perroux (Perroux 1950) called physical space 'technical space' or 'geographical space'; the space of actors was called 'economic space', a space of networks with 'hubs' as growth poles. Later he acknowledged that physical space and economic space are sometimes difficult to dissect. Growth poles are often hubs (a cluster of interrelated economic activities). A '*clustered space*' is an area in which interrelations are very intensive, more in particular within urban regions, like in agglomerations (Chardonnet 1953; Lambooy and van Oort 2005; Boschma and Kloosterman 2005; Scott 2006).

In '*economic space*', the focus is on the pattern of connectivity in networks, whereas in '*clustered space*', the spatial structure of localised and interrelated economic activities, the nature of agglomeration advantages, knowledge transfers and their effects on locational dynamics are investigated.

4. Urban actors and attractive cities

The attractiveness of cities often starts with the emphasis on subjective valuation, images and marketing efforts, where the behaviour of actors, where 'non-traded interrelations' are important (Grosveld 2002). Here the attention is focused on the economic side. The supply of an attractive array of services and amenities is an important attractor for the choice of location by actors, both producers as consumers. This relates to the shift from production to consumption as an important driver of urban attractiveness. This shift also means that our views on interurban competition may have to change, but according to Scott (2006) production will retain its first place, more in particular by the ongoing process of globalisation.

Scott (2006: 2) contends that 'we can identify contemporary urbanization as a doubly faceted phenomenon in which individual cities are constituted as systems of internal transactions embedded in a wider system of transactions binding all cities together into a grid of complementary and competitive relationships'. Cities are both complementary and competitive, but the issue is whether cities or actors are complementary and competitive. Actors like workers, firms, universities, governments and interest groups participate in a wide variety of networks of relations, both inside and outside of the urban areas. Cities as such do not compete, firms can compete and governments can compete, but they are competing in different spaces. Their networks, their interrelations in

specialised local clusters and their behavioural space often differ considerably. Firms compete on markets and governments compete for funds, location of headquarters and the establishments of cultural and educational institutions. According to Scott, the essential prerequisite to attract firms, universities and 'creative workers' lies in the nature of the production system (Scott 2006: 11).

Although he denies the growing importance of consumption, the basic point is right. Even consumption, in shops, entertainment, sports and cultural events are basis of the urban production system and cannot be constructed freely without costs in the case of unattractive cities. At least not in the short run and not in many cases. A related question is that of size (Lambooy 1998). The distinction between cities based on a production-system or on consumption and creative classes is may be artificial when we add the element of size. As cities become larger their economic base will turn more inside. Their local demand base will increase in size and consequently the economic structure will reflect a shift towards more demand orientation. This relates to the question as to what degrees of freedom cities have with regard to their adaptation to new challenges. What kinds of public intervention are available and possible? Will that be different for different cities?

5. Public Intervention and Competitiveness in the Netherlands

The legal and economic power of cities differs strongly in different countries, but the economic structure and their size are also important. In the EU many models of centralisation and devolvement can be observed. In France there are many municipalities with weak power, but new forms of cooperative organisations of central cities and their city-regions have been introduced more recently. In the UK the central government has an overriding power, with the exception of the largest cities. In the Netherlands the picture is even more confused. The legal power structure is highly fragmented. Although the governmental structure is seemingly simple and based on three layers (central government, provinces and municipalities), the actual power is with the central government with an extremely strong influence on the financial budgets of municipalities. The largest cities have a strong influence, due to their political clout and their relatively strong position as economic and population centres. For decades the various governments have attempted to reshape the administrative structure, but all attempts failed. More in particular the attempts to amalgamate the principal cities with their functional economic regions did not succeed. The current approach is to gradually diminish the number of municipalities by amalgamation.

With regard to the field of *physical planning*, more in particular housing, Dutch municipalities possess a strong legal base in spatial planning and the provision of land. However, the *economic* power of municipalities is often rather indirect. They can facilitate locational attractiveness for firms by land planning and land zoning and the provision of cheap space, but also by their strong influence on the residential development and the educational institutions.

However, as soon as large infrastructural projects are concerned even the large cities turn towards The Hague in order to acquire subsidies. One of their usual arguments is that they need those investments to enhance their position on the market of cities, or their competitive edge. They usually point to rankings made by various real estate companies and other research organisations. These ranking vary wildly but the cities choose the most worrisome to prove their point: they need the funds from the central government or from European authorities.

More often than not their claims are not well built upon strong economic arguments. They argue as market parties on the subsidy market of national and European funds, but their use of an analytic base on private markets is weak. May be this is not so disastrous as it looks, because most economic developments on markets are self-organised and self-supporting. Governments often do not have the power to influence that process, apart from safeguarding historical monuments,

the provision of housing, infrastructure and education leading to a well-educated work force and good connectivity. These are possible fields of action by public intervention, if they would have the funds. The problem is that all cities will be in the race for the same funds.

What criteria do the central governments have to evaluate the conquest for funds? One important tool to measure the differential effects of projects is CBA (Cost-Benefit Analysis). This is project-oriented and has difficulties in discounting future events and, more important, future technological and global developments that change the structure of the economy as the basis for evaluation. For instance, it is extremely difficult to evaluate the effects of major technological innovations, like ICT. Many authors in the 1980s (Toffler 1980; Naisbitt 1984) have sketched developments which have not realised. The death of distance has not been observed yet. Urban congestion has grown more than anyone with ICT-dreams realised (Cairncross 2001).

The various urban actors are active in different physical and economic spaces and in various networks. Cities differ considerably in their economic and population structures. It is completely understandable that in many countries public and private parties have bundled their powers in Public Private Structures, although with varying success. Apart from the organisational and management problems one issue is that many of its effects are differential. Many groups of firms and residents do not benefit from the investments. The costs of adaptiveness are divided unequally. Cities are complex adaptive systems, driven by various sources of dynamism. But the actors are most often acting in completely different fields or spatial configurations. Larger firms have international markets, while retailers will have local markets. Their needs for infrastructure and residential housing can be quite different. The agglomeration advantages are important but more in particular for strong firms and the better educated workers. Competitive cities are successful and they not only attract high-quality jobs, but they also attract poor, unskilled immigrants searching for opportunities. The immigrants often search low wage jobs, which means that many firms have a wide choice for both kinds of labour. The governments often used to respond by building cheap housing, public transport and provide extra funds to offer education for the poor. More recently their attention has shifted to attract the knowledge workers and the business services with more attractive residential areas and areas for office development in the city cores or on urban ring-ways.

In the Amsterdam city-region the focus is on many infra-structural projects to build connections between the three parts of the Amsterdam city-region (Almere, Amsterdam and Schiphol as an Airport city). The most important is the so-called *Zuid-as* (Southern Axis), a multi-million project, between Amsterdam and Schiphol airport. This will be a Public Private construction, but with various private and public partners. It is a combination of an infra-structural project (road, rail and subway) with housing, shops and offices. One of the principal arguments is the improvement of international connectivity, seen as a basic factor in international inter-urban competition. The national CBA did not entirely support the financial soundness of the project, if measured with the rod of the contribution to national GDP. But, other national plans sustained the further development of the four main urban agglomerations (sometimes summed as ' The Randstad') for the contribution to the GDP on a longer time horizon. The political clout of the Amsterdam region means that the project can go on.

Successful cities remain a pool of many contrasts. Beauty and ugliness, wealth and poverty belong together, but are not always accepted. In the latter case public intervention will often be focused on the agglomeration disadvantages. Those opposing a focus on large infra-structural projects point to the problem of social cohesion. The disadvantaged are not sure about the positive aspects of these large investments.

6. Conclusions

Cities are complex adaptive systems, which means that their properties are rather persistent and change by the initiatives of many actors. Re-shaping cities is a process that can take many years. Governments cannot really change cities on their own, they need many co-operative structures. We distinguished four properties of competitive cities, attractiveness, productivity, connectivity and adaptiveness. Recently many cities focus on two of these four, attractiveness and connectivity. They attempt to attract knowledge workers and to construct large infrastructure projects.

Often they neglect many micro activities or the self-organising forces of actors and markets in many seemingly dispersed and often unobserved efforts of re-shaping cities. The main dynamism comes from new technologies and the inclusion into global networks. The results can be found in existing economic sectors by a multitude of small innovations and extension in 'related variety' (Jacobs 1969; 1984). That is the reason that public intervention is difficult. Local and regional governments do not have many instruments in the economic field, although there are many indirect possibilities in the fields of physical planning and infrastructure. Co-operative exercises in PPP are found everywhere, which proves that urban development needs many actors. Urban competitiveness is a difficult purpose to acquire.

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GERD SCHIENSTOCK

REGIONAL DEVELOPMENT: FROM SPACES OF TECHNOLOGICALLY SPECIALIZED PLACES TO SPACES OF GLOBAL KNOWLEDGE FLOWS

(1) The rediscovery of the region as an important unit of economic activities can be explained by the fact that, contrary to the argument of 'catching up' and 'convergence' uneven economic development in many countries and throughout Europe still continuous. The new interest in the region does not seem to be accidental though; instead it can be linked to the changing character of economic competition. Together with the increasing globalization of the economy adaptability and innovativeness have become the dominant competition criteria. This means that the innovation capacity and capability of firms and institutions is of strategic importance in determining the future of regional economies. The fact that regional economic development remains fairly uneven suggests that some regions have been more successful in developing their innovation capacity than others.

(2) Economic globalisation tearing down national boundaries, opens up more choices for companies, where to localise their business activities. Companies' freedom of localised choice on the other hand is limited by the changing nature of modern production processes, which favours the geographical concentration of interdependent value-adding activities. The decisive advantage of regional economies, compared to ynational economies is seen in the fact that the regional environment facilitates the creation of tacit knowledge. Tacit knowledge is an important asset in global innovation competition, as it is difficult to transfer not been stated in an explicit form and it can therefore be protected rather easily. While explicit knowledge is in principle universally available, tacit knowledge is not, because it is develops locally through processes of interactive learning.

(3) Specialisation, geographical closeness, and social capital are mentioned as key factors that make regions the natural economic zone of economic activities. In a globalising economy innovation is closely linked with specialisation. The accelerating and increasingly complex process of knowledge creation makes it impossible for companies to innovate in total isolation; instead they have to specialise in particular knowledge fields. Due to such specialisation processes companies become increasingly dependent upon other knowledge producers, they have to continuously exchange information and knowledge in innovation networks and co-operate closely with their network partners.

(4) The feasibility of carrying out complex processes of interaction, including the exchange of tacit knowledge, drops significantly with geographical distance. In innovation processes communication and knowledge exchange becomes more difficult, as codes developed, to communicate a constant technology, become inadequate. Producers have difficulties in evaluating

signals coming from the market and the market potential of new technologies. Users, on the other hand, have difficulties in decoding the communications coming from producers that are developing new products, services or process technologies. Geographical closeness can help overcome communication problems and reduce the rapidly growing costs of intensive interactions and knowledge exchange.

(5) High innovation dynamic causes standardized criteria for sorting out what is the best techno-economic paradigm to disappear, instead 'subjective' elements in the user/producer relationships—like mutual trust and even personal friendship—become increasingly important. Social capital and trust-based relationships are most likely to develop in regions, where dense and frequent links between people and organisations exist; those subjective elements are not easily shared across regional borders.

(6) Continuous and intensive interaction between firms and other knowledge producers within regional economies will produce technological spill over and untraded interdependencies among economic actors. However, firms' competitiveness does not only depend on what happens within and between them, but also on the institutional environment in which they operate. Distinctive economic activities require different kinds of supportive environments, which implies that regions have to develop unique advantages in specific fields of technology. This implies that regions have to focus on specific rather than general industrial needs, turning them into technologically specialized places.

(7) Because high growth rates more and more depend on the existence of science-based industries, it becomes increasingly important to support R&D and to establish high-class universities. However, the traditional transfer perspective, based on the linear model of innovation, needs to be replaced by the idea of joint knowledge creation and knowledge sharing between science and industry; consequently knowledge generation and knowledge diffusion become mutually interdependent processes. For those knowledge creation and knowledge sharing processes the regional dimension is of particular importance as the direct face to face communication remains a major part of the communication of knowledge. The change from a transfer model to an interactive model of knowledge creation does not imply, however, that scientific research should be determined by industrial demands. To the contrary, there is a need for a high-quality science base. For example the successful development of biotech clusters in US regions is explained by the fact that universities have concentrated on basic scientific research thereby increasing firms' knowledge base, while bio-tech regions in Germany were less successful as universities focused on the production of more industry specific knowledge.

(8) Strengthening regional R&D is only one aspect of enhancing regional competitiveness. We can add additional performance enhancing features of the operational environment such as systems of monitoring new technological developments, a good communication infrastructure, high standard and internationally connected libraries, and a highly skilled workforce with particular knowledge in the field of a region's technological strength. Notions such as "regional innovation system" and "regional innovative milieu" have been used as reference to the set of regional elements that positively affect firms' innovativeness and competitiveness. The so-called "system of innovation model" provides a more complex approach, opening up the black box of technological change. The application of the system concept in innovation research is motivated by the aim of capturing the systemic, interdependent character of innovation and technical change. The focus is less on technology but more on the social fabric in which innovative activities are actually developed and used, including organizational, institutional and cultural aspects.

(9) Efficient diffusion of new knowledge can be seen as important to competitiveness and growth of regional economies as the creation of new knowledge. This is reflected in the concept

of the "distribution power" of innovation systems. Consequently the innovativeness of an economy becomes a matter of intermediaries enabling and supporting knowledge flows and the particular services they provide including technical, financial, legal, management, design and market aspects. Intermediaries can help bridging the enormous resources of knowledge supply and the dense and varied population of users. The various agents involved can be technology brokers, technology transfer centres, consultants, research centres or other public bodies. More recently the key role of private knowledge intensive business services in the knowledge transfer process has been highlighted. These KIBS are developing into a second knowledge infrastructure, partially complementing, partially competing and partially taking over the intermediary role traditionally played by public agents.

(10) While endogenous development processes are important one may have doubts, whether a certain region in itself is able to generate economic development without external influences or impulses. Endogenous innovation processes based on tacit knowledge in general produce more incremental changes. There is a great risk that companies by only continuously upgrading their tacit knowledge and their existing products through interactive learning processes will lose out in periods of fundamental technological change and economic instability. In those periods survival may not be guaranteed by only small changes; instead companies have to put into practice also more radical innovations incorporating codified, R&D based-knowledge, which can hardly be found within one place, but is distributed world-wide.

(11) We can speak of a paradoxical relationship between the global and the regional sphere. Because the development of new scientific and technological knowledge is increasingly taking place on a global scale, regions can only stay competitive, if some of their core companies and knowledge creating institutions strive to develop into significant nodes of global knowledge creation, distribution and application networks. This means that regions, instead of been spaces of technologically specialised places, have to develop into spaces of global knowledge flows. Of course the idea of regions as spaces of technologically specialised places does not lose its importance. The region takes on growing significance, because it is the source of the skills and technology necessary for becoming linked up to global knowledge and information flows. Although due to increasing globalisation and continuous improvements in telecommunication and transportation geographic boundaries no longer affect the availability of the information and know-how needed for innovation, this information and know-how is still being generated and used at a local level. In knowledge-based industries production is initially sited in regions, where the research is being conducted and production attracts further research.

(12) The creation of specialised regional knowledge is not only necessary to built up absorptive capacity, which makes it possible to integrate globally created knowledge and transform it into new products and processes. It is as important to develop specialised regional knowledge, because it makes regions attractive as a partner in those global knowledge creation and knowledge diffusion networks. Being integrated in these global networks has another advantage: regions can avoid the risks of being locked into a less competitive technological development path, which can easily happen when they only rely on an endogenous development strategy.

(13) In a period of fundamental transformation uncertainty becomes as typical in policy processes as in innovation processes. This means that policy makers cannot rely on traditional governance forms steering the process of techno-economic development in a bureaucratic way through direct intervention. There can be no presumption that policy-makers have a superior understanding of market circumstances or technological development; rather what they do enjoy is superior co-ordination ability across a diverse range of institutions. A new policy perspective sees the regional government as a partner in the adventure of exploring

a new development path. While the significance of technological macro-economic management may decrease, the regional government has an important role to play as a catalyst for innovation processes, a supporter of ongoing research and innovation activities, a facilitator of co-operation in research and innovation processes, a moderator of diverging interests, and an organizer of a dialogue between various economic actors on future developments. This implies a new policy approach, which can be characterized as innovation enabling policy approach.

(14) Vision creation and discursive co-ordination become the key elements of a new form of policy making. The function of a systemic vision is to establish some general guidelines of techno-economic development that can act as frames for orientation, interpretation, thinking and decision making. The aim is to bring all relevant economic actors to move in steps, even if they have different interests and perceptions. When discursive coordination is applied, economic activities are coordinated through continuous and rich communication and mutual adjustment. Systemic discourse can be viewed as a platform to jointly create and exchange information and knowledge among economic actors. Discursive co-ordination is not primarily intended to create consensus among the participants but it aims to initiate interactive learning processes, which can be supported by policy instruments including foresight and competitive benchmarking.

(15) Because of the increasing integration of private and public actors in the process of policy formulation and implementation, policy networks become the new form of regional governance, which covers both processes: the development of innovation policy and its implementation. The development of policy networks gives regional policy-makers the opportunity to directly get into contact with the relevant actors and to negotiate policy programs. This means that policy programs do not only profit from a broader knowledge base, as the actors involved often have specialized knowledge; also their legitimacy is growing and the probability of a successful implementation is increasing due to the binding character of participation. By relying on policy networks policy makers can expend their implementation machine, because implementation is no longer a task of public agents only, but of all actors in the policy network. The emergence of policy networks demonstrates that policy-makers have become sensible of the increasing demand for different expertise in innovation policy and the need for joint problem solving.

HANS VAN ZON

THE CREATIVE REGION, EMPOWERMENT AND A EUROPEAN RENAISSANCE SCENARIO

It seems that the shift to neo-liberalism in European politics contributed to an erosion of interest representation that is reflected in lower voter turnout, declining membership of political parties and trade unions as well as a growing divide between the political class and the electorate.

On the other hand we have seen the emergence of the Europe of the Regions, multi-level governance and an outburst of urban and regional renewal across Europe. How to reconcile these trends that are going in apparently opposite directions?

The British quangocracy

A look at Great Britain provides part of the answer. Here a neo-liberal agenda has been the most vigorously pursued. The miners strike in 1984/85 symbolised the defeat and diminishing influence of trade unions and all political parties saw dramatic losses in membership.[1] Opinion polls show persistently major divides between the population at large and political parties on major issues from the war in Iraq to the privatisation of public services. Margaret Thatcher emasculated local government that led to an unprecedented centralisation of political power. She also abolished metropolitan councils. Instead of regions, England is divided into regional units that have no democratic representation and no powers. A number of regional development agencies, with little autonomy, and other quasi non-governmental organisations (quango's) are dividing government money allocated for regional development. This quangocracy depends on political patronage.

In the UK only 29.4 per cent of local government funding is raised from local taxation. It is the lowest in the EU. Sweden, for example, raises 79.6 per cent of local government spending from local taxation (France 66 per cent, Italy 51.7 per cent, Spain 46 per cent)(*The Guardian*, 6 March 2003). In Britain, local councils, schools and hospitals have very little autonomy. There are few intermediate institutions between central government and local institutions.

The Labour government tried in vain to establish democratically elected regional assemblies in the English regions. Devolution occurred only in the cases of Scotland, Wales and Northern Ireland. Therefore, we can speak in the case of Britain of asymmetric devolution.

It is the quango's that decide about the spending of government money. It is reflected in British towns. They "*...face more congestion than in other EU countries. Most towns are rather squalid and it is quite common to find derelict sides very close to the city centre. It is the*

[1] The membership of the Conservative Party went down from 2 805 832 in 1953 to 300 000 in 2005 (estimate). That of the Labour Party went down from around 1 million in the 1950s to 208 000 in 2004.

result of decades of neglect. British are much more reliant upon cars and give less priority to pedestrians and cyclists. British city roads are more congested than the average continental city. Public transport in towns is more expensive and less reliable than in mainland Europe. British are building at low density, related to the orientation towards cars, requiring roads, schools and supermarkets- all land-hungry, costly and unsustainable, all competing with existing town and public services. Britain has seen an explosion of shopping malls giving them 10 square meter of retail space per person, five times the European average" (*The Observer,* 7 July 2003). Local authorities are increasingly relegated the role of designing and monitoring contracts under which private companies would make services available.

It seems that local and regional governance in Britain is more driven by business interests than by the needs of the local communities and is therefore also more short-termist.

The Labour government tried to sell its regional policy as a successful example of locally-led and substantially devolved policy. It is also seen as an example of multi-level governance with a plethora of actors at the regional and local level involved. But it is far from democratic. British regional policy can be characterised as 'authoritarian decentralism' or 'centralist localism'. Local and regional communities can do relatively little to improve the quality of life.

The Flemish model

A look at Flanders shows a quite different picture. Towns in Flanders have many more competencies than their counterparts in Britain and the Belgian federal state is very much de-centralised. Society is also organised in a different way and the deeply entrenched corporatism helps to explain why in Belgium so much more of the welfare state remained compared to Britain. This corporatism may contribute to patronage but also helps to keep political parties and trade unions influential in public life. Many towns and regions in Flanders exhibit a creativity that seems absent in Britain. It is often small innovations that improve the life of communities but that have no immediate impact on competitiveness. There is the innovation of service vouchers that allow people to render services to each other without monetary compensation. And the government supported network of recycling shops that also provide employment for the socially weak. There is the fantastic cycling network across Flanders. The town of Hasselt, capital of the province of Limburg, has been transformed from a provincial backwater into a thriving town in which a large pedestrian area and an innovative usage of public space attract many visitors. The town has its own transport policy and introduced free public transport in order to push the car out of the town centre. This practice spread over many towns in Flanders. The innovative transport policy in Flanders also comprises attractive packages for employees supported by employers and public authorities that push them into public transport. All civil servants can use public transport free of charge.

The Belgian example is interesting because it also shows a big variety of regional and urban governance within the country. There are the squalid industrial towns of Walloon where decades of one party rule created a hierarchic corporatist type governance with high levels of patronage. There is the case of Charleroi that mainly reaches the headlines because of large-scale corruption and interlocking networks of politicians and mafia. What seems to be important with regional innovation is not so much institutional thickness but a loose association of cooperation ties as can be found in Hasselt. In other words, levels of membership of traditional interest representing organization do not say much about the level of innovativeness and a high level of competencies for local and regional government is not a sufficient precondition for social innovation to unfold.

There does not seem to be a correlation between the wealth of a region and its creativity. Brussels, by far the wealthiest region in Belgium, stands out for its lack of ability to solve even the simplest of communal problems although it has a vibrant cultural life. It is not only related to the complex administrative structure of Brussels and the power of the speculators. It seems that urban governance in Brussels has a democratic deficit. On the other hand, Hasselt is located in the poorer part of Flanders while being faced with economic restructuring after the closure of coal mining.

The creative region

This cursory overview leads to the following observations and questions with respect to urban and regional governance.

a) Multi-level governance means the re-articulation of the relationship between levels of territorial government.[2] However, it is a catch-all concept for very different rationales. There are big differences between the contractual model of governance as exemplified by France, the associative model as represented by Belgium and Germany and the competitive model, represented by the British case. It seems that multi-level governance combined with the principle of subsidiarity, that is totally ignored in Britain, can lead to democratisation and empowerment of the localities and regions.

b) Is it possible to speak about 'creative regions' or 'creative towns' in the sense of local and regional communities being able to find non-standard and original solutions for local problems and challenges?[3] We should make a distinction between competitive regions and creative regions. Although creative regions are more likely to enhance competitiveness than non-creative regions, creative regions are not necessarily competitive. The notion of 'creative region' shifts the focus towards the needs of the local community, away from the quest for international competitiveness and the pressures of globalisation. Recently, the issue of social innovation has been brought forward by several authors.[4]

c) It seems that the emergence of a creative region is dependent upon empowerment of the population which is not necessarily reflected in the formal membership of traditional interest representing organizations but rather in the ability to form ad-hoc coalitions that search for the most efficient solutions for regional problems. A high level of social capital allows collective creativity to develop.[5] The creative potential of a region expresses itself in the usage of the public space..[6]

d) It seems that most studies dealing with 'regional innovation systems' are firm centred while the concept of innovation too much linked to economic innovation and international competitiveness.

[2] It is a system of inter-governmental relationships characterised, on the one hand- by the growing importance of supra-national regulatory patterns and, on the other hand- by the increasing autonomy and capacity of mobilisation of sub-national, regional-local arenas in contributing to the definition of the contents and procedures of regional programming (Op Schaal Gewogen. Regionaal Bestuur in Nederland in de 21e Eeuw, IPO, 2004, p.55)

[3] See for this A. Kuklinksi 'The Warsaw Conference—Towards a New Creative and Innovative Europe. A Contribution to the Pre-Conference Discussion. Thirteen Notes', in 'Towards a New Creative and Innovative Europe', Kuklinski, A., Lusinski, C., Pawlowski, K. (Eds)(2006), p. 148.

[4] See the contribution of PDrewe in this volume.

[5] It is noticeable that few make a link between the vibrant local democracy in Scandinavian countries on the one hand and creativity and innovation on the other hand.

[6] The lack of creativity is, for example, exhibited in most Russian and Ukrainian towns where public spaces are usually squalid and badly organised. This is not primarily related to the lack of resources but to the inability and unwillingness of public authorities and communities to act. It is also related to the weakness of civil society and the authoritarian and patrimonial culture of public authorities that neglect the need of the communities they should serve.

This quest for international competitiveness has transformed into an ideology of competitiveness that subordinates everything to the dictates of the global market. It is the quest for a good society that should be in the centre of attention.

There remains the fact of the ongoing urban and regional renewal across Europe that assumes many different forms. Diffusion of positive experiences across Europe is increasingly facilitated by a network of pan-European exchange programmes, partly facilitated by the EU. For example, Barcelona and Catalonia have been an inspiration for many across Europe.

Erosion of interest representation

With respect to the above mentioned trend towards the erosion of democracy there are some caveats. Although across the long established European democracies there is a persistent decline of political party membership, in absolute numbers and as percentage of the electorate, the decline is very uneven and in some countries (Greece and Spain), there has been a significant increase in party membership over the past 25 years.[7] The decline has been most pronounced in France, Italy and the United Kingdom[8]. But in countries with corporatist interest representation, like Germany, the decline has been very modest. In the Scandinavian countries there was a substantial decline but party membership is still on for European standards high levels.

With respect to trade union density, there has been a widespread decline throughout most of Western Europe. However, trade union density varies enormously, from 80-89 per cent in Belgium, Denmark and Sweden to 20–29 per cent in the UK, Germany and The Netherlands (European Industrial Relations Observatory, 2003). In only eight out of the current 25 EU member states more than half of the employed population are members of a trade union.

The evidence with respect to devolution of power towards the regions and the decline of traditional interest representing organisations across Europe suggests that the situation with respect to regional governance and interest representation remains highly diverse.

It seems that participative democracy remained the most vibrant at the micro level, i.e. in the localities and the regions. Political elites are not the best guardians of democracy. Democracy is an achievement that has to be defended continuously against encroachment from many sides. Even parties from the centre-left sometimes contribute to the undermining of democracy. This is for example shown in Britain where the Labour Party has upset the fragile set of checks and balances that limits executive power, especially through the measures taken in the framework of the war against terrorism.[9] Even in one of the oldest parliamentary democracies in the world, democracy is under threat.

One of the most pronounced trends in European politics is the growing divide between political class and population at large. This was reflected, among others, in the rejection of the draft

[7] See Mair, P., Van Biezen, I. (2001) 'Party Membership in Twenty European Democracies, 1980–2000' Party Politics, Vol. 7, nr. 1 pp. 5–21.

[8] As a percentage of the electorate, party membership went down in the UK from 4.12% in 1979 to 1.92% in 1998, in France from 5.05% in 1978 to 1.57% in 1999, in Germany from 4.52% in 1980 (West) to 2.93% in 1999, in Sweden from 8.41% in 1980 to 5.54% in 1998, in Belgium from 8.97% in 1980 to 6.55% in 1999 (see Mair and Van Biezen, 2001)

[9] The UK has got under New Labour joint-up government in which the Prime Minister's office and the Treasury are jointly making decisions while ignoring the cabinet. For example, crucial choices of British foreign policy were taken not within the foreign office but in the Prime Minister's office. Parliament does not exercise anymore its major role of scrutinizing government. Government tries to interfere in the work of the judiciary. New laws, introduced in the context of the 'war against terrorism', infringe on traditional civic liberties. Increasingly, government tries to micro-manage change where other governments would allow lower level actors to manage.

European Constitution by the French and Dutch electorate in 2005. This was totally unexpected because there was consensus among opinion leaders and within the political class that a yes for the constitution was the only sensible vote.[10] Subsequently many commentators were quick to explain the no-vote as a show of no-confidence not in the constitution and the EU but in national political leaders. However, polls have shown widespread alienation with European politics that can not be associated with misinformation. Political leaders promised an economic boom with the introduction of the euro but instead came stagnation. The move towards a single market meant above all an enormous boost for the marketisation of European societies that undermined the welfare state in so far as it existed.[11] Enlargement was often associated with the flooding of local labour markets with cheap labour from the east, undermining employment protection arrangements at the national level. The EU became a major force behind privatisation in the member states.

The shift towards neo-liberalism at the European and national level explains both the growing divide between political class and population and the growing unpopularity of the EU. Neo-liberalism is the creed of the political class and not of the masses of the population.

The political class seems increasingly alienated from the concerns of the citizenry. For a long time, unease with large segments of the population with some aspects of multi-cultural society was ignored by main stream political parties. Subsequently populist and xenophobe parties saw their chance. It seems that we can speak about a crisis of interest representation in the European Union.

A revitalisation of European participatory democracy should start at the micro level. The divide between political class and population, as far as it occurs, is least pronounced at the local and regional level where politicians are more likely to stay in close contact with the electorate. Also democratic representation and accountability is more developed at the micro level than at the national and EU level.[12] Democracy is first eroded higher up. A revitalisation of European democracy starts from the bottom up and will contribute to a 'European Renaissance'. But it can be facilitated by measures at the national and EU level.

[10] Opinion polls did not predict a massive 'no' against the constitution. For example, the Eurobarometer survey of February–March 2004 (nr 61, Spring 2004, p. B76) showed 62 per cent support for the constitution in France and 70 per cent in The Netherlands.

[11] The dismantling of national monopolies, enforced by EU policies, often does not take sufficiently into account the universal service obligation commitment (USO, the delivery of the same, affordable price of mail to any part of the country). For example, France, Italy and Spain challenge the European Commission with the full scale liberalisation of postal services by January 2009, argued that the USO requires greater funding than proposed by the Commission.

[12] This is obviously not the case in the UK.

JAN WASZKIEWICZ

THE LOWER SILESIAN POLITICAL AND ECONOMIC FORUM —AN EXAMPLE OF STIMULATING SOCIAL PARTICIPATION IN STRATEGIC DISCUSSIN

In the end of the 1998 year, Poland introduced administrational reform with three level (commune, county, region) self government system. The new, large regions emerged, mainly by merging the older, smaller ones[1]. The Lower Silesia, which will be the case studied in this paper, was united from 4 previous units with adding small parts of the next two. In this situation, creating of the community spirit in the region, the regional self identification and regional patriotism of citizens was one of the premier tasks of new elected power[2]. The reason is simple. Without reasonable level of common spirit and regional patriotism, there is impossible to create and execute any regional policy, especially directed towards development in long term, strategic perspective.

In this situation in the next, 1999 year, two important initiatives had taken place, both very successful in crating regional strategic thinking and social support to development processes. The first was starting the work on the strategy of regional development (approved in the next year) and, first of all, inventing axiological and methodological basis of it[3]. The second was initiating of yearly Lower Silesian Political and Economic Forum, which is the main subject of this paper. Let us start exposition from outlining some basic issues of the strategy, since it will set context for the Forum.

1. The game of region

The main feature of the strategy was extremely participatory approach. Participation on the level of strategy formulation is a paradigm of the modern strategic thought. In the discussed

[1] In 1975, Poland had been divided to 49 small voivodships (regions) instead of the previous 19. The division of Poland to 16 voivodships in the reform of 1998' was basically stepping back, although not automatically.

[2] Moreover, Lower Silesia is one of the regions which after the Second World War came to Poland with total exchange of population. Living here Germans left the region, and the Polish population was transferred here from the Polish territory joined to USRR. Hence population of Lower Silesia is typically immigrant one (one can see some similarities to US population, but this analogy is rather superficial).

[3] This strategy was prepared by the team of expert lead by Prof. Roman Galar and supervised by the Author. The text had been published in Polish: *Strategia rozwoju województwa dolnośląskiego*, Urząd Marszałkowski Województwa Dolnośląskiego, Wrocław 2000.

document we extended this principle also on the fulfillment phase. In strategy there was stated in the matrix form (the column were labeled by strategic goals, the verses by areas of activity) the number of issues, which should be achieved in the region in the perspective of some ten years (such was strategy horizon). Each of them was important enough from the point of view of given area and strategic goal (once achieved, they would make essential difference). This list was an invitation for all potential participants for coming to "the game of region". The full initiative was shifted to them. Every subject (institution[4], NGO, company, person or group of interest) could come to game simply by declaring will to participate in solving the given problem (or part of it). Such will should be notified to the Marshal office[5]. According to the principle of solidarity, the office due was to help the regional actor in the organization and fulfillment of the resulting project according to the scheme on the Fig. 1. The first task of the office was to connect potential partners of the forthcoming venture (it was possible, that other partners were already known) and help in organizing consortium of them. In the next stages, it helped in financial assembly (when the business plan was already formulated) and assisted in any necessary way.

This way of organizing realization of the strategy had few positive impacts. The level of involvement of the different social partners was far above average. Moreover, the initiative had been shifted to the best motivated subjects, what guarantied the success of the venture. As one can see it increased the regional identification of the most active subject (and persons) and of the social capital of region.

2. Forum

2.1. Institutional set-up

The Lower Silesian Political and Economic Forum is one of the first ventures fulfilled according to the described pattern of the game of region. The idea started in the very end of the 1998 year from the private conversation of two people—Janisław Muszyński then the Chancellor of the Lower Silesian Lodge of the Business Centre Club (one of the most influential Polish businessmen organizations) and Jan Waszkiewicz then freshly elected Marshal of the Lower Silesian Voivodship. Of course this idea had been benchmarked from the Switzerland Davos, where the World Forum of Politics and Economy is held each year (with participation of prominent representatives of this two groups)[6]. The main reason of doing such a forum is creating the common regional and inter professional communication platform on which the common language, common set of values, common views can be elaborated and exchanged. As was pointed, this goals are very important for creating common vision of the future of region and for executing regional policy in strategic horizon.

Designing the event we've made important assumption, that Forum can not be organized by the regional administration. There was few reasons of such decision. Firstly, organized by the administration, Forum would have a bureaucratic charm, what we wanted to avoid. We wanted to avoid also political labeling of the Forum. If regarded as initiative of the ruling political option, it could not survive the change very probable in democratic system[7]. And, last but not least public administration is designed for spending money, not for selling its services. It means, that

[4] The regional administration (Marshal Office and its units) can be regarded as one of the possible participants and in some cases as initiators of the venture.

[5] It is the name of the self governmental administration in the Polish region. The head of it (in the referred period this role was played bay the Author) is named Marshal.

[6] The Forum is even called "the Lower Silesian Davos".

[7] The future development of situation had positively validated this assumption.

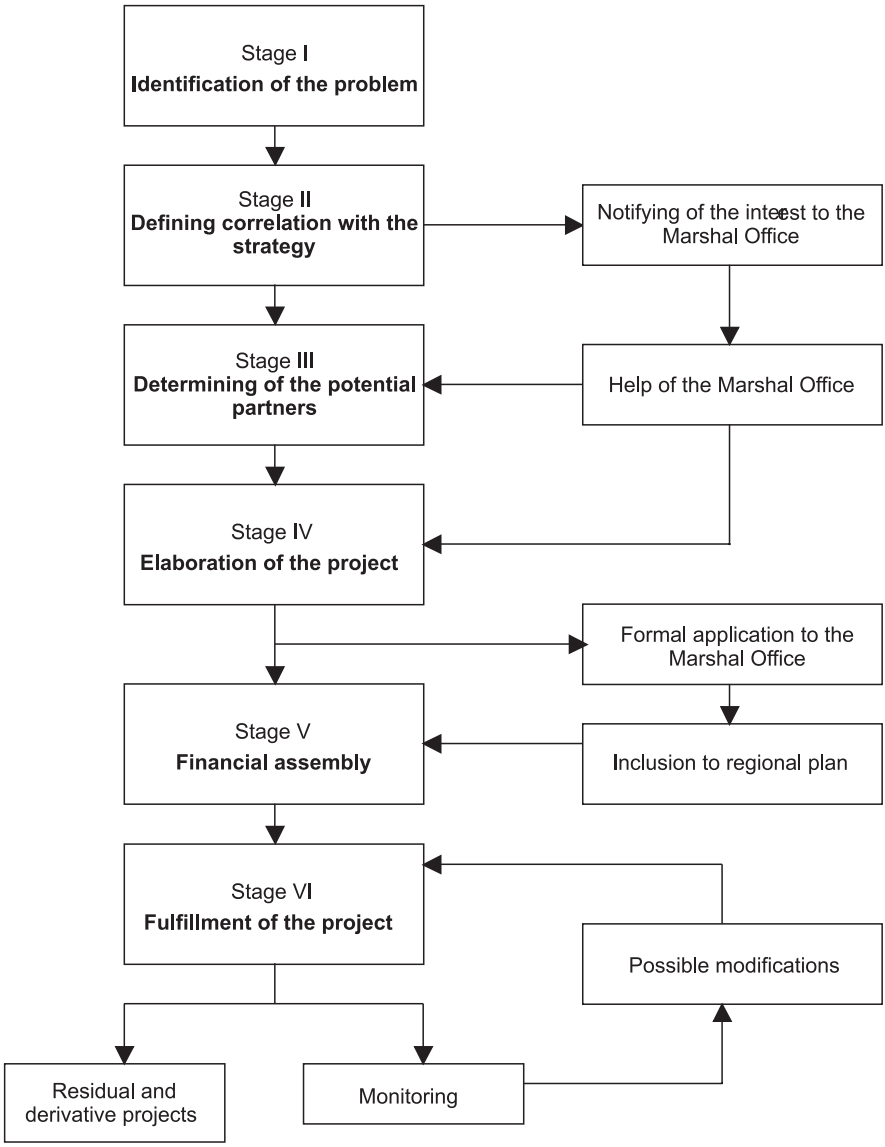

Fig. 1. Scheme of the bottom-up realization of strategic ventures—"The Game of Region" (fragment of the manual of potential actors being the part of the quoted *Strategy*)

Forum organized by it will be paid by public money instead of being independent, self-supporting institution (there are many reasons for spending public funds more illegible then financing events for businessmen and politicians). As the result of such consideration, organizational part of the venture had been assigned to business partner (BCC and the private advisory company of J. Muszyński—INFRAKOM). As the next partner there had occurred Foundation of Krzyżowa for European Agreement, very prominent organization[8] , who has taken responsibility for the

[8] Krzyżowa (German name "Kreisau") is the name of the village in the Lower Silesia, where the palace of the family von Moltke is located. The last German possessor of the estate, Graf James von Moltke was the hero of anti-Hitler conspiration murdered by the Nazi regime in 1944. In 1989, the whole estate had been given to the

accommodation of participants and plays host of the Forum up to now. To the second initiator—J. Waszkiewicz (and at the beginning of the Marshal Office) there was assigned responsibility for subject matter of the Forum. This organizational setup is still actual with some changes shown at the Fig. 2.

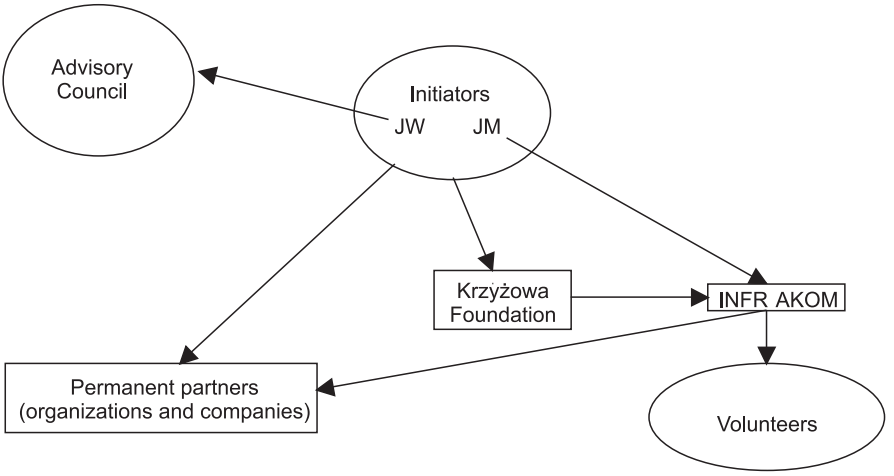

Fig. 2. Institutional setup of the Forum

The above scheme needs few comments. Initiators (it is historically approved name of the role played on the Forum by Janisław Muszyński and the Author). The role of the Krzyżowa Foundation is already described above. The Group of permanent partners consists of few organizations (e.g. Ernst & Young Poland, Wrocław Technological University, Marshal Office, few NGOs) cooperating with us in particular issues on different base (some are sponsors of the Forum, other take part in organization of thematic groups etc.). Advisory Council consists of the people appointed as special authorities (intellectual—e.g. professors of the Lower Silesian Universities, political—e.g. Marshal, Voivode) or as representatives of partners (e.g. Marshal Office and its key units, some companies, Chambers of Commerce, few NGOs). Majority of the work both preparatory and in the time of the meeting is done by young volunteers organized by their slightly older colleagues working in Infrakom. As one can see, the organizational structure of the Forum is rather slim and flexible, as little formal as possible. Indeed, it is a kind of loose consortium of the type foreseen in the mechanism of the game of region.

2.2. Subject

Each Forum has some leading subject. It is set by the initiators (usually as the effect of discussions on the previous Forum) and approved by the Advisory Council. This theme is supposed to be general but appealing to imagination of participants, strategically important for the Region, giving chance for presentation of different views and opinions. In the following years there were discussed following subjects:

1999—Strategy of the Region,

2000—Lower Silesian labor market,

mentioned Foundation as the conference centre (mainly for Polish – German youth groups). 1n the 1989 year, in this place there was celebrated the very symbolic Mass of Polish—German reconciliation with the participation of the prime ministers of both countries.

2001—Knowledge—instrument of the shaping the Region's future,
2002—European future of the Lower Silesia,
2003—How to lessen the distance of Lower Silesia from EU,
2004—Social capital of the Lower Silesia,
2005—Lower Silesia as the area of freedom,
2006— Lower Silesia 2020'—good place for living,
2007—Creative Lower Silesia.

Apart from the main subject some additional are set by the organizers. It is already the tradition of Forum, that some country (represented by its ambassador is invited as the honorary guest of the Forum, hence problems of the cooperation and some inner issues of the given country are raised. In the consecutive years it was: 2002—Ireland, 2003—Germany, 2004—Czech Republic, 2005—Netherlands, 2006—Ukraine. Other subjects are continuation of the issues discussed on the previous Forums or are the effect of discussion in working groups[9].

Since the improvement of the inter-group (or inter-class) communication is the main task of the Forum, the different form of communication are involved. There are plenary lectures of invited guests, panel discussions of experts, discussions in problem groups[10], formulating communicates of groups and the whole Forum, lobby conversations and all kinds of informal meetings. It is obvious, that in all these situation all possible subjects are brought up, but the central theme somehow organizes this spontaneous activity.

2.3. Participants

The number of participants of the Forum varies from ca. 300 in 1999 to 750 in 2006, with the apogee of almost 900 in 2004[11]. As was already pointed, the main task of the Forum is to improve communication of the most important actors of the regional development (and strategic thinking). They belong to few groups: businessmen, regional policy makers, some politicians of national and international level (European Parliament Members), members of the regional and government administration, leaders of NGOs, scientists (and managers of science) and—of course—media men[12] , some invited guests[13]. Between participants there are the main representatives of the regional administration—the Voivode and Marshal (who are patrons of the Forum), the highest rank officers of the Marshal Office, presidents of the biggest Lower Silesian cities, managers of the biggest companies...

The fraction of different groups is approximately following:
Business—50%,
Regional policy—30%,
NGOs—10%,
Others—10%.

[9] Some problem groups do not dissolve with the end of the Forum and they continue the work during the whole year.

[10] In 2006 there were 13 groups in three blocks: The Future of the Region, Economic Problems, Social Problems.

[11] The decline of the number of participants in 2006 had been caused by the unfortunate coincidence of the date of Forum with election calendar.

[12] Forum has quite extensive medial coverage mainly in regional channels of TV, broadcasting and newspapers. In 2006' the medial patron of the Forum had been one of the two biggest Polish newspapers, what resulted with wide dispersions of information on Forum.

[13] In 2006 it was some specialists (e.g. Prof. Antoni Kukliński), some prominent businessmen (e.g. heads of Polish branches of concerns Toyota, Volvo, 3M), some politicians (Consul of the Ukraine, few Lower Silesian MPs, three Deputy Ministers).

3. Results

The results of the 8 already accomplished editions of Forums are can be evaluated from many viewpoints.

3.1. Immediate results

As the immediate results of the Forum we mention documents produced by it. The main is an extensive documentation of the Forum made in the book form. It contains final document, resolutions of working groups, transcript of main lectures and panel discussions, minutes of discussions in working groups, photographic documentation. It is already a nice series popularizing regional issues.

The main documents and the excerpts containing postulates of participants are separately circulated between opinion and decision makers (press and electronic media, offices of Marshal and Voivode, Lower Silesian MPs, Polish Government and other institutions). Some of them had been starting point of decision making process.

As the immediate results we should mention contacts (also the private ones) between actors on Lower Silesian scene. Some investments started from personal contact of some businessmen with local authorities, some initiatives get new supporters etc. We have no record of such events since nobody is obliged to notify them to the Forum organizers (and some of them are not even conscious that given action originated there).

3.2. Derivative initiatives

Some initiatives evidently started on the Forum. We point only two of them. The first is the **Lower Silesian Business Certificate**. It is the certificate of high level of entrepreneurship taking into account profit, trustworthiness, management quality, work conditions, social responsibility, ecological parameters of the company which is valid for one year. After 5 years and ten editions of its continuance the Certificate was awarded to more then 100 companies of different size, some of them is applying for it each year. Certificate started as fully independent, economically self-sufficient initiative which at last had been appointed as the regional institution.

The second (and quite new) initiative of the same kind is the **Lower Silesian Agreement for Sustainable Development**, signed by the first signatories (eminent persons of Lower Silesian political and economic life), what started wide social movement. Besides of the discussing and promoting issues of sustainable development of the region, this agreement is targeted towards appointment and legitimization of the Lower Silesian Council for Sustainable Development—the independent consultant body (and think-tank) of high social authority.

Other derivatives of the Forum is transmission of its idea (and organizational pattern) on the other level of social organization. There are discussed projects of organizing analogous events for some counties, for Saxony—Lower Silesia border territory or for some subject issues (e.g. for solving regional problems of health service).

3.3. Networking and growth of the social capital

One of the most important results of the Forum is growth and strengthening of the network of people and institutions crucial for the regional development and growth of the social capital of the region. The main actors have much more mutual confidence and community spirit then few years ago

3.4. Common language and shared opinions

As it was pointed at the last Forum by the President of the Toyota Poland, the level of unanimity in Lower Silesia is greater then in other Polish regions. It is one of the attractors for international investors. Here they can find interlocutors who share opinions and views in major issues. It creates atmosphere of good cooperation and more successful proceedings then in other possible locations. It also is one of the results of yearly meetings at Krzyżowa.

3.5. Strategic perspectives

Last but not least we mention the influence of the yearly Forum on the growth of strategic thinking in the region. Each year we discuss in quite representative audience the main strategic problems and elaborate strategic perspective for their solution. It is not a pure accident, that one year we had discussed the problems of the regional strategy (1999) and in the next year the regional strategy was approved. In the year 2001 the knowledge-based regional economy had been the main subject of the Forum, and it prepared the ground for accomplishing the Regional Innovation Strategy (2005). The subject of 2004' Forum had been the social capital and it occurred the key notion of the mentioned Regional Innovation Strategy and approved in 2006 year the new strategy of the City of Wroclaw. And the last example. At the 2004' Forum it had been stressed by one of the participants, that the importance of the little cities is not recognized by the strategic thought. Their situation is desperately more difficult then of rural areas or great metropolises (whom both strategic concepts and concrete development projects are addressed). In the next years this issue had been the subject of specific concern of one of the working groups. Nowadays we have much better knowledge of the problem and some ideas of solving it have occurred.

This are only few spectacular examples showing, that it is possible to stimulate wide social involvement in strategic thinking and to have positive results of it.

BOLESŁAW DOMAŃSKI

THE PROSPECTS FOR THE DEVELOPMENT OF MAŁOPOLSKA AS A CREATIVE EUROPEAN REGION

At the beginning of the 21st century Europe faces a number of serious challenges (see Kukliński and Pawłowski 2005a). There is growing global economic competition and a problem of oncoming demographic disaster. The crisis of European identity is a hot debated issue. Moreover, the crisis of European creativity appears as another major challenge.

As Kukliński (2006) puts it 'the region constitutes an economic, social and cultural entity, where particularly effective integration of knowledge, imagination and freedom takes place'. We can put forward a question concerning such successful integration in the particular territory of Małopolska and hence the prospects for its development as a creative European region.

The region as a diversity of structures and linkages

Traditionally, regions were often regarded as more or less distinct areas distinguished by some specific characteristics and/or territories, where certain phenomena were located. There is now a tendency to see the world in the perspective of linkages, especially networks of linkages. The region is an open system, the nature of which is determined by its complex, multiple linkages at various geographical scales: from international, through inter-regional to intra-regional.

The long-term self-sustaining economic development of regions by and large rests on the diversity of their structures. Economic and social diversity together with a resulting variety of linkages at various geographical scales facilitates a long-term dynamics and flexibility of regions.

There is little doubt that Małopolska belongs to the most diversified regions of Poland. We can find here:

— a varied set of producer and consumer services as well as production activities, including knowledge-based and capital-intensive sectors along with viable traditional skill-intensive ones,
— the wealth of culture, education and science,
— transnational corporations, large Polish companies, and numerous small and medium-sized enterprises,
— various organizations, associations, and non-governmental institutions,
— actors oriented globally, nationally, regionally and locally,
— groups of people of different experience, aims and sensitivity, people of different background from large cities, small towns and countryside and from abroad.

The presence of various groups of people, institutions and companies entails involvement in varied networks of contacts and exchange of information, experience, and capital.

This diversity is inseparably linked with a diversified spatial structure of the discussed region. A special role is played by the metropolis of Krakow. This traditional and at the same time cosmopolitan city is a place, where people of different background and aspirations meet each other. It is a place, where international linkages with foreign countries and regions meet with the linkages with other Polish metropolises as well as towns and rural localities within Małopolska. Thus the special growth potential of the Krakow metropolis stems from its position as a node or 'switching point' of linkages at various geographical scales. This produces cumulative agglomeration effects.

The city has kept attracting a steady in-flow of foreign capital. Among other things, this has made Krakow a major centre of modern printing in the country. Several large corporations have established their R&D centres here; the first was opened by ABB, but the technical centre of Delphi, an American car component manufacturer, is now the largest with employment approaching 1,100 engineers. In recent years, the city has become one of the most popular locations of business process outsourcing (finance and accounting) in Central Europe, attracting thousands of new jobs. One of the necessary conditions of this growth is accessibility, which has been enhanced by fast growing air connections, good railway links with Warsaw and the location on the A4 motorway. Krakow is also a significant concentration of domestic and foreign (e.g. Motorola) IT companies (Micek 2006).

In economic terms, the city has much lower costs of living compared to Warsaw. Moreover, it constitutes a social milieu, which is not dominated by politicians, diplomats and top executives of great companies. The lack of involvement in overwhelming current political affairs, which evoke themes of people's conversation, represents an advantage of the 'provincial' metropolises such as Krakow in relation to the national capital. It gives an opportunity to be more distanced from the immediate and short-term matters.

There is certain distinctiveness of every Polish metropolis in cultural terms. It is enough to take an evening walk in the centre of Warsaw, Poznań, and Krakow to sense the cultural specificity of these cities. Various cultural institutions and events are important elements of the metropolitan economy, enhancing its residential attractiveness as well as its national and international image. One cannot ignore the role of international tourism here.

Special importance is often given to foreign linkages. They may be a source of innovation, including new organizational and cultural ideas, transfer of capital, and flows of people and commodities. These connections comprise of a variety of linkages of enterprises and scientific and cultural institutions located in Krakow. However, we should not forget about historically strong connections associated with past migrations. They are not only a source of capital transfers, but even more flows of knowledge, skills and economic culture. The vital question is to what extent these relationships with other countries and regions, including the national capital of Warsaw, reinforce the development potential of Małopolska or rather erode its long-term competitiveness by means of brain drain.

The linkages of Małopolska with the neighbouring regions are also significant. The unique spatial pattern of two adjacent metropolitan areas of Krakow and Katowice (Upper Silesia) constitutes the largest concentration of population and economic activity in Poland, and hence the biggest regional market for goods and services. The attributes of the two regions are to a large extent complementary. This lies at the root of strong cooperation of numerous firms and organizations, and connections in terms of everyday flows of services, employees and consumers. On the one hand, there is unavoidable competition in the domain of attracting inward investment. On the other, from the point of view of companies operating at the international scale the two

regions function as a single entity within broader European space. They are connected by a motorway built as the first modern road connection between Poland and Western Europe.

Other neighbouring regions of Podkarpackie and Świętokrzyskie represent a broader hinterland, which provides ambitious young people to the educational centres in Małopolska, Krakow in the main. The economic development of Rzeszów, Krosno and several other medium-sized centres of these regions produces demand for various services, which is met by many companies from Małopolska.

The salient function of the metropolis is intra-regional transmission of development impulses generated through international linkages. One can remind an old concept of 'growth pole' in this context. There is no doubt that the future economic success of Małopolska will depend on the fact whether the metropolis of Krakow becomes a dynamic growth pole. This means first that Krakow has to achieve a self-sustaining economic growth as a creative metropolis, and second that it has to become a centre of diffusion of new ideas and development impulses in Małopolska as a whole. The support of the development of Krakow as a regional growth pole should be one of the priorities of regional policy of Małopolska. There will be no success of Małopolska, if Krakow develops separately from other parts of the region. Krakow cannot be an isolated 'island', which develops independently, or even worse at the cost of, the surrounding region.

The issue of regional cohesion should not be understood in its traditional meaning predominant in the twentieth century: the eradication of spatial inequalities. It has to be seen as a process of stimulating the linkages between the metropolis and its hinterland. This may practically contradict the thesis about the detachment of contemporary metropolises from the surrounding regions. This is definitely not the case of Krakow, and may represent an advantage of Małopolska in comparison, for example, to Warsaw and Mazovia.

The important element of the strength of Małopolska as a region is its dynamic medium-sized economic and educational centres, such as Nowy Sącz. Western and Southern parts of Małopolska enjoy long traditions of local industrial entrepreneurship. Multi-functional rural areas are a reality in many parts of the region, with a small proportion of people living on agriculture, numerous small and medium-sized enterprises in various services and/or production activities. Tourist services play a very important role in many parts of the region. Still, there are also poor, stagnant rural areas, especially in the north and in the east. All in all, no other regional metropolis in Poland, except for Poznań, has probably stronger and more diversified hinterland than Krakow.

The development of Małopolska rests on the two pillars of endogenous and exogenous factors. Both types of development are strongly determined by the features of human capital.

Human capital

The importance of human capital stems, among other things, from the fact that it takes long time to change the attributes of regional labour force. Moreover, the demographic crisis of Europe means that young people may soon become one of the fundamental scarce resources and conditions of economic development. Depopulation may lead not just to the collapse of pension systems, but also to stagnation or decline in demand for various goods and services together with a shortage of dynamic young entrepreneurs and specialists.

In this situation, a vital question is which European regions will become 'sticky places' for educated, enterprising, and creative young people, that is which regions will be capable of attracting and retaining scarce mobile human capital. This will exert influence on the development of local creative companies and institutions, and will also affect location choice by major corporations. Consequently, the basic question is where this sort of people would like to live and work.

Małopolska belongs to the youngest regions of Poland in demographic terms. It is one of few regions of the country that have escaped the deficit of young people, especially young women, caused by decades of depopulation of rural areas. At the same time it is characterized by the best accessibility of quality secondary education in the country (Guzik 2003). The city of Krakow constitutes the second largest national academic centre, which attracts thousands of young people seeking tertiary education and reinforcing local human capital.

The success of Małopolska as a creative European region will largely depend on its ability to become the 'land of hope' for educated, enterprising and ambitious young people, who otherwise may migrate to other Polish regions or abroad. This requires both the development and retaining of local human capital as well as Małopolska's appeal to people from abroad: Eastern Europe, Western Europe and North America.

The exceptional attractiveness of Krakow and Małopolska as a whole is supported by the results of recent studies of regional residential preferences in Poland (Szarek 2005). The attractiveness of the region rests both on its culture and landscape.

Culture plays central role in keeping and attracting people to Małopolska. Krakow is widely perceived as a unique place with special genius loci. It is one of the most preferred places of residence, even though it cannot compete with Warsaw in access to political and managerial positions. The sense of regional identity is generally strong among inhabitants of Małopolska in comparison to many other Polish regions.

All this creates conducive conditions for a sort of 'culture of success'. Regional and local success is to a large extent a self-fulfilling prophesy (Freeman 1992) built on fostering the belief in success and promoting examples of success.

Conclusion

The future position of Małopolska on the economic map of Europe in 21st century will be determined by its ability to meet various challenges faced by Polish and European regions. The fundamental challenge is capability of retaining and attracting young people with high skills and aspirations. The development of local human capital together with inter-regional and international migrations will be crucial in the situation, where many European regions face economic crisis associated with shrinking population.

The demographic and cultural characteristics of Małopolska give it a relatively privileged starting position in the competition for mobile human capital. The strengthening of this position should be a top priority of regional and local authorities in Małopolska. The role of culture cannot be overrated in this context. It facilitates the attractiveness of the region and its capital city and contributes to the relatively strong roots of the residents.

The salient strength of the region of Małopolska is its diversified economic and spatial structure. Its development is based on endogenous activity of long-term residents and newcomers. At the same time, the quality of human capital together with good accessibility and cultural and natural conditions make the region attractive for foreign investors. This is especially true of the metropolitan area of Krakow, where research and development and other advanced services of transnational corporations are concentrated. In contrast to some other regions of the country, the metropolis of Krakow has not become detached from the rest of the region. Various medium-sized urban centres and rural areas are economically successful. There is also room for 'traditional' economic activities, which may be part of the viable creative regional economy. The development potential of the region cannot be separated from closely linked regions of Southern Poland, Śląskie and Podkarpackie in the main, as well as Czech, Slovak and Ukrainian regions.

The development of Małopolska as a creative European region, that is a region of creative society, creative economy, a creative government, needs significant effort on the part of public authorities, regional business and social groups. All this requires avoiding claimant attitudes on the part of all regional players in their relationships with the central government and the European Union. Claimant attitudes entail passive behaviour of companies, institutions and society at large and short-term orientation of actions (Domański 2004). Creativity is in contradiction with the fixation on fighting for subsidies and favourable allocation of resources. The use of EU funds and learning from the experience of the developed regions of Western Europe may bring about long-term positive effects, if they rest on regionally designed goals and strategies rather than on the philosophy of imitation and dependence.

All things considered, there seems to be good prospects for the development of Malopolska as a creative European region, which stem from its social, cultural, economic and spatial structures and qualities. The success will depend on the activities of various regional actors and their interconnections. Still, we cannot ignore threats to this development. They include a possible failure of regional and local authorities of meeting expectations of people seeking residence and employment in the metropolitan area of Krakow and other parts of the region. The city of Krakow and its metropolitan area cannot develop separately or at the cost of the entire region. More peripheral small and medium-sized centres of Małopolska need to retain some educated people, who have to find attractive conditions for their occupational and personal self-fulfillment here. And last but not least, public authorities of Krakow and Małopolska have to escape the pitfall of 'elitism', where the main effort would be to promote prestigious activities and narrow technologically advanced industries and neglect of others. The creative region has to rest on a diversified economy, including both 'modern' and 'traditional' elements, the 'elitist' and 'popular' activities.

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KRZYSZTOF PAWŁOWSKI

CREATIVE AND INNOVATIVE REGION —A CASE STUDY OF NOWY SĄCZ

1. Introduction

The Author cannot cite any objective research results, but can bet anyone that if there was a poll of Polish entrepreneurs, experts or journalists, to name the top 5 entrepreneurial cities, many of the respondents would name Nowy Sącz as one of those cities. The answer would be even more probable when polled about entrepreneurial cities under 100 000 inhabitants. This image of an entrepreneurial city did not emerge recently, neither is it a result of a media campaign consciously planned by the city's authorities. Rather, and this is the view of the Author, it is a result of two mutually reinforcing processes: the Nowy Sącz Experiment from the 1950's and the entrepreneurial explosion during the 1980's and 1990's.

Nowy Sącz is characterised by the emergence, during the first half of the 1990's, of several large companies and investments that took on national-level importance, which were created by its native sons and daughters and remain to this day, with one famous exception, in the hands of families that created them. Those companies emerged in different industries and market segments, but their nationwide success is primarily based on innovation.

It is difficult for the Author, a creator of one the most spectacular successes in Nowy Sącz, to present an objective explanation, therefore this analysis is of a subjective nature, intended to point towards further avenues of enquiry.

2. Nowy Sącz Experiment of the 1950's

When entering the academic world during the 1990's, and especially when meeting senior social science academics (past their 60^{th} birthdays), the Author, when introducing himself as an inhabitant of Nowy Sącz, always met with a warm and emotional reaction. Many of those scientists recalled their participation, as young academics, in researching the consequences of the Nowy Sącz Experiment, which was a unique for the Communist Block attempt to stimulate the development of local governance. The idea and its realisation came from the Nowy Sącz and parish[1] authorities/leadership, with the active support from local and regional leaders of the Polish United Workers Party. Started in 1958, the Experiment earned enthusiastic and spontaneous social

[1] A sub-voivodship administrative unit, the main unit of local government.

support, which was powerful enough to cause (after only two years) a "slowdown policy" form the political leadership, fearful of loosing its own control over the social environment. The Author, then a primary school student, is convinced that he and others, who created famous Nowy Sącz companies, benefited from the Experiment and its related social awakening of the 50's and 60's, by acquiring a belief that anything is possible, the only limits are those that come from dreams, and that even formally unrealistic projects can be completed.

3. Nowy Sącz economic flagships and their creators

I. "Konspol" and Kazimierz Pazgan

Already a pioneer of economic activity in the 1970's, Kazimierz Pazgan and his Konspol (chicken manufacturing) have achieved success through innovation. Pazgan, with the support of his scientists, introduced a unique meat production technology that allows for the transformation of chicken meat products without the use of pig fat. Over the last 30 years Pazgan went through the complete company cycle, from a small company through the creation of a joint-venture firm with foreign (Polish expatriate) investment, all the way to a corporation possessing the complete production chain with an annual turnover of 400 million PLN (about 100 million EUR).

Pazgan successfully passed a test, which was a major stepping stone for most entrepreneurs before 1990: from operating in a shortage economy (that assured a ready market for any product) to surviving and growing in an extremely aggressive free market.

II. "Optimus" and Roman Kluska

Both the company and its owner are well-known in all of Poland: Optimus, founded in the late 1980's, as a garage-based computer manufacturer, grew so fast that by the mid 1990's it was producing about 100 000 computers and was fast approaching the top 10 European computer manufacturers. Kluska's innovation focused on the sale of computers backed by the provision of complete IT solutions and he was the first to notice the potential offered by the World Wide Web, which brought his greatest success: the creation of Onet.pl, Poland's biggest new/information/email portal. Kluska sold Optimus at the highest point of the "dot com bubble" in the late 1990's, but the major reason for his withdrawal from the industry was a prolonged conflict with the tax authorities due to weaknesses in the tax law, combined with activities by politicians, all of which, according to Kluska, made ethical business activity in Poland totally impossible.

III. "Koral" and the Koral brothers

Koral is the biggest Polish manufacturer of ice cream, a company that has achieved a notable market share in the face of strong international competition from corporations like Algida, Sholer. It was created in the 1970's by two brothers, Jozef and Marian Koral, from Nowy Sącz. For many years it was a small operation that sold directly to customers, but during the systemic transformation period they decided to purchase part of a bankrupt State-Owned Enterprise (SOE). Their idea filled pent-up market demand, as they began producing cheap ice cream on a large scale, and engaged in a policy of tying to their company hundreds of little shops located in villages and small towns by equipping them with Koral ice cream freezers free of charge (a move welcome at a time when many small shop owners were initiating business activity without access to any funds). International corporations, accustomed to easy cooperation with large distribution

networks and large retail chains did not appreciate the specificity of the Polish market. When they did, the direct sales market was already taken—that of a child going to buy some ice cream in the small neighbourhood shop.

IV. "Fakro" and Ryszard Florek

As a producer of roof windows, Fakro is one of a few Polish firms that have a notable global market share in a crucial industry—building materials. It was created by Ryszard Florek, also from Nowy Sącz, who started his business in the 1970's from a small timber yard located a dozen kilometres from Nowy Sącz. During the late 1980's and early 1990's he saw an opportunity in the transformation of the Polish building industry: the free market would bring with it an increase in the number of houses being built and with that would come architectural changes focusing on the optimal utilisation of internal space. He located his roof windows production line in the facilities of a bankrupt SOE in Nowy Sącz, and quickly entered the international market and began competing with the world leader "Velux" in terms of price and quality. He won over multiple dealers (because windows are never purchased directly from the manufacturer) by bringing them to Nowy Sącz and showing them the tourist opportunities of the region. Currently Fakro is a company using the most advanced technologies and developing new products and solutions (10 new patents filed annually), which has a notable impact on the global market.

V. "Wiśniowski" and Andrzej Wiśniowski

The development of this Nowy Sącz company, whose immense facilities dominate the Nowy Sącz–Krakow road, is for many a symbol of post-1989 economic development. Wisniowski started from a small shed in which he assembled the first Polish gates after 1989 and since then market demand has required constant growth. Currently the company covers 4,5 hectares of production facilities and is a true symbol of Nowy Sącz entrepreneurialism.

VI. "ZNTK", now known as "Newag" and Zbigniew Konieczek

The case of Newag differs from the previous examples. ZNTK (Zakłady Naprawy Taboru Kolejowego—Railway Rolling Stock Repair plant) was the biggest employer in pre-1989 Nowy Sącz, but underwent gradual economic decline during the 1990's, as it suffered from the collapse of its sole client: the Polish rail system. During the 1990's, PKP (Polskie Koleje Panstwowe, the SOE tasked with running the Polish rail system) constantly reduced its purchases of new stock and the repairs/servicing of existing stock and caused the bankruptcy of several companies like ZNTK all around Poland. ZNTK was close to collapse itself. At this time ZNTK was run by Zbigniew Konieczek, who was gradually trying to rebuild ZNTK's position and worked towards regaining lost business. In 2002 a new owner appeared, a person suspected to tax fraud—his actions highlighted a possibility that he wasn't interested in restoring the welfare of ZNTK—rather he was looking for bankruptcy and the follow-on profit-making process of asset stripping. The ZNTK Board of Directors engaged in a spectacular "move", which should be taught in most MBA courses: they bought the debts of their new owner and thus regained control over their company. Currently, ZNTK, under the new "Newag" name and a new owner, Z. Jakubas, is a fast-growing company that once again is increasing its employments and is the pride of Nowy Sącz.

VII. "WSB-NLU" and Krzysztof Pawłowski

It is difficult to present Nowy Sącz entrepreneurial successes without mentioning WSB-NLU. The School was a political idea—as a Senator in 1989, I wanted to create conditions for the educational development of my constituents. In 1989–91, I thought that I could find brilliant ideas and their implementers in the Polish academic community, yet it turned out that Polish professors are so tied to their state-owned universities that the move to a small town (when combined with a lack of funds and uncertainty about the future) proved impossible. Instead of settling for the negative option—creating a smaller, worse copy of a state university—I decided on an entrepreneurial approach—transplanting onto Polish soil the teaching programmes of an American university. This required additional steps: accepting the organisational culture of National-Louis University, treating the students as a client and partner. There is no doubt that our cooperation with the American university was the backbone for WSB-NLU's later successes, as it grew steadily despite the emergence of multiple private universities and acquired an identifiable brand. The School has clearly affected Nowy Sącz, not only through the natural promotion of the town and the educational improvement of many of its inhabitants, but also through enhancing its economic development and the welfare of the people (the student population has a notable impact on the town's economy). Currently, after 15 years of development—modern infrastructure, teaching and living facilities for 4000 students, own teaching and scientific staff—WSB-NLU is initiating a new project that will influence the future of Nowy Sącz: "Multimedia City cluster".

4. Other examples of Nowy Sącz entrepreneurialism

For the long-term economic success of Nowy Sącz it is extremely important to utilise the tourist-oriented aspects of the immediate and nearby environment. The changing nature of weather patterns in Poland brings with it the need for the development of a wide offer in terms of the breadth of possible activities that, besides the sport, recreation and health ones, requires the development of cultural, gastronomic offerings, museums, etc. Each such activity has its leaders. It is worthwhile to focus on:

The Economic Forum, Krynica (located 30km from Nowy Sącz) is an immense event in September each year for over 2000 guests from around the world. Not only does it promote the region, but also extends the hotel season. Zygmunt Berdychowski, a local politician, who invented the Forum in 1992, has been working tirelessly to turn it into the "Davos of Central and Eastern Europe". Alongside the main event, multiple conferences, seminars are organised by other institutions, boosting the conference orientation of Krynica and improving its economy.

When utilising European funding, an important role is played by an ancient-wooden-settlement museum on the outskirts of Nowy Sącz—at this time a different project is close to completion: Galicja Town with a main square and two churches. The museum now has 54 buildings and constructions (aiming for a total of 70) and is becoming a European tourist attraction. The museum is supported by a dedicated group of museum staff and the ex-chairman of the Małopolskie Voivodship.

The Małopolskie Culture Center "Sokół" plays an important cultural role. Its director, Antoni Malczak, has been able to rebuild a small local cinema into a massive cultural complex of 25000 cubic metres, which has a selection of auditoriums capable of seating 1000 people and a large cinema room for 400, where concerts and theatre plays are offered. Sokół is the only cultural centre built after 1989 in Poland, and is actively involved in the improvement of the Nowy Sącz region's standard of living.

An interesting idea is the creation of the "Carpathian Europe" institute, a classical NGO focusing on the organisation of international conferences, cultural and political events aimed at strengthening the relationships of Carpathian regions in all Central European nations. The project is run by the ex-vice-president of Nowy Sącz, Leszek Zegzda.

Janusz Kasztelewicz from a village near Nowy Sącz developed a unique tourist offer: around high traditional beehive/honey production he now offers an entire tourist experience centred on the nature and history of honey production.

A selection of initiatives around the Nowy Sącz mountains (Beskid Sądecki) focuses on offering wide-ranging services for selected groups of clients: Wierchomla Skiing Station or Irena Eris hotel in Czarny Potok near Krynica, offering spa holidays with a focus on women. Jerzy Pazdan spent many years building a chain of specialised, high-quality restaurant in and around Nowy Sącz (Kupiecka, Dom Pierogów/Ratuszowa, Staromiejska in Stary Sącz).

It is worthwhile to present some typical firms, which started in the 1990's and achieved the size of mid-range firms and a defined, strong market position.

Sławomir Bugajski started his business in 1991 when he was in his twenties. At that time he was a professional cyclist and used the connections he had made in his sport career to start a trading business. After three years he decided to produce furniture, although he did not have any experience and could only experiment. He managed to find a market niche-furniture for children—and skilfully made use of the VAT differences between raw materials and finished products. VAT refund enabled him to increase turnover. He tried to find new markets all the time and soon he was exporting furniture to former Soviet countries.

The Russian crisis stopped the development of the company, but the young entrepreneur did not lament. He just found new markets: Sweden, the Balkan countries, the Czech Republic and Slovakia. Now the company, employing 100 people in 2001, exports 90% of its production.

The creator and owner of IKER furniture company used another road to success. IKER furniture is aimed at the most affluent customers. Janusz Obtułowicz, an AGH graduate, started as early as 1981 and from the very beginning he produced furniture. His motives were very simple—he wanted to furnish his flat and could not get the furniture he liked. He decided to produce it himself. The effect was surprising: he placed only one ad in the newspaper and obtained orders for half a years work. He gradually developed a company that now employs 70 people. IKER is proud of its advanced design (there only a few companies competing with it in Europe), customer satisfaction, and a turnover of one million PLN per month.

A very important aspect of the economic activities in Nowy Sącz region is agricultural products processing. Weaknesses of this sector include a lack of consolidation and problems in utilizing agricultural produce. Local cooperatives practically do not exist. Therefore it is worth looking at the activities which led to the creation of a company which reached great market success and improved the conditions of many chicken farms in the area. The egg market is characterized by seasonal sales. In summer we have considerable surplus, in winter (especially before Christmas) a deficit. Eggs cannot be stored for a long time, therefore they have to be processed. Until the end of the 1980's there was only one plant powdering eggs, in Nowa Sól, a few hundred kilometres from Nowy Sącz: it was a monopolist dictating prices and delivery conditions. In the middle of the 1990's a few owners of chicken farms decided to build their own modern plants for powdering eggs. The Basso partnership was formed, which now employs 40 people. As usually, the driving force of the enterprise was one man: Józef Basta.

Nowy Sącz has a long tradition of producing leather clothes and accessories in small crafts shops. At present we have eighty manufacturers of leather products. One of the first companies in this industry was owned by Włodzimierz Wojewodzic. At the start of the 1990's he was trying to find a living for himself and noticed that nobody in the area produced leather bags. Together

with a partner he started the first leather manufacture in Nowy Sącz. Finally, in 1996 he set up his own company. He started with a few products a day. Now he produces over 50,000 bags per year and employs thirty-six people. Luxurious bags made from Italian leather and sporting their own logo "Wojewodzic" are sold all over the country. Włodzimierz Wojewodzic is now preparing for export. It is interesting to note that this still-young man (40 years old) does not think about maximizing profits. His main concern is the high quality of his products: he is fascinated with the beauty of his products.

High technology products/companies are becoming increasingly important.

The leader is "Novitus S.A.", which started as a subsidiary of Optimus and was later devolved into a separate entity after a change in ownership. It manufactures scales, cash registers and has been steadily growing in importance (from 1mln PLN in sales to 59.3mln PLN in 2006). Novitus is a leader in the provision of complex electro-IT solutions to enhance the operations and profitability in trade, services, manufacturing, logistics, and is a market leader with 24% of market share in 2006. Novitus bases its success on an in-house R&D team, whose staff are 13% of all employed by the company. The production is ecologically friendly, and the technologies implemented are a result of in-house innovation and the use of technologies sourced from strategic international partners. This company too is run by a single man: Bogusław Latka.

DR ZABER sp. z.o.o is another Nowy Sącz company—named after its creator Zdzisław Zaber PhD, it is a leading supplier of water, wind power plants, manufacturing machinery and advanced technologies on the basis of its 24 top-class engineers. Despite being a young company, it has already filed multiple patents and was awarded the Poznan Trade fairs gold medal.

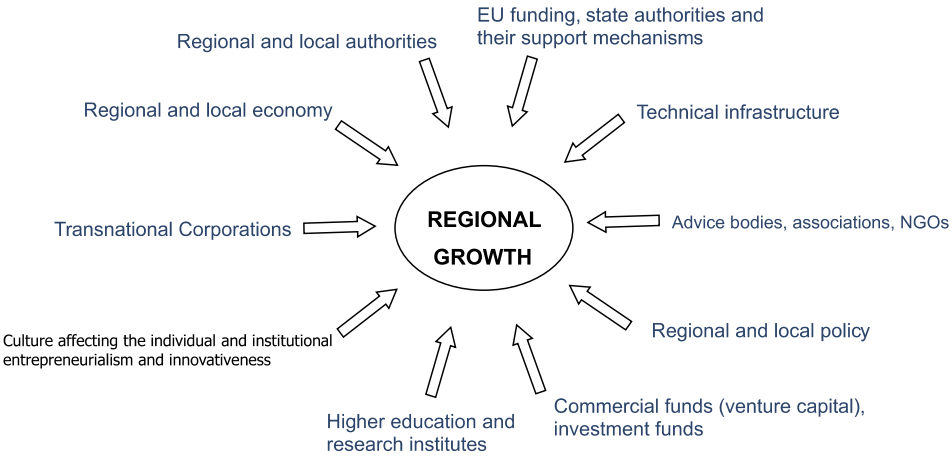
One of the typical features of the Nowy Sącz economy is a large number of transport and logistics companies, many of which operate abroad. These companies possess over 200 trucks used in international transport and constitute the strongest branch of the local Chamber of Commerce. The leader of the pack is definitely ZET Transport, a family business set up in 1993 and owned by the Załubski brothers. Interestingly, the transporting activities had been begun by their father, Józef Załubski 10 years earlier, but it was a one-man company, having only one truck. Today ZET Transport, managed by Jan Załubski, has been given a very good position in the "Rzeczpospolita" ranking of international transport companies. Jan Załubski is a perfect example of a young, modern entrepreneur and a good manager open to innovations and firmly leading the company.

With so many transport companies located in and around Nowy Sącz, a natural logistics nieche emerged, that was quickly exploited through a creation of a join venture between Polish shareholders and the British company Bar Code Systems. Currently the firm employees over 40 specialists and has an income of 27mln PLN in 2006. BCS Poland is an IT integrator for logistics in terms of acquisition, remote sending and managing of data based on the bar code system and RFID technology. Its clients include the biggest production companies within the cluster, and in accordance with the "Polish tele-informatics market 2005" report by Teleinfo 500, BCS Poland was fourth in the provision of IT solution to the transport, courier and mailing sectors.

5. The nature of local development

Academic literature lists many factors and institutions that affect local and regional development. Fig.1. presents the most important institutions and mechanisms, from the perspective of a practitioner (rather than a theoretical analyst, scientist) who was engaged for many years and in multiple roles in the process of local development.

The Author is convinced that the most important element is also the most difficult one: individual entrepreneurship and innovativeness of people living within the locality. Any activity



Source: own analysis

will be enhanced if individual entrepreneurship and innovativeness is supported by dedicated institutions, local and regional authorities, which will not only create an atmosphere of support but also create the appropriate mechanisms (tax rebates, specialised credit lines, etc). Yet, the key is the culture of individual entrepreneurship and innovativeness that is built over decades or even centuries and turns an individual intent on starting a new project into a positive character/hero who acts in the interests of the locality. To assure a multigenerational effect, the locality needs a new system of education (starting from the first class of primary school), which will develop individual entrepreneurship and innovativeness in youngsters.

The other factors presented in Fig.1. play an important role, yet are of a secondary nature—the Author believes that the health/profitability of small and medium companies within the region is much more important than the size of investments made by MNCs, which can provide an impetus for growth in their new location, but due to their very nature, MNCs can quickly withdraw and move to a different location, which will promise faster or higher profits. As a result, the support for local family-owned businesses, tied into the local population and economy will assure much more stable growth in the long run. Local and regional politics play an important role, if the leaders can understand and appreciate their subservient role—to inspire and support (e.g. by investments in infrastructure). Financial institutions and those supporting local and regional development can be important but only if their actions are elastic and well-timed—a nightmare characterising the first years of Polish membership in the European Union is the tragically bureaucratic (no other term fits) and slow process of decision-making. The majority of such "delaying" procedures are not a by-product of EU bureaucratic structures but rather are a result of "happy creativity" practiced by Polish administration officials, seeking security and to distance themselves from any incorrect decisions that may or may not have been made.

Polish regions have only recently begun to implement their long-term growth programmes. Poland is now after the first stage of its economic development since 1989, when the sheer removal of restrictions on individual entrepreneurship and innovativeness brought immense and unpredictable positive effects. But this "easy" stage, where there was so much space and opportunity and market segments to exploit (and experience above-average success in a short time) is now coming to a close. We are now entering a period where competition on local markets is already fierce, so companies and institutions that want to keep growing and developing will

increasingly need outside assistance—not only from an individual/company perspective but also from the perspective of benefiting the local/regional community.

Here it is appropriate to outline the factor which will be increasingly influential in terms of assuring economic development of a town or region and its competitive potential: the educational sector (in its entirety: not just universities and research centres located and active in the region). They key, still unappreciated by local authorities, is an appropriate educational system from the early years, which shapes the character and attitudes: problem solving, intellectual courage—attitudes which have a dramatic impact on later entrepreneurialism and innovativeness. It can be now stated that it is the local communities, which will invest the most into their primary schools that will gain the most value added in several decades (assuming that they will be able to retain such youth educated within their system).

In the century of Knowledge-Based Economy and Society, local and regional development will be affected by R&D institutions: universities, research centres and supporting institutions and those that will assist in the transfer of research results into the wider economy.

The five most important regional growth factors are:
— Individual entrepreneurialism
— Company innovativeness
— Citizens education
— Scientific research
— Transfer of knowledge and technologies.

Four out of the abovementioned five are primarily dependent on the quality of higher education and research institutions that exist within the given locality and work within/for the town/region. Financial support is, of course, also necessary but is of secondary importance—required only when there are research results or innovations whose implementation will provide value added. Higher education and research are areas where local and regional governments can have a notable impact—not directly nor through direct management, but rather through stimulation, inspiration, motivation and precise, speedy financial support of specific initiatives.

The Author has recently analysed development strategies prepared by many Polish cities, towns and parishes. It is easy to draw the conclusion that they have all been prepared by the same person, who is intent on constantly repeating several phrases: high technology, agro-tourism, development of education. Rarely can a reader come across a defined strategy based on local differentials. The case of Nowy Sącz and its "big seven" shows that success can be achieved in a wide range of areas, even those that do not (initially) look like having anything to do with high technologies (like chicken or ice cream production). Local economic development is dependent upon stability (attachment to the locality) of the industries and the number of employment places created. The localisation of Nowy Sącz, on the edge of the country, far from major agglomerations and with difficult access to the town, points towards a lot of developmental impediments—yet the reality is much different: the scale and breadth of success creates the basis for further successes.

The basis seems to be the human/social capital present in the locality: in 2005 1741 companies were created in Nowy Sącz alone, with 283 created with the support of the local Labour Office (when in cities with much larger populations those numbers are much smaller: Koszalin had 150). This social capital forms the basis of a new venture: Multimedia City cluster.

6. The Multimedia City project—Polish Innovation Center

In the age of rapid technological changes and global competition, new technologies are the key factor driving economic development, fostering efficiency and implying continuous improvement

of qualifications. According to the Lisbon Strategy, the EU main goal is to "*become the most competitive and dynamic, knowledge-based economy in the world capable of sustainable economic growth with more and better jobs.*" One of the five regulatory areas on which the Strategy focuses is improvement of the economy through "*fast transition to the knowledge-based economy, including the development of the information society, research and innovation as well as teaching appropriate qualifications and skills.*" The Strategy goal in the economic dimension is "*preparing a transition to a competitive and dynamic knowledge-based economy*" through "*creating the information society, establishing the European Area of Research and Innovation, creating a friendly environment for starting up and developing innovative businesses.*"

As European Commissioner for Regional Policy, Danuta Hübner believes, "*the growth of European innovation is intrinsically linked to regional performance*". It is seen that regions leading in Europe as the most competitive ones are those, concentrated on investments in new technologies. Investing in human resources, advanced skills, talents, building knowledge transfer networks, and creating cluster initiatives has created world innovation leaders such as: Scandinavian countries, Germany, Netherlands, and the UK. New technologies, as the driving forces, are giving the chance to grow for regions. Moreover, 2/3 of developed countries' growth is linked with being active in the field of innovation.

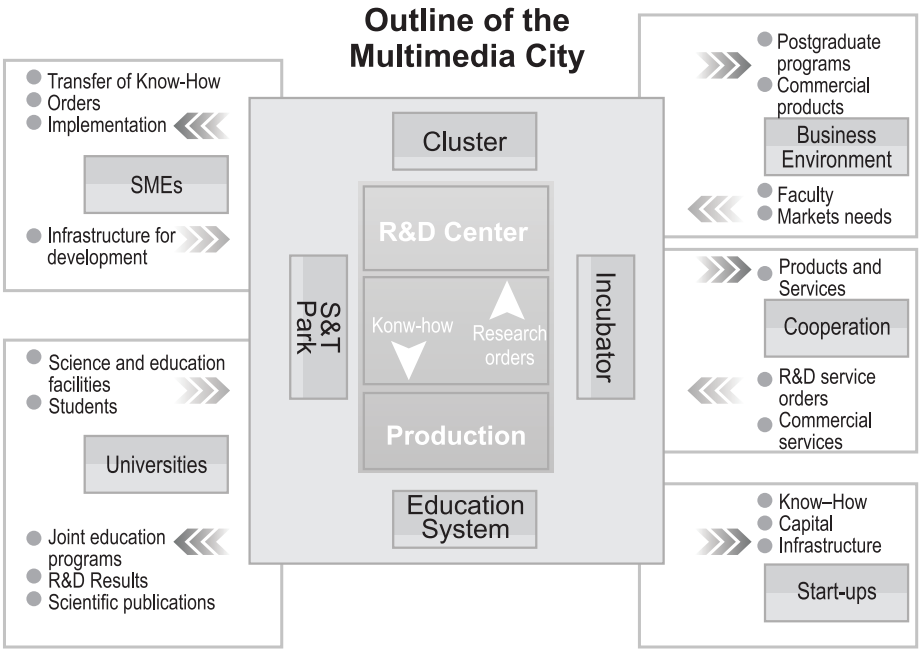
Poland is a country with great intellectual capital of its citizens. However, Poland still has not been successful in transforming the intellectual capital into an economic success. Polish intellectual capital is appreciated by international corporations and already opened labor markets of European partner countries. Not only are Polish plumbers and construction engineers sought out. Numerous winners of international IT competitions, even before they graduate from universities, receive job offers that are much more competitive than those available in Poland. The Polish labor market still cannot cope successfully with international competition. Poland lacks spectacular success stories that would allow millions of its citizens to believe that our country provides opportunities for dignified and good quality living, whether in Warsaw or in Nowy Sącz.

Almost every government document which is at least partially devoted to a strategy of enhancing the competitiveness of the Polish economy discusses a potential for development related to utilizing new technologies. The answer to those needs is Multimedia City project. The project is in line with the European guidelines for the regional development, technological advancement, and information society building as well as in line with Małopolska Regional Operation Program implying creating favorable conditions for the economic growth through innovativeness.

The cornerstone of the Multimedia City project is creating the state-of-the-art infrastructure facilities with unique competencies, which will provide a basis for developing innovative solutions, products and services. In one location and within one organisation system, there will co-exist: a Science and Technology Park, R&D Centre, Entrepreneurship Incubator, Multimedia Cluster, Investment Fund and an Educational/Training System. All the elements will be connected through a common goal of multimedia development and based on mutual benefits coming from the transfer of knowledge, ideas, financial connections and the undertaking of joint projects. The concentration in one location of so many competencies and technological infrastructure (taking into account production of movies, graphics, sound, combined with the development of architecture for information, application development and data transfer) will allow for the creation of solutions, products and services at a world-class level of innovativeness.

The Multimedia City will be a practical implementation of the so-called knowledge triangle since it will integrate business entities (companies), research institutions (universities) and business support organizations. The idea behind the creation of the Multimedia City is developing stable mechanisms of cooperation and support between the R&D sector and the private enterprise sector. The emphasis will be placed on creating cooperation mechanisms between private firms belonging

Chart 1. Main domains of Multimedia City



to the SME sector and organizations conducting R&D activities, which should result in establishing and institutionalizing such model of cooperation. The essence of Multimedia City's functioning will be to facilitate adoption of innovative solutions by companies in mobile technologies, film, animation, games and others (see chart 2).

Chart 2. MainFocus in Research and Development

The Multimedia City will provide entrepreneurs with offices, laboratories, workshops, studios, conference halls and specialised company facilities with 10000sq. metres of space, which will be completed by 2012. Multimedia City will also offer entrepreneurs services such as: project management, partner search, and preparation of reports for patent applications and IP rights

and the search for external financing. Implementation of Multimedia City Project will result in providing new, permanent workplaces in the most modern sector of the economy, the sector that will enable to combine research of innovative solutions with education in this field. It will become a fulfillment of the postulate to use the potential of information and communication technologies in many areas of social life. Seeking new solutions for using multimedia and IT will focus on the areas vital to the development of knowledge-based economy: business, education, and entertainment.

The cost of Multimedia City development is estimated at 126mln EURO. On August 27th 2007, the Multimedia City was accepted by the Polish government and included on the indicative list of key projects for Polish development, with funding of 28 mln EURO from the "Innovative Economy" Programme to fund the 1st stage of programme development.

In the frameworks of the Multimedia City project Multimedia Cluster has been founded. It incorporates over 50 Small and Medium Companies from South and Central Poland active in the field of Multimedia and IT (www.multiklaster.pl). The ongoing projects are among others: promotion of Cluster members, tenders search, study visits. Cluster runs computer graphics laboratory, where several innovative projects and research are being carried out by cluster members.

Moreover in the frameworks of the Multimedia City project the Nowy Sącz Network for Innovation and Knowledge Transfer has been founded. In co-operation with Novitus, a local IT and electronic systems provider, the Network runs a laboratory, where several innovative projects and research are being carried out. The projects mostly concern implementing new technologies of the wireless data transmission, VoIP systems, wireless networks and other innovative solutions for the needs of small and medium enterprises.

The ongoing projects are among others: video surveillance for cash registers; implementation of VoIP for networks; safe wireless infrastructure for identification systems; Open Optimus and Open Intranet—implementation of the open source software for building an operation system (Open Optimus) and innovative corporate internet and intranet systems (Open Intranet); pioneering tools for SMEs promotion with 3D graphical models—in Cooperation with Google, the 3D designers are modelling architectonically and historically remarkable objects of the region (castles, palaces, etc.) in order to place them to Google Earth and Google Maps together with a promotional campaign of SMEs in their surroundings. http://ssitw.wsb-nlu.edu.pl

The Multimedia City project has also a wider dimension affecting the whole surrounding region as the Richard Florida underlines in his book about quality of place and the new economy: "Quality-of-place—particularly natural, recreational, and lifestyle amenities—is absolutely vital in attracting knowledge workers and in supporting leading-edge high technology firms and industries". It is obvious that the most successful regions are not only those with state-of-the art infrastructure but as well as with strong regional brand and image of attractive place for living and working. There has been a number of initiatives undertaken by the local communities officials from the Małopolska region with WSB-NLU and Multimedia City, for the simultaneous development of other aspects increasing the quality of life of citizens in Nowy Sącz and its region—culture, tourism, leisure and young children entrepreneurship and creativity education.

The Multimedia City project was created in the one of the most entrepreneurial regions in Poland. The average entrepreneurship rate in Małopolska is 88%, where 85% of the population is in pre- and production age. Thanks to the convergence effect and a big internal diversification, Multimedia City will generate conditions conducive to the development of creative environment for innovative ventures. There are no doubts concerning the value of the Multimedia City project for the development of the whole region of Małopolska, as well as for the general purpose of development of the European economy as the most innovative and fast growing in the world.

Such an endeavour has never been attempted before in Poland. It is an effort at creating an entirely new environment, changing the nature of Nowy Sącz itself, and of Nowy Sacz School of Business-National Louis University, creating a true "knowledge town" and stimulating regional economic development.

7. Summary

The article presents the case of a town with sizeable location-specific challenges. During the 1990's the town experienced spectacular economic successes, and is now preparing for a giant technological and civilisational leap forward on the basis of EU funding. It is difficult to estimate the long-run effects of this new initiative: only to ponder whether the effects will be huge or truly massive. The town, its authorities and WSB-NLU innovators decided to transform Nowy Sącz into the first Polish town of knowledge and undertake competing on the global scale.

BEATA KARNAT-JASICKA

REGIONAL DIVERSIFICATION OF CREATIVENESS AND INNOVATIVENESS IN POLAND

I. Innovative potential of Europe and Poland

For more than 20 years innovativeness and entrepreneurship have been perceived as key factors of competitiveness, growth, and development. In the same period of time, we have observed gradual weakening of the European economy against the USA, resulting in, among other things, more slowly economic growth rate. In contrast to the 50's and 60's of the XX century, when Europe was catching up with America at a high pace, since the 70's no progress has been recorded in this respect.[1] A similar tendency takes place if the level of the European innovativeness is taken under analysis. A problem of the European innovativeness can be considered from two points of view: on the one hand, taking into account revolutionary innovations changing technical and economic paradigm, and on the other hand, looking into minor and upgrading innovations, within the confines of the already invented technology.

Problems regarding revolutionary innovations appear globally. Contrary to widespread media opinions, innovative support has been on a major decline for some time now, and Europe itself can be no longer considered as an innovation forge. According to R. Galar, 'there are natural processes of improving and promoting well-known inventions, but inventions opening new horizons are few and far between.'[2] The case of Europe seems to be of a special focus, as we take into consideration its dominance with respect to innovativeness back in the past. Alongside revolutionary innovations, which have already become global issues, Europe has also downgraded its position within an average innovativeness level. The development of science and commercial applications of knowledge on the European field falls behind the dynamics of the US innovative economy. There are many indicators that account for the diminishing position of Europe in this respect, among other things, a dropping number of the Nobel prizes awarded, patent applications,

[1] In the last two decades of the XX century, EU countries recorded 2,3% level of growth, whereas the USA developed at the average level of 3,3% in the respective period. As a consequence, in the year 1970 GDP *per capita* in the eurozone amounted to 70,1% of the American GDP *per capita*. In the year 2000, the ratio changed to the disadvantage of Europe, totaling no more than 68,5%. After 1973 the pace of growth has never reached, nor exceeded, 3% three years in a row.

[2] Por. R. Galar, *Bariery pojęciowe na drodze europejskiej kreatywności*, [in:] (ed.) A. Kukliński, K. Pawłowski, *Przyszłość Europy—Wyzwania globalne—Wybory Strategiczne*, Wyższa Szkoła Biznesu—National-Louis University, Nowy Sącz 2006, s. 49.

patents won, scientific publications, lowering share in citation indicators, or a falling number of new management methods and major innovations implemented by European corporations[3].

Comparing to the EU countries, innovativeness of the Polish economy is unsatisfactorily low, which jeopardizes its international competitiveness. On the base of *Summary Innovation Index 2005,* Poland was classified into a group of countries named 'losing ground', which means the countries representing the lowest level of innovativeness in Europe[4] . In the ranking according to SII for EU-27 Poland finishes 21st (the last but five position), just behind Bulgaria. From the regional angle, on the NUTS II level, according to *Revealed Regional Summary Innovation Index 2006,* none of the Polish regions reached the RRSII average value[5] . As to the level of innovativeness, the strongest Polish region (Mazowieckie) stands at the 65th place regarding RRSII. Moreover, it is Polish regions that close up the ranking of 208 UE regions according to RRSII (Podkarpackie, Świętokrzyskie i Podlaskie).

In the year 2005 The Social-Economic Strategy Council at the Minister's Council carried out an evaluation of the level of innovativeness of the Polish economy basing on two, methodologically independent aspects[6]: 1) capability of putting out new or significantly upgraded products, technology, services and organizational solutions, 2) ability to lift the technological and organizational level of the economy by adapting new technological and economic-organizational solutions, which lead to the modernization (quality changes) and productivity growth of the manufacturing factors (labour and capital). The innovativeness of the Polish economy in the former dimension is very low[7] . Only by analyzing the latter aspect of innovativeness, can we observe a more optimistic picture of the Polish economy[8] . There is no such kind of division in a competitive economy, as the innovative activity comes down to the first aspect of innovativeness, meaning generating and utilizing the latest knowledge or technological and organizational solutions.

II. Creativeness as a key factor of the new economy

The above mentioned problems concerning the European innovativeness gave rise to the birth of a scientific stream associated with an idea of an economy based on knowledge. This idea is set to explain what happens in the very few places where new ideas are being materialized. The current economy is more and more often labelled a knowledge-based economy, as a result of a growing significance of knowledge within production and management processes. Defining a currently shaping knowledge-absorptive economy implies a question referring to the essence of

[3] K. Pawłowski, *Edukacja—klucz do przyszłości Europy,* [in:] (ed.) A. Kukliński, K. Pawłowski, *Przyszłość Europy — Wyzwania globalne — Wybory Strategiczne,* Wyższa Szkoła Biznesu—National-Louis University, Nowy Sącz 2006, s. 122.

[4] In this group the following six EU countries were classified: Estonia, Spain, Bulgaria, Slovakia, Romania, Poland and Turkey; *European Innovation Scoreboard 2005,* http://trendchart.cordis.lu/

[5] European Regional Innovation Scoreboard 2006, http://trendchart.cordis.lu/

[6] *Zwiększanie innowacyjności polskiej gospodarki. Stanowisko RSSG* [in:] *Procesy innowacyjne w polskiej gospodarce*, Rada Strategii Społeczno-Gospodarczej przy Radzie Ministrów, Raport nr 26, Warszawa 2005, s. 16–27.

[7] There is a bunch of characteristics that prove the above: 1) share of enterprises introducing innovations in the production process—18%, at the average EU rate of 51%, and in the case of the leading ones—over 70%; 2) share of expenditures on R+D—0,59% GDP, which is one of the lowest among the old and new EU members; 3) average creativity coefficient—0,6 at the EU average of 2,6; 4) expenses on R+D *per capita*—66,8 USD, at the EU average of 493,1 USD; 5) low share of high technology in exports (2,7% in the year 2003), at the EU average of 17,8%.

[8] In Poland within the confines of undertaken innovative actions, there is generation of products and technologies easily available on international markets. Upgrading activities base on: 1) fairly common practice of copying available Western European solutions; 2) complementary import of components, equipment, machinery and appliances; 3) personal relations of entrepreneurs, participation in fairs and exhibitions; 4) development of cooperative relationships with foreign partners; 5) access to literature, data bases and studies.

this phenomenon. Knowledge is a combination of possessed information and gained experience, which is the foundation of a skill of 'operating' in a given or predicted reality. Undoubtedly, knowledge remains a static concept[9]. However, the point of the new economy, which distinguishes it from the past social-economic models, are changes generated thanks to innovations, hence, the present-day economy shall be named the innovation-driven economy or **the innovation-based economy**.

In 2000, J. Sachs divided the worldwide economy into the countries that: 1) create innovations, 2) are able to adopt innovations, 3) are not able to create and adopt innovations[10]. Taking into consideration a negative tendency with regards to an average level of the European innovativeness, an increasing number of EU countries has a chance of joining the latter group of countries in the near future. However, on the other hand, a challenge coming from countries like China or India helps us to realize that a strategy of adaptation of innovations or imitation as such doesn't guarantee a far-reaching competitive advantage. In such circumstances, to build a far-reaching competitive advantage, one must possess a capability of continual creation of innovations, and not just the one of adapting them. This skill underlines the meaningfulness of ability of generating new, valuable ideas and concepts, and of commercializing them afterwards. Therefore, perhaps the present-day and competitive economy shall be named a creative economy that is an economy driven by creativity. It seems then that the most essential factor in the shaping economy of today is creativity indeed. Contemporary economy, which is functioning within global competitiveness, calls for creativity to a higher extent than in the past. Presented experiences of American companies, as well as the latest growing number of American publications (e.g. Florida R. 2002, 2004, 2005; Howkins J. 2001; Nussbaum B. 2005; Eger J. 2006; Venturelli S. 2001; etc.) and initiatives show that **the knowledge-based economy** is probably taken over by a new development model—**the creative economy**. In the creative economy paradigm innovations are the result of creative process mainly, not imitative process.

III. The essence of the creativeness

Creativeness means abilities to create meaningful new forms, which are characterized by two features: newness and value[11]. Creativity can be defined as a creative process that leads to form a new and valuable idea. From the human creativity point of view it is possible to distinguish four groups of values which correspond to four spheres of human activity. The aim of people who realize values is the quest for truth, beauty, usefulness or good. Therefore, the typical domains of creativeness are: science, art, inventiveness and public activity e.g. politics.

The abilities to recognize different aspects of the problem and motivation to search for alternative solutions are the creative abilities. According to the author, creativeness is a composition of three, equally important elements: knowledge, creative imagination and motivation (i.e. active attitude)[12]. Therefore, creativity also means the ability to act on the basis of both the possessed knowledge and an inventive imagination supporting by motivation. By joining these

[9] G. Gorzelak, M. Smętkowski, *Metropolia i jej region w gospodarce informacyjnej,* Wydawnictwo Naukowe "Scholar", Warszawa 2005, s.17.

[10] J. Sachs, *A new map of the world,* The Economist, 24 June 2000.

[11] E. Nęcka, *Psychologia twórczości,* Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2005, p. 19.

[12] Active attitude and engagement can flourish only in climate of freedom. The element of freedom was indicated by A. Kukliński in his considerations. A. Kukliński, *The Warsaw Conference—Towards a New Creative and Innovative Europe. A contribution to the Pre-Conference Discussion. Thirteen Notes,* [in:] *Towards a New Creative and Innovative Europe,* (ed.) A. Kukliński, C. Lusiński, K. Pawłowski, Wyższa Szkoła Biznesu National-Louis University, Nowy Sącz 2006.

Table 1.

Domains of creativeness distinguished by the type of values and dominant aim of creator's activity

Groups of values	Aim	Domains of creativeness
Experimental values	Truth	Science
Aesthetic values	Beauty	Art
Pragmatic values	Usefulness	Inventiveness
Ethical values	Good	Public activity (e.g. politics)

Source: E. Nęcka, *Psychologia twórczości*, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2005, p. 15.

three determinants in one paradigm and having an appropriate dynamic balance it can be possible to obtain a success in creative process[13]. Creativeness which is based on knowledge, imagination and appropriate attitude (engagement) seems to be the most important human feature in the modern and global economy.

It is particularly noteworthy that, contemporary psychology deems creativeness as egalitarian phenomenon, thus it treats creativity as a common feature that manifests itself in works of different values[14]. Creativity in this meaning is a common human feature as any others, e.g. intelligence, extroversion, etc[15]. Supporters of this definition emphasise that every common man is creative, but not everyone in the same scale. A rejection the claim that creativeness is an elitist feature (i.e. rare and innate) and on the other side asserting that this is common feature (but developed with different strength) allows us to use various techniques of development, training and learning creativeness[16]. Egalitarian point of view means that creativeness is a continuous feature and can appear with different strength, from minimum (even zero level), to high level, typical for geniuses. An ability to create new and valuable works is ascribed to everyone, but in the case of geniuses this ability is outstandingly good developed. An assumption that creativeness in not an innate feature means that it is treated as any types of human activity. There is a huge diversification of each human activity among people, but only a few individuals gain a master level. An egalitarian point of view means that creativity is not an exception in this respect.

Creativeness and innovativeness relate to creative process and application of new idea or knowledge. In the author opinion the creativeness is the process of generating ideas and solutions, whilst the innovativeness is the process of the implementation and commercialization of these ideas[17]. There are two complementary processes which are crucial for generating new economic value in modern economy.

[13] B. Karnat-Jasicka, *Uwarunkowania rozwoju społeczeństwa i gospodarki kreatywnej. Zarys problemu*, [in:] (ed.) A. Kukliński, K. Pawłowski, *Przyszłość Europy—Wyzwania globalne—Wybory strategiczne*, Wyższa Szkoła Biznesu—National-Louis University, Nowy Sącz 2006, p. 154.

[14] E. Nęcka, J. Sowa, *Człowiek—umysł—maszyna. Rozmowy o twórczości i inteligencji*, Wydaw. Znak, Kraków 2005.

[15] It is worth to notice that direct connection between intelligence and creativeness doesn't exist. E. Nęcka, *Psychologia twórczości*, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2005, p. 124.

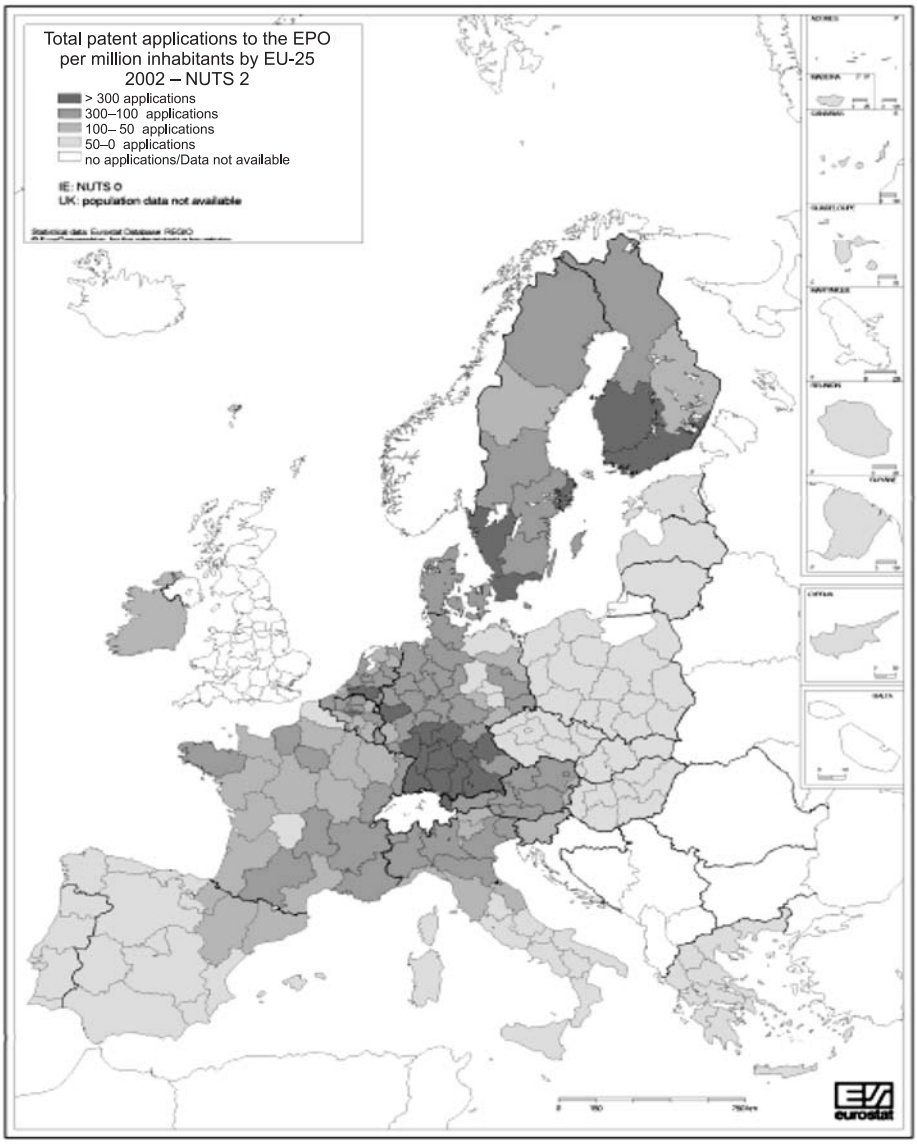
[16] E. Nęcka, *op. cit.*, p. 23, 202.

[17] Compare: J. Schumpeter, *Teoria rozwoju gospodarczego*, Państwowe Wydawnictwo Naukowe, Warszawa 1960.

IV. Patent applications as a general indicator of the regional creativity in Europe and Poland

One of the indicators that reflect the level of the creativeness is the number of patent applications submitted to patent offices e.g. the European Patent Office, the Patent Office of Republic of Poland, etc.

Fig. 1. Total patent applications to the EPO per million inhabitants by EU-25 regions (NUTS 2 level) in 2002.



Source: Eurostat, "Statistics in focus. Science and technology", 4/2006.

Figure 1 gives a global overview of the concentration of patent applications in EU-25 regions in 2002. As the figure shows, inventive activity measured in terms of EPO patent applications per million inhabitants is unevenly distributed across Europe. Creative activity is highly concentrated in a few leading regions. In average, 30% of all regions (71 out of 235) account for 83% of all patent applications. Leading regions are not always the capital region of each country. Depending on the IPC section there are sometimes more than one leading region in a country. When several regions in a country are more active than others, the active regions are often situated geographically close together, i.e. they form economic clusters. This is for example the case in the southern part of Germany, the south-east of France and the northwest of Italy. The most active patenting regions are in Scandinavia and in the centre of the EU-25.

In 2002, patent applications per million inhabitants in EU regions ranged between 885 in the Dutch region of Noord-Brabant to zero applications in various regions of Spain, France, Greece, Portugal and Italy. Noord-Brabant is the leading region in number of patent applicants per million inhabitants and also the most dynamic region of the top five leading regions (fig. 2). It is possible to distinguished three groups of leading 15 regions. First group, following Noord-Brabant (885), includes regions ranged between 800 and 600 such as two German regions of Stuttgart (736) and Oberbayern (669). Following the leaders, there are three German regions with quite similar position—Karlsruhe (547) and Mittelfranken (547) and Tübingen (539). After that, there are two regions scored at the similar level of patent activity. This includes 2 German regions: Freiburg (477) and Rheinhessen-Pfalz (475). Then the values per million inhabitants fall steadily. The third group contains regions in following order: Stockholm (420), Darmstadt (412), Sydsverige (403), Oberpfalz (388), Etelä-Suomi (384), Unterfranken (380) and Köln (368). As shown in Figure 2, eleven out of the fifteen leading regions (as a proportion of population) are German, two are Swedish, one is Dutch and one is Finnish. The EU-25 average is 96,6 patent applications per million inhabitants.

Fig. 2. Leading EU-25 regions (NUTS 2 level) in terms of patent applications to the EPO per million inhabitants in 2002*.

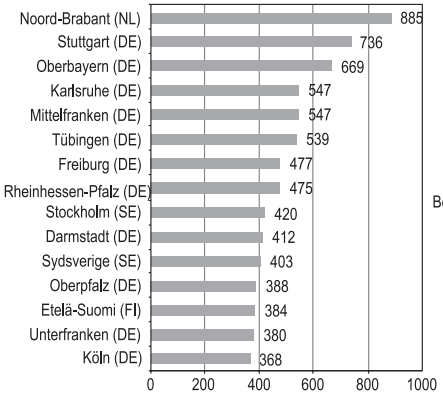
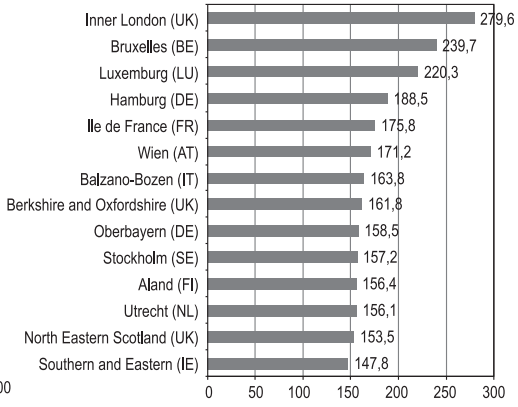


Fig. 3. GDP at current market prices at NUTS 2 level in 2002 (Purchasing Power Parities per inhabitant in percentage of the EU average, EU-25=100).



Source: Compiled by the author on the basis of the Eurostat database.
*UK data not available.

Current empirical researches indicate that innovation can appear only in regions with a significant innovative potential, to wit, in high-developed regional economies[18]. This is because

[18] G. Gorzelak, M. Smętkowski, *Metropolia i jej region w gospodarce informacyjnej,* Wydawnictwo Naukowe "Scholar", Warszawa 2005, s.19.

they offer good conditions for science and research institutions, high qualified employees as well as business firms which are able to change the invention into innovation. In 2002, mostly the regions of European core displayed high intensity of creative activity (fig. 1). It coincided with the GDP layout in the EU. It is worth mentioning that the top fifteen leading regions in GDP per million inhabitants (by PPP) and top fifteen leading regions in creative activity (measured by patent applications) are different for the same period (fig. 3). Not only has the ranking changed, but also the regions listed[19].

Figure 4 presents patent applications submitted to the EPO by Polish regions (NUTS-2 level) per million inhabitants in 2002. Positions of Polish regions are relatively weak compared with the top 15 EU leading regions and the EU-25 mean. Polish regional activity ranged between 12,3 in Mazowieckie—the strongest Polish region—to 0 applications per million inhabitants in Warmińsko-mazurskie.

Fig. 4. Patent applications submitted to the European Patent Office by Polish regions (NUTS-2 level) per million inhabitants in 2002.

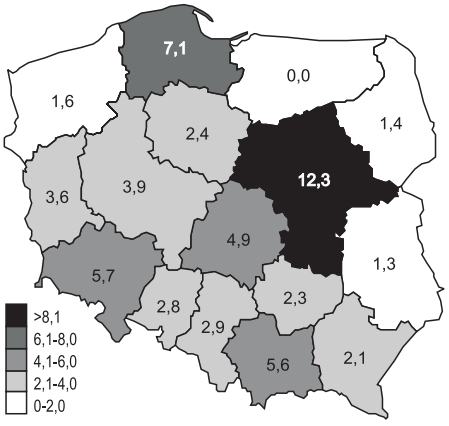


Fig. 5. GDP per capita by Polish regions in 2003 (in Euro).

Source: Compiled by the author on the basis of the Eurostat database.

Table 2 presents number of domestic inventions, models and trademarks submitted to the Patent Office of Republic of Poland (PORP) form 1990 to 2005. Analysis of inventions and models was prepared by examining the dynamics of domestic inventions by using chain indexes and one-based indexes presented in table 3.

On the basis of the data presented in table 2 it can be deduced that from 1989 to 2005 the total number of patent applications applied to the PORP by domestic inventors fell dramatically by 61,7% and it means a decrease above twofold in these years. In 2005 the total number of patent applications was not only the lowest value noticed since the beginning of transformations period, but the lowest value in several dozen recent years, too (fig. 6). The number of patent applications filed by domestic inventors went down between 1989 and 2005, at a average tempo of 29,7% year by year (tab. 3). There was a dramatic decrease by 49,8% in 1989–1993. After a dramatic fall the number of patent applications continued to decrease steadily by 23,7% between 1993–2005, falling by an average of 12,7% per year. Since 1993 they remained steady at a low level of ca. 2 thousand

[19] B. Karnat-Jasicka, *Patent applications as a general indicator of regional creativity in Poland*, [in:] *Towards a New Creative and Innovative Europe*, (ed.) A. Kukliński, C. Lusiński, K. Pawłowski, Wyższa Szkoła Biznesu National-Louis University, Nowy Sącz 2006.

Table 2.

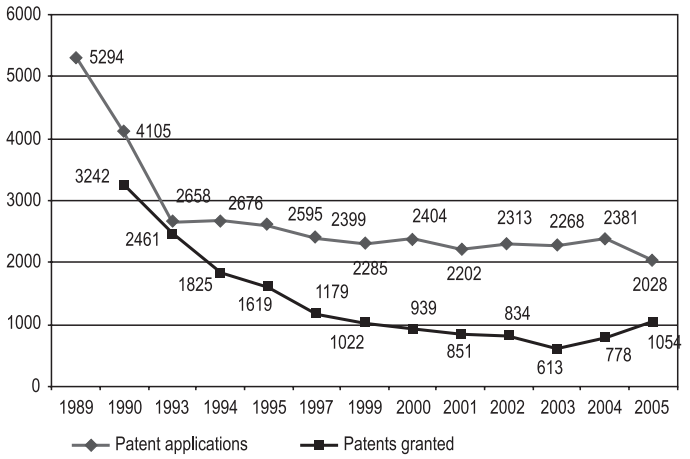
Domestic inventions, utility models, trademarks, ornamental and industrial design in Poland in 1989–2005

Specification	1989	1990	1993	1994	1995	1997	1999	2000	2001	2002	2003	2004	2005
Inventions													
Patent applications	5294	4105	2658	2676	2595	2399	2285	2404	2202	2313	2268	2381	2028
Patents granted	x	3242	2461	1825	1619	1179	1022	939	851	834	613	778	1054
Utility models													
Utility model applications	x	2578	2550	2387	2119	1589	1290	1274	1057	865	732	648	600
Rights of protection granted	x	1694	993	904	992	885	778	680	484	558	666	894	829
Ornamental and industrial design													
Ornamental design applications	x	657	1092	1095	1165	1262	1346	1175	1223	1284	1917	1918	1773
Rights of protection granted	x	95	258	454	567	676	517	629	561	921	1837	2026	1973
Trademarks													
Trademark applications	x	2554	7936	10803	9752	10308	12467	14111	12434	12355	13281	13776	13864
Rights of protection granted	x	922	1018	4193	3557	4570	5629	7118	5074	4803	5181	5669	8688

Source: *Compiled by the author on the basis of CSO data: "Science and Technology in Poland in 2005", Warszawa 2006; Statistical yearbooks of the individual Polish regions 2004, Warszawa 2005; Statistical yearbooks of the individual Polish regions 2005, Warszawa 2006, KBN data, "Informacja o stanie nauki w Polsce", Warszawa 2003.*

x—Data not available.

Fig. 6. Domestic patent applications and patents granted by the Patent Office of Republic of Poland in 1989-2005.



Source: Compiled by the author on the basis of CSO data: "Science and Technology in Poland in 2003", Warszawa 2005;"Science and Technology in Poland in 2005", Warszawa 2006.

a year (the average is 2387 per year). In 2005 there was a sharp decrease by 17,4% compared to the previous year. 2028 inventions were applied for protection to the Polish Patent Office by residents in 2005, but obviously it doesn't mean only 2028 inventions were generated in this year.

As tables 2 and 3 show, there was a downward trend in utility model applications, too. Between 1989 and 2005 the number of applications for protection rights went down by 76,7%, falling by an average of 51,8% per year. The opposite trend concerns the applications for protection rights on ornamental and industrial design. The number of applications increased by 191,9% in 1990–2004, that means a average rise by 70,9% every year. Similarly, there was an upward trend in trademark applications. The number of applications increased by 439,4% in 1990–2004, at a average tempo of 132,2% per year.

Table 3.

Dynamics of domestic inventions, models and trademarks in Poland in 2000–2005

Specification	2000	2001	2002	2003	2004	2005	2005;2004	average index of	2005;2004	average index of
	chain index						1993=100	dynamics	1990=100	dynamics
Inventions							2005	2005	2005	2005
Patent applications	x	91,6	105,0	98,1	105,0	85,2	**76,3**	**-12,7**	**49,4**	**-29,7**
Utility models							2005	2005	2005	2005
Utility model applications	x	83,0	81,8	84,6	88,5	92,6	**23,5**	**-51,5**	**23,3**	**-51,8**
Industry and adorment models							2004	2004	2004	2004
Model applications	x	104,1	105,0	149,3	100,1	x	**163,2**	**27,8**	**291,9**	**70,9**
Trademarks							2004	2004	2004	2004
Trademark applications	x	88,1	99,4	107,5	103,7	x	**97,6**	**-1,2**	**539,4**	**132,2**

Source: Compiled on the basis of the table 2.

x—Data not available.

On the basis of the data presented in tables 2 and 3 deduced that there were an upward tendency both in industry and adornment model applications and trademark applications in 1990–2004. On the contrary, the downward tendency concerned patent applications and utility model applications. It is worth a mention that at the same time as patent applications to the PORP went down, increasingly domestic inventors applied for rights of protection to foreign patent offices (tab. 4). The number of Polish patent applications filed at foreign patent offices rose tenfold from 1995 to 2002 (903 and 9039 respectively). There were a sharp increase by 158,1% in 2000 (compared to 1999) and a dramatic rise by 77,1% in 2002 (compared to 2001).

Table 4.

Polish patent applications submitted to foreign patent offices (including the European Patent Office and the US Patent and Trademark Office) and patents granted in 1990–2002

Specification	1990	1995	1997	1998	1999	2000	2001	2002
Patent applications (total number)	154	903	1051	1697	2451	6327	6969	9039
— to EPO	7	92	29	46	50	102	102	104
— to USPTO	13	36	37	42	57	100	111	123
Patents granted	149	65	81	110	121	123	116	142

Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

In 2002, the number of patent applications filed in Poland by non-resident equaled 4296 and the PORP granted 1437 patents (33,4%). However, the number of Polish patent applications

filed abroad equaled 9039 and 142 patents were granted (1,6%). Proportions between foreign and domestic inventions' applications filed to the PORP were changed in 1990–2005. While 76% of patent applications were domestic inventors' applications in 1990, in 2005 70% of patent applications were applied by foreign inventors.

Figure 7 and 8 show regional diversification of invention activity in Poland in 2004. Creative activity in Poland is highly diversified and concentrated in few leading regions. Closely 40 per cent of total number of patent applications is concentrated in two Polish voivodships: Mazowieckie and Małopolskie.

Fig. 7. Patent applications filed at the PORP by regions in 2004 (total number and share of region in %)

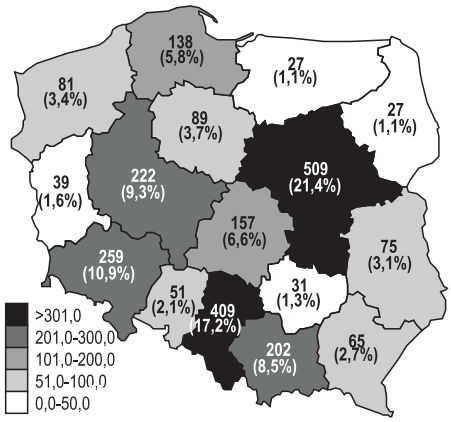
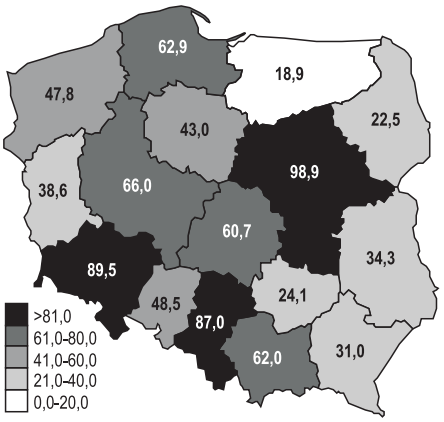


Fig. 8. Patent applications filed at the PORP per million inhabitants in 2004



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

In the year 2004 patent applications submitted to the PORP in the Mazowieckie totalled 509 applications. By far, the lowest number of patent applications (more than 18-times lower comparing to the Mazowieckie) was recorded in Podlaskie and Warmińsko-mazurskie—around 27 applications. The difference between the maximum and minimum value of patent applications in particular voivodships resulted in a high value of the variability coefficient reaching 92,6% (tab. 5). The differences were a bit lower being calculated per mln inhabitants, because the variability coefficient reaching 45,7%. In Poland average number of patent applications per mln inhabitants amounted to 62,4, were in Mazowieckie it was 98,9 applications, but in Warmińsko-mazurskie only 18,9 applications.

It should be highlighted that the variability of the number of patents granted by the PORP was very high and totalled 119,5%. In Poland average number of patents granted by the PORP amounted to 778 patents, whereas in Mazowieckie it was 241 patents, which is three times more. Comparing to Lubuskie and Warmińsko-mazurskie, which are closing up the ranking, the above number of patents granted in Mazowieckie were over 80-times higher (tab. 5).

We might notice a considerable diversification of the number of patent applications filed at the EPO. The difference between the maximum and minimum value of patent applications in particular voivodships resulted in a high value of the variability coefficient reaching 130,2% (tab. 5). Leaving Mazowieckie aside, the number of patent applications was lower, because the variability coefficient reached 79,2%. In Poland average amounted to 179 patents applications, were in Mazowieckie it was 62,8 applications, but in Warmińsko-mazurskie 0 applications. The differences were a bit lower being calculated per mln inhabitants, because the variability coefficient reaching 80,3%.

Table 5.

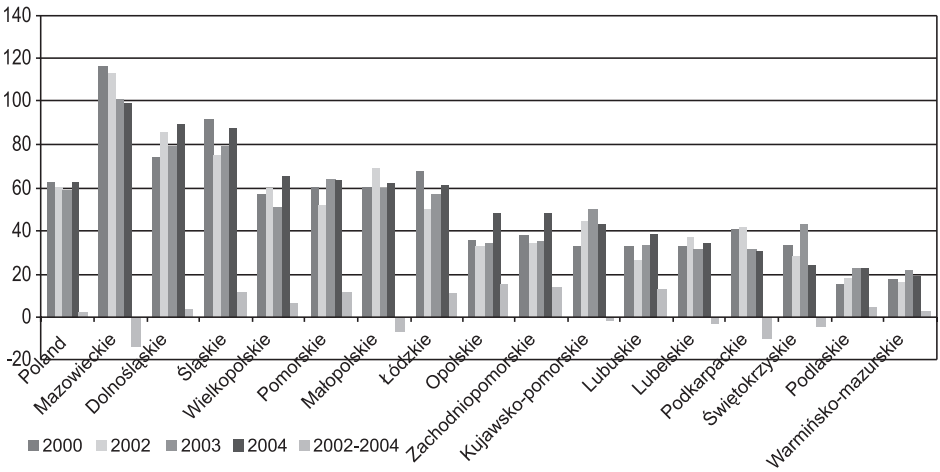
Domestic patent applications and patents granted in 2002 and 2004

Specifications		Patent applications filed at the PORP (number of applications)	Patent applications filed at the PORP per mln inhabitants (number of applications)	Patents granted by the PORP (number of patents)	Patents granted by the PORP per mln inhabitants (number of patents)	Patent applications filed at the EPO (number of applications)	Patent applications filed at the EPO per mln inhabitants (number of applications)
		2004	2004	2004	2004	2002	2002
Poland		2381	62,4	778	20,4	179	4,7
Maximum		509 (mazowieckie)	98,9 (mazowieckie)	241 (mazowieckie)	46,8 (mazowieckie)	62,8 (mazowieckie)	12,3 (mazowieckie)
Minimum		27 (podlaskie, warmińsko-mazurskie)	18,9 (warmińsko-mazurskie)	3 (lubuskie, warmińsko-mazurskie)	2,1 (warmińsko-mazurskie)	0,0 (warmińsko-mazurskie)	0,0 (warmińsko-mazurskie)
Variability coefficient (%)	with mazowieckie voivodship	92,6%	45,7%	119,5%	67,7%	130,2%	80,3%
	without mazowieckie voivodship	84,1%	43,3%	86,9%	53,3%	79,2%	62,0%

Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006 and Eurostat database.

Polish regions were sorted from "the most creative" to "the least creative" region in 2004 (fig. 9). Those regional diversifications presents the domination of the regions containing big cities (such as Warsaw, Wrocław, Katowice, Poznań, Krakow and Gdańsk–Sopot–Gdynia) explicitly, but on the other hand uncover relatively weak position of eastern regions. These regions are typical weak Polish regions which are so-called "the east wall" (Warmińsko-mazurskie, Podlaskie, Świętokrzyskie, Podkarpackie and Lubelskie).

Fig. 9. Domestic patent applications per million inhabitants by Polish regions (NUTS 2) in 2000-2004.



Source: Compiled by the author on the basis of Statistical yearbooks of the individual polish regions 2004, Warszawa 2005; Statistical yearbooks of the individual polish regions 2005, Warszawa 2006; Demographic yearbook of Poland 2004, Warszawa 2005; Demographic yearbook of Poland 2005, Warszawa 2006.

Accordingly, there is opportunity to distinguish four groups reflecting the region's position in the creative activity (tab. 6). There are explicitly 3 leading regions (Mazowieckie, Dolnośląskie and Śląskie) which are the leaders not only in 2004 but continuously from 2000. 49,5% of the total patent applications were submitted to the PORP by inventors from these 3 regions.

Table 6.

Invention activity by groups of regions in Poland in 2004

Group 1	Group 2	Group 3	Group 4
Leading regions (between 100–80)	**Average regions** (between 80–60)	**Weak regions** (between 60–40)	**The weakest regions** (between 40–0)
1. Mazowieckie	1. Wielkopolskie	1. Opolskie	1. Lubelskie
2. Dolnośląskie	2. Pomorskie	2. Zachodniopomorskie	2. Podkarpackie
3. Śląskie	3. Małopolskie	3. Kujawsko-pomorskie	3. Świętokrzyskie
	4. Łódzkie	4. Lubuskie	4. Podlaskie
			5. Warmińsko-mazurskie

Source: Compiled by the author on the basis of the figure 9.

The performance these regions in 2004 was outstanding, as being the leading regions as a proportion of population with 275,4 patent applications per million inhabitants and 1170 patent applications in total number (fig. 7 and 8). The analysis based on the figure 11 gives an overview of trends both for Poland and for the individual regions. As it was mention above number of patent applications in total number in Poland decreased above twofold between 1989 and 2005. Limiting this analysis to 2002–2004 period the performance of the Poland in relative number (per million inhabitants) improved slightly, it means increase in patent applications by 3,1% between 2002 and 2004. Examining the changes in inventive activity by regions in period form 2002 to 2004, it is possible to distinguished regions which inventive activity became worse and regions which improved their position (fig. 9). The highest increase nearly by 50% was noted in Lubuskie voivodship (49,9%). Moreover, there was the rise in patent applications in 10 regions. However, the performance of 6 regions went down during the same period. The number of patent applications per million inhabitants decreased in regions such as Mazowieckie, Podkarpackie, Małopolskie, Świętokrzyskie, Lubelskie and Kujawsko-pomorskie.

Taking into consideration the number of patent applications not only in 2004 but average for the period 2002–2003–2004 the three leading regions maintained their positions in 2004 (Mazowieckie, Dolnośląskie and Śląskie), whereas 4 regions lost their position with regard to average (Dolnośląskie, Kujawsko-pomorskie, Podkarpackie and Lubelskie) and 3 regions maintained their weak position (Świętokrzyskie, Podlaskie, Warmińsko-mazurskie). It is worth to mention that despite the fact that some regions improved their positions in 2004 compared to 2002, they lost their position with regard to 2000. It concerns Śląskie and Łódzkie voivodships. Some regions (Mazowieckie, Podkarpackie and Świętokrzyskie) lost their position both with regard to 2002 and 2000. In this case these regions will have to make up for loss of the positions not only compared to 2002 but with regard to 2000 too.

Patent application as an indicator has many flaws and can give only an overall view of the creative activity in regions. Unfortunately, it is not possible to compare the invention activity of the Polish regions with European regions at NUTS 2 level, because of the incomparability of patenting systems (the EPO and the PORP). Moreover, publicly published regional databases are also varied. The European Commission data (Eurostat data) are accessible two years late (the

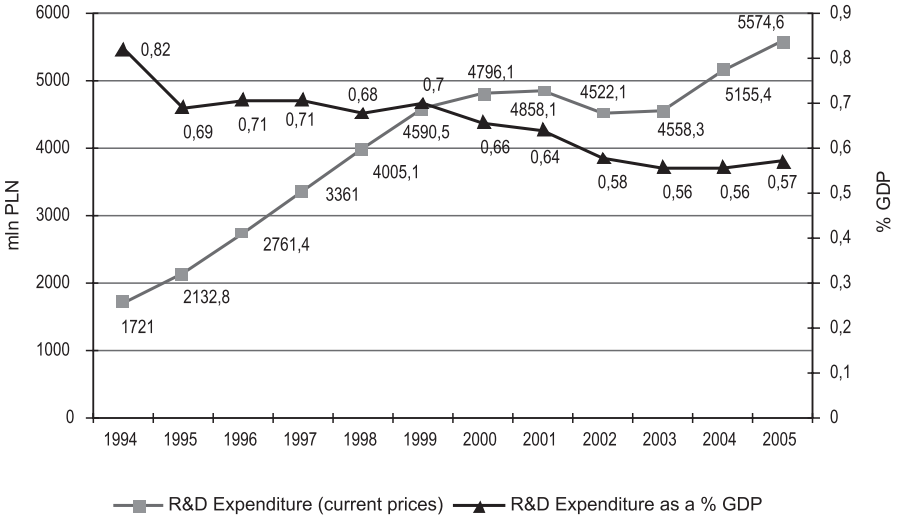
latest data are prepared for 2002) whereas the Central Statistical Office in Poland did not publish information publicly about inventive activity by regions between 1999 and 2002 and before 1999 too. By a process of simple deduction it is possible to arrive at some conclusions that none of the Polish regions (defined as inventors from each region) applying to the PORP, between 2002 and 2004, achieve the EU-25 average level of 129 applications per million inhabitants for period form 1999 to 2001.

V. Expenditures and employment in R&D sector as measures of creative and innovative potential.

Financing of R&D activity in Poland

National R&D financing in Poland is unsatisfactory, because of its low level and worrying trends observed in the last decade. Although in both nominal and real values a rise in R&D spending was observed in the 90's, the year 2001 was the beginning of stagnation. The results for 2004 and 2005 can be considered as a soft and positive change in this respect (fig. 10). In the year 2005 expenses on R&D activity totalled 5574,6 mln PLN and were higher than in 2004 by 8,1% (current prices).

Fig. 10. R&D expenditures in Poland in 1994-2005.



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

The ratio of R&D expenses to GDP (GERD/GDP index) is the most important and objective indicator within statistics of science and technology. A low and decreasing level of the ratio is considered the main reason of a faint innovativeness level of Poland. Despite the motions set both by the assumptions of the Lisbon Strategy (R&D expenses increase to 3% GDP till 2010 year), and the National Development Plan 2004–2006 (R&D expenses increase to 1,5% GDP till 2006 year), the share of R&D expenditures in relation to GDP was dropping consistently to the level of 0,56% in the year 2003, which was one of the lowest values among post-soviet countries (fig.

10). In the year 2004 the ratio remained unchanged, standing at the level of 0,56%. In 2005 year the GERD/GDP index amounted to a similar level of 0,57% comparing to the previous years. This level still equals only 30% of an average value of this ratio in the EU. A troubled situation is additionally intensified by a low ratio of R&D expenses per capita, lying far below the EU average.

There is a considerable diversification of the R&D potential in Poland (fig. 11 and 12). Traditionally more then 50 per cent of spending on R&D is concentrated in two Polish voivodships: Mazowieckie (Warsaw) and Małopolskie (Krakow), while funding from some other regions is negligible (Świętokrzyskie, Opolskie, Lubuskie, Podlaskie). A regional diversification in R+D expenditures closely corresponds with a regional diversification of GDP per capita in Poland.

Fig. 11. R&D expenditures per capita by Polish regions in 2005 (in PLN)

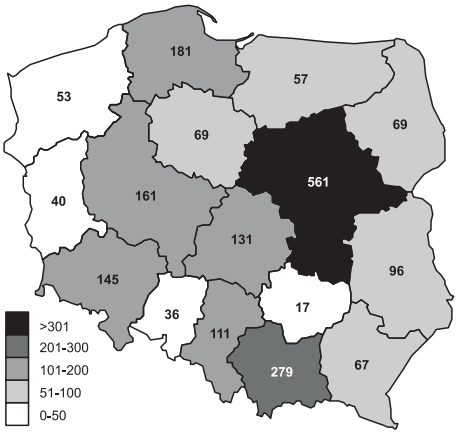
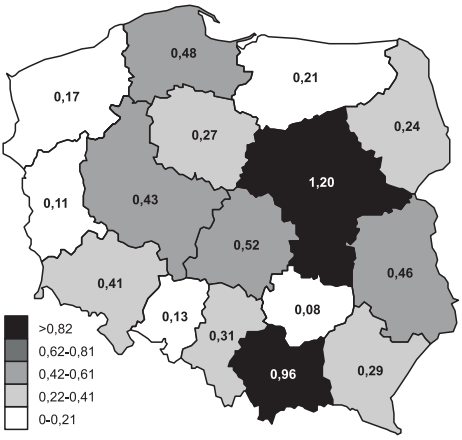


Fig. 12. R&D expenditures in ratio to GDP in % (GERD/GDP) by Polish regions in 2005.



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

In the year 2005 outlays on R&D in the Mazowieckie and Małopolskie voivodships totalled 2322 mln and 732mln PLN respectively. By far, the lowest R&D expenses (more than hundredfold lower comparing to the Mazowieckie) were recorded in Świętokrzyskie—around 19 mln PLN. The difference between the maximum and minimum value of outlays in particular voivodships resulted in a high value of the variability coefficient reaching 156,4%. Leaving Mazowieckie aside, the expenditure diversification was lower, because the variability coefficient reached 91,7% (tab. 7).

The differences were a bit lower being calculated per one resident. In Poland average outlays on R&D per capita amounted to 146 PLN, whereas in the Mazowieckie it was 561 PLN, which is three times more. Comparing to Świętokrzyskie, which is closing up the list, the above expenditures in Mazowieckie were over 30-times higher. Among voivodships recording a low level of R&D expenses per one resident, we could find: Świętokrzyskie, Opolskie, Lubuskie, and Zachodniopomorskie. It should be highlighted that the runner-up, the Małopolskie, in the case of R&D expenses per one resident, saw its R&D outlays 3-times lower than the ones of Mazowieckie. Such a dominant position of the Mazowieckie resulted in the fact that the variability coefficient of R&D expenses per one resident equalled 99,5% (tab. 7).

With respect to the ratio of R&D outlays to GDP, in Poland this relation levelled at 0,57%, whereas in the Mazowieckie it was slightly over twice as high. The GERD/GDP ratio in Świętokrzyskie came to 0,08%. It was about 7-times lower than the country average and exactly

Table 7.

R&D expenditures and their structure in Poland in 2005

Specifications		Gross domestic expenditures on R&D activity (in mln PLN)	Gross domestic expenses on R&D activity per capita (PLN)	The ratio of R&D expenditures to GDP (GERD/GDP) (%)	Structure of R&D expenditures by voivodships) (%)	Share of budget funds in R&D expenditures (%)	Share of outlays on experimental development in R&D expenditures) (%)
Poland		5574,6	146	0,57	100,0	57,7	38,4
Maximum		2322,8 (mazowieckie)	561 (mazowieckie)	1,20 (mazowieckie)	41,7 (mazowieckie)	74,3 (lubelskie)	73,4 (lubuskie)
Minimum		19,5 (świętokrzyskie)	17 (świętokrzyskie)	0,08 (świętokrzyskie)	0,4 (świętokrzyskie)	23,4 (lubuskie)	17,7 (podlaskie)
Variability coefficient (%)	with mazowieckie voivodship	156,4%	99,5%	75,2%	156,4%	26,6%	36,7%
	without mazowieckie voivodship	91,7%	63,6%	66,3%	91,7%	27,5%	37,4%

Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

15-times lower than the one achieved in the Mazowieckie region. Furthermore, the GERD/GDP ratio did not reach the country average in any of the remaining voivodships and ranged from 0,52% in the region of Łódzkie to 0,11% in Lubuskie, at the variability coefficient 75,2% (fig. 12).

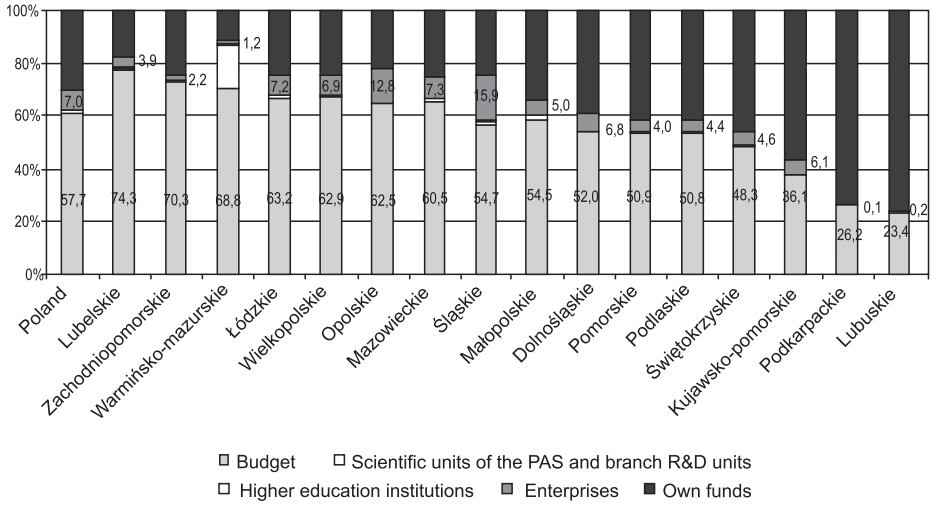
The reason of the regional diversification within R+D expenses in voivodships stems from the diversification of the number of institutions and people handling creative activities taken up to increase the level of knowledge and find new applications of this knowledge[20]. R&D sector in Poland includes the following units: research-development centres (17,7%), scientific units of the Polish Academy of Sciences (ok. 7%), business enterprises (ok. 55%) and higher education institutions (13%). Among the aforementioned units, in 2005 higher education institutions and research-development centres made 64,4% of the total amount of expenses in this activity. There were 29% of all centres carrying out R&D research located in the Mazowieckie region, with no more than 1% settled in Świętokrzyskie. Moreover, Mazowieckie enjoys 27% of the total domestic R&D workforce and 25% of the all employed in the science and research field. In the Świętokrzyskie voivodship the numbers stand at around 1% and 1,3% respectively. As a consequence, within the R&D area, Mazowieckie accounts for 40% of the country R&D outlays, with Świętokrzyskie enjoying only 0,3%. Therefore, there is a clear and strong regional diversification if it comes to the development level of R&D and academic centres, and the level of scientific product.

Poland being an EU member, must aim at fulfilling the presumptions of the Lisbon Strategy. One of the most important of the above, alongside the level of R&D outlays, is the structure and the source of origin. Both of them are the drawbacks of the Polish innovation system. Trends observed in that respects in Poland are just the opposite of what the Lisbon Strategy intend and of what is typical in the most developed economies. The Lisbon Strategy sets out presumptions, according to which, the outlays of the private sector should account for 2/3 of the total amount of means directed into the R&D activities. During the whole last decade the state budget was and still is the main source of financing R&D activities in Poland. Over the years 2001–2005 the share of the budget financial means within the R&D expenses structure dropped from 64,8% to 57,7% of the total expenditures. In the meantime, the share of enterprises in financing science was steadily

[20] Z. Chojnicki, T. Czyż, *Aspekty regionalne gospodarki opartej na wiedzy w Polsce,* Bogucki Wydawnictwo Naukowe, Poznań 2006.

falling from 24,3% in 2001 year to 22,6% in the year 2004. It was no sooner than in the year 2004 that the share of the budget expenses, for the first time over the last decade, went down to the level below 60% of the total expenditures, and the share of enterprises' financial means for the first time rose to the level of 26% (19,3% increase against the year 2004).

Fig. 13. Gross domestic expenditures on R&D activity by sources of funds and Polish regions in 2005.



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

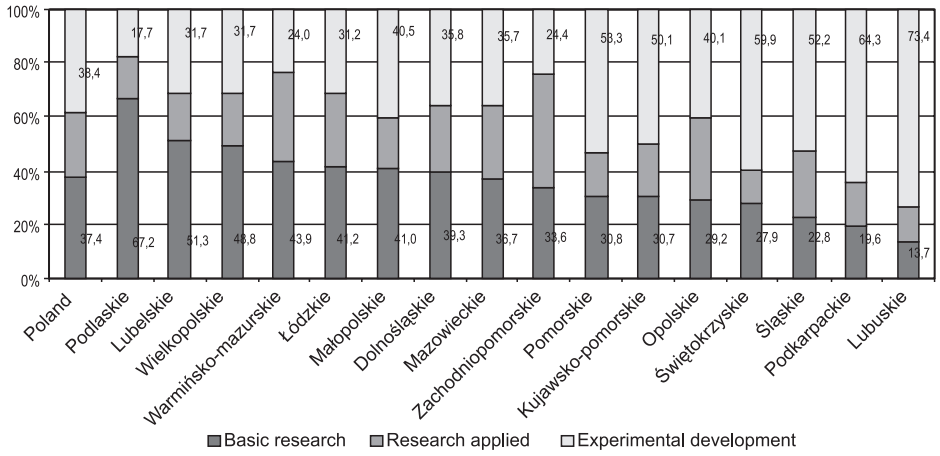
We might notice a considerable diversification of the expenses structures according to financing sources in particular voivodships (fig.13). It was the Lubelskie region that consumed the highest amount of the budgetary means (74,3%), with Lubuskie coming last (23,4%), at the variability coefficient 26,6%. In the Mazowieckie region, which enjoyed the most impressive level of R&D expenditures, public means made up 60,5% and were close to the country average. In the years 2002–2004 one could confirm a dependence showing that regions recording the lowest R&D expenses used up the highest shares from the state budget. In 2005 year the above relationship was not confirmed by a large number of voivodships, which means changes in the R&D financing structure in separate regions. The year 2005 did not confirm the above dependence either, denying the statement that voivodships reaching the lowest level of growth in the country, take advantage of the state money to the highest extent (Lubuskie, Podkarpackie). It might paint a different picture of a financial capabilities' rise among companies settled in that regions, which allows them for a stronger support of the R&D activity. We can find the least developed Polish regions both in the group of regions recording the highest share of the budgetary means, and also in the group characterized by the highest share of the non-budgetary financial support. The conclusion might be that there is no clear-cut relationship between the level of development of a particular region and the share of companies in financing the R&D activities. The Lubuskie voivodship, which underwent a major transformation, remains a special example of a success story in this respect. In the years 2002 and 2003 Lubuskie recorded the highest level of the state money share (88,0% and 90,2% respectively), whereas in 2005 year it jumped to the top of the list of regions evidencing the lowest share (i.e. 23,4%), and simultaneously, the list of regions with the highest

share of companies' financial means in supporting R&D (i.e. 75,6%). So far, recommendations set by the EU regarding financing structure have not been met by any Polish voivodship.

The reasons for the given situation might stem from a weak 'suction effect'. As the research stand, small and medium companies in Poland are not interested in the scientific product, and additionally, are afraid of implementing innovations, which they consider too expensive and cost-absorbing[21]. Polish small and medium companies do not consider innovation a factor leading to competitiveness improvement and growth, because it is a wide belief to be able to achieve such, above all, by reducing costs.

In Poland expenses on basic research have, for years, amounted to c.a. 37% in the expenditures structure, which is a characteristic feature for less-developed countries. The share of outlays on developmental activities in R&D expenses is relatively low—in the year 2005 it reached 38,4% (fig. 14).

Fig. 14. Expenditures by type of R&D activities and by Polish regions in 2005.



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

The highest amount within developmental activities (73,4%) was recorded in Lubuskie, which on the other hand, enjoyed the lowest level of the public money support (fig. 14). In the Lubelskie region, domineered by budget financing, the share of developmental works in the total amount of expenditures was not the lowest (31,7%). It is the Podlaskie voivodship that has come last since 2002 (with a mere share of 17,7%), having been a leader if it comes to expenses on basic research (i.e. 67,2%). In the structure of outgoings according to the kind of research, in Mazowieckie a prevailing share was down to basic research (36,7%), with expenditures onto developmental projects accounting for just 35,7%. It was likely to be due to financing a considerable number of tertiary education schools located in that region, carrying out mainly basic examinations. Our attention shall be drawn to a favourable structure of outgoings according to the kind of research in the voivodships of Podkarapackie and Świętokrzyskie, but also Śląskie as a region celebrating significant levels of outlays on evolutionary projects (52,2%) and a high share of state budget

[21] Surveys demonstrate that over 60% of Polish SMEs seek their competitive advantage in lower production costs and lower price of their products/services. Only ca 0,6% SMEs aim at competing on the grounds of innovativeness and technological advancement. *Konkurencyjność MSP 2006*, Polska Konfederacja Pracodawców Prywatnych "Lewiatan", Raport z badań, maj 2006.

financing (54,7%). Lubuskie, Podkarpackie and Świętokrzyskie regions are examples of voivodships registering the lowest expenses on basic research and the highest expenditures on developmental activities. They also evidence relatively low standards of R&D outgoings and a low share of budget support within the R&D area. Moreover, in the aforementioned regions, there is the least significant percentage of inventions submitted for patenting and a faint GDP per capita.

Within the total amount of expenses on the R&D activities in 2005 year, foreign financial means accounted for 5,7%, with the EU money transfers making up 4,3% of the total. In the year 2004 these shares came to 5,2% and 2,7% respectively. It is worth pinpointing that in the total figures of foreign means dedicated to finance R&D activity, in 2005 year the share of transfers coming from the EU source soared to 94,9% (in 2004 year—no more than 8,6%). The bulk of the R&D EU money was awarded to Mazowieckie (as much as 80%). The remaining 20% was distributed among 13 regions, with Małopolskie—9%, and Wielkopolskie—5%, topping the list. In the year 2005 the regions of Świętokrzyskie and Warmińsko-mazurskie did not feed its R&D financing structure with the EU subsidies.

Fig. 15. The ratio of R&D expenditures to total number of patent applications by regions in 2005.

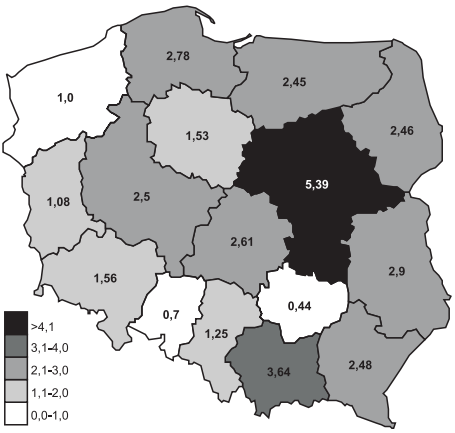
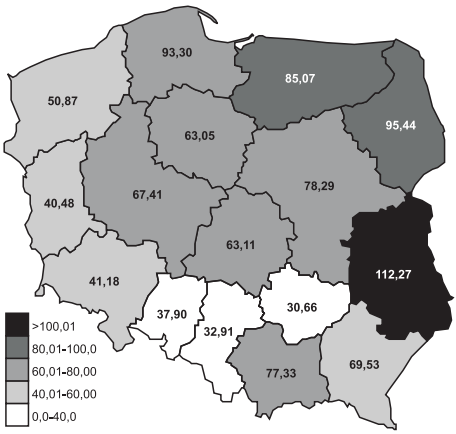


Fig. 16. The ratio of R&D employment to total number of patent applications by regions in 2005.



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

The indicator of the volume of R&D expenses per one submitted patent application is a measure of the patents' cost-absorption (fig. 15). In the year 2005 on the nationwide scale a submitted patent application received 2,75 mln PLN, with 0,19 mln PLN coming from the enterprises. The highest volumes of outlays are recorded in the Mazowieckie (5,39 mln PLN) and Małopolskie (3,64 mln PLN). Świętokrzyskie (0,44 mln PLN), Opolskie (0,7 mln PLN) and Zachodniopomorskie (1 mln PLN) are located on the opposite end of the list. Regions attracting metropolitan centres, such as Warsaw and Krakow, identified as locations of strong research-development and academic centres have a strong power of attracting means for the R&D activities, which slightly translate into new patent applications. It was the economic entities in Mazowieckie that made the most extensive outlays with regards to a single patent application (close to 0,4 mln PLN per one application), with the lowest rates registered in Świętokrzyskie, Zachodniopomorskie (0,02 mln PLN) and Warmińsko-mazurskie regions (0,03 mln PLN). In the voivodships of Lubuskie and Opolskie the ratio amounted to 0. Low expenditures made by economic entities go in correspondence with a very low share of economic entities in financing the R&D activity.

R&D employment in Poland

In an innovation-based economy, a sector of R&D is one of the most important developmental driving forces. A sphere of science is one of key domains, within which the accumulated potential of knowledge 'works' both to the benefit of scientific growth, and also for the purposes of economic practice[22]. In Poland the percentage of science-research staff employment, calculated in absolute figures, exceeds the level of employment in the same field in the new EU member states. In relative numbers, Poland fell below the EU average in the year 2005, registering 3,6 science-research employees per 1000 economically active persons.

Over the last decade the level of employment in the total R&D activity rose by 2,85%, and the level of employment among scientists jumped by 30,9%. In the case of relative values in the given period, one can observe a consistent fall of the total employment within R&D (from 4,9 persons in 1995 to 4,4 persons in 2005 per 1000 economically active persons), yet there is an increase of the volume of employment in the science-research group (from 2,9 persons in 1995 to 3,6 persons in 2005 per 1000 economically active persons). Moreover, in 2005 year there was a drop of the number of people employed in the R&D area reaching 4 thousand persons (3,1%). However, the group made up of science-research scholars welcomed 1344 new employees (1,4%).

The Polish research-developmental potential is concentrated in big cities (metropolis), and as a result of so, particular regions characterize with diverse knowledge resources. The employment in the R&D activity from the regional point of view is marked with vast inequality. The above level is determined by the number of R&D units in particular voivodships. It was again Mazowieckie which celebrated the highest number of the employed—over 33,000 people, with Malopolskie coming second—15,543 people, and Wielkopolskie and Śląskie standing strong with 11,730 and 11,551 respectively. The total number of the employed in these regions accounted for less than 60% of the whole amount of the employed in the R&D field on the nationwide scale. The lowest percentage was evidenced in the Lubuskie region (more or less 25-times lower than in Mazowieckie). Świętokrzyskie (1349 persons) and Opolskie (1516 persons) reached pretty much similar low levels of employment (tab. 8).

Similar tendencies were noticeable if a special focus was laid on the total number of the employed within the R&D field and science-research employees per 1000 economically active persons (tab. 8). If such a ratio is taken into account, Poland saw it at the level of 4,5 if it comes to the R&D area. The regional diversification of the total R&D employment mirrored the diversification in the group of employees in the science-research area (fig. 17 and 18). The sector under consideration recorded the level of 3,6 researches per 1000 economically active persons. In Mazowieckie this very indicator rose to the top of the list—8,0 (over twice as high as the country average), nonetheless, hitting the bottom in the Świętokrzyskie voivodship—1,1 (more than 7-times lower than in Mazowieckie, and triple-fold below the country average). There were only two more regions—Małopolskie—5,8, and Pomorskie—4,9, which were classified among regions enjoying the ratio above the country average. The lowest levels were generated by regions that are not a place of activity for strong research centres such as: Świętokrzyskie, Podkarpackie, Lubuskie, Warmińsko-mazurskie and Opolskie (fig. 18).

In the years 2003–2005 the number of science-research employees out of 1000 professionally active persons was on a constant rise. There were few exceptions: Dolnośląskie, which experienced a fall of the employment from 4 people to 3,4, and three other voivodships, in which the level remained unchanged: Świętokrzyskie, Łódzkie i Lubuskie (fig. 19).

[22] Z. Chojnicki, T. Czyż, *Aspekty regionalne gospodarki opartej na wiedzy w Polsce,* Bogucki Wydawnictwo Naukowe, Poznań 2006.

Table 8.

Employment in R&D activity and its structure in Poland in 2005

Specifications		Employment in R&D activity (number of persons)	Employment in R&D activity per 1000 economically active persons (number of persons)	Researchers in R&D activity per 1000 economically active persons (number of persons)	Structure of employment in R&D activity by voivodships) (%)	Share of researchers in total R&D employment (%)	Share of persons with higher education diploma in total R&D employment (%)
Poland		123 431	4,5	3,6	100,0	79,3	85,2
Maximum		33 744 (mazowieckie)	10,7 (mazowieckie)	8,0 (mazowieckie)	27,3 (mazowieckie)	94,8 (podlaskie)	97,0 (podlaskie)
Minimum		1 336 (lubuskie)	1,3 (świętokrzyskie)	1,1 (świętokrzyskie)	1,1 (lubuskie)	71,3 (wielkopolskie)	78,9 (mazowieckie)
Variability coefficient (%)	with mazowieckie voivodship	102,4%	63,0%	58,1%	102,4%	7,3%	5,6%
	without mazowieckie voivodship	71,6%	45,1%	45,7%	71,6%	6,6%	4,9%

Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

Fig. 17. Employment in R&D activity per 1000 economically active persons in 2005 (number of persons)

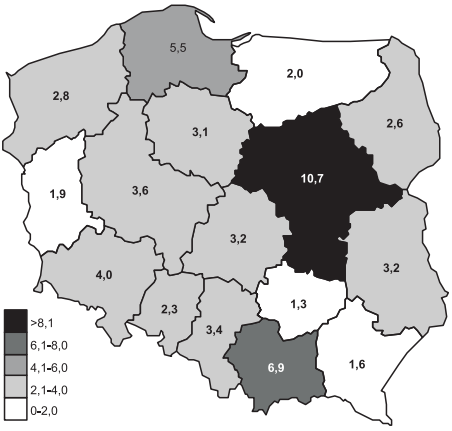
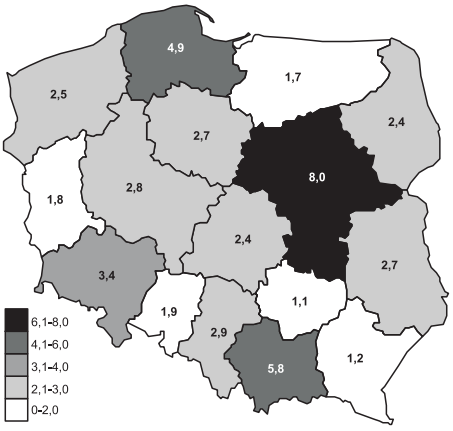


Fig. 18. Researchers in R&D activity per 1000 economically active persons in 2005 (number of persons)



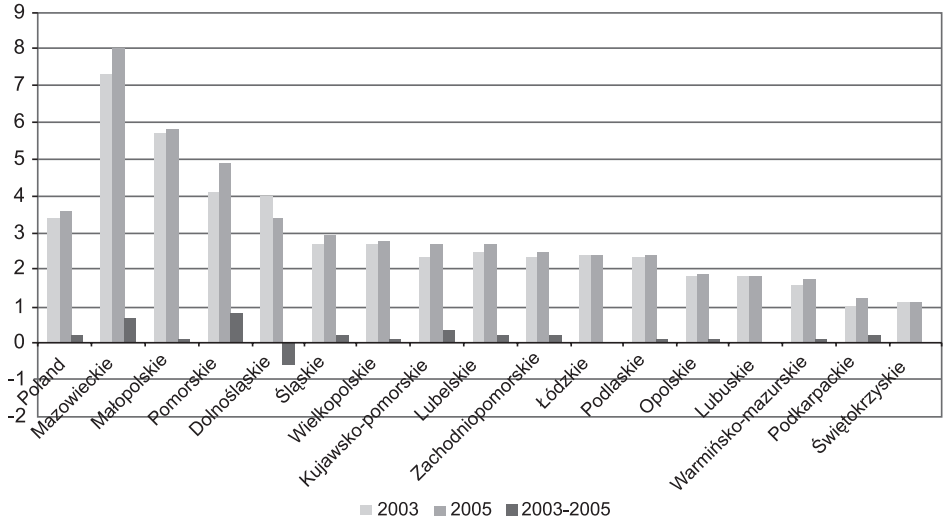
Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2005", Warszawa 2006.

The most numerous group among people employed in the R&D field was the one made up of science-research employees[23] (tab. 8). They accounted for 79,3% of the total amount of people employed in this sector. A disparity of the employment percentage in each voivodship was insignificant, as the variability coefficient equalled 7,3%. The most considerable share within the employment of the science-research employees in the total number of people employed in the R&D sector was observed in Podlaskie (94,8%), with the lowest one seen in Wielkopolskie (71,3%).

Taking into consideration a knowledge-based economy, alongside the number of the employed, it is also vital to underline the level of education of the R&D employees. In the vast majority

[23] Among R&D employees the following groups can be distinguished: science-research employees (researches), technicians and equivalent staff and other supporting staff.

Fig. 19. Researchers in R&D activity per 1000 economically active persons by regions in 2003-2005 (number of persons).



Source: Compiled by the author on the basis of CSO data, "Science and Technology in Poland in 2003", Warszawa 2005; "Science and Technology in Poland in 2005", Warszawa 2006.

these are people with a Master's degree, making up as much as 85,2% within the total R&D employment (tab. 8). A low value of the variability coefficient 5,6% proves that there is only slight share diversification of the people with the Master's degree in the total number of employees within the R&D field in various voivodships. Regions, where the percentage exceeded 90%, are the following: Podlaskie, Świętokrzyskie, Lubuskie, Małopolskie, Pomorskie i Warmińsko-mazurskie. The lowest level coming below the country average was registered in Wielkopolskie, Mazowieckie, and Łódzkie. In 2005, the structure of employment concerning the level of education in Poland is as follows: 7,9%—persons with the title of professor, 8,9% with scientific degree habilitated doctor (HD), 33,1% with scientific degree doctor (PHD). The Mazowieckie region built a dominant position with regards to the highest concentration of the employed as for all degrees of education were concerned (more than 20% of the total number of the employed in all categories).

The indicator of the level of employment in the R&D sector on a single submitted patent application, in simplified terms, gives a picture of the productivity of this sector's employees (fig. 16). In the year 2005, on the national scale, there was a relation of slightly over 60 employees hired in the R&D field on a submitted patent application. The highest value of this ratio, which means the most unfavourable labour productivity, was seen in the regions of Lubelskie (122 employees), Podlaskie (95 employees) and Warminsko-mazurskie (83 employees). The most advantageous value came out in Świętokrzyskie (30 employees), Śląskie (32 employees), Opolskie (37 employees) and Lubuskie (40 employees). It shows a lack of dependence between productivity of the R&D workforce and regional GDP per capita.

VI. Concluding remarks

The level of the innovative activity development in Poland in the regional perspective records considerable diversification. The analysis that has been carried out proves that there is

a concentration of creative and innovative potential in big agglomerations clustering research-development centres. It refers to regions with a highly skilled workforce and with substantial financial means. As to the innovative activity, there is a clear predominant position of the Mazowieckie region, resulting in and from its stake, both in the percentage of the patent applications, the structure of R&D outlays, and also in the percentage of the employed in this sector.

Uneven spatial disposition of the potentials, both science-research, and academic, can lead to a further disproportion of existing differences in the social-economic growth of particular regions. The most visible manifestation of the above is uneven access to science-research achievements for various enterprises and to an opportunity of cooperation with the strongest research-development centres. Moreover, the presented data indicate imbalanced access to education for the Polish society. A strong regional diversification of scientific product and science-research potential is one of the most essential causes of low innovativeness of the Polish innovation system.

For this reason it is desirable that research "Corpo Regio Programme", initiated and indicated by Prof. Antoni Kukliński, should start as soon as possible. The proposed programme should be focused on the following issues: 1) creative and innovative potential of the regions, 2) creative and innovative potential of the knowledge sector, 3) creative and innovative potential of enterprises, 4) real activity of the public authorities (both regional and national) in stimulating the regional creative potential and programming the creativity-based regional development. The research programme should be based on qualitative and quantitative analyses and case studies. Thanks to analysis of European regions, this work will become a promising "toolkit" for transfer of good practices and solutions. Conclusions will be immensely useful for formulating recommendations for public authorities.

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13. *Konkurencyjność MSP 2006*, Polska Konfederacja Pracodawców Prywatnych "Lewiatan", Raport z badań, maj 2006.
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ANTONI KUKLIŃSKI

THE DILEMMA — INNOVATION VERSUS IMITATION IN HISTORICAL AND FUTURE ORIENTED PERSPECTIVE THE CASE OF POLAND*

Introduction

I would like to propose the following thematic organization of this paper:

I. The conceptual framework
II. The case of Soviet Union
III. The case of China
IV. The case of Latin America
V. The case of European Union
VI. The case of Poland—The golden ages of Poland as an innovative country
VII. The transformation of Poland 1990–2010. Two decades of success—two lost decades?
VIII. The map of innovative Europe. The weak position of Poland
IX. The vision of a new innovative Poland 2050. A feasible reality or an utopian dream?
X. The future of Europe—Two scenarios
IX. Innovation versus imitation. A proposal of a research programme

I. The conceptual framework

It is not easy to find a proper conceptual framework for the reflection related to the dilemma—innovation versus imitation. As first approximation please consider Table I.

In the interpretation of this table the following formulations can be discussed:

1) The are three foundations of the innovative society and economy—knowledge—imagination—freedom.

* A paper presented at the European Symposium—Innovation and Creativity in Europe, Seville, November 13th–14th 2006.

Table I

The innovative versus imitative society and economy

Society and economy	Society and economy			
	innovative	imitative	dynamic	stagnant
innovative	X			
imitative		X		
dynamic			X	
stagnant				X

2) A process of permanent and comprehensive innovation is the main driving force of long term development of the society and economy.
3) The process of imitation in different historical and geographical situations is functioning as a supplement or substitute of the innovation process. The climate of creative imitation can be an inducement for endogenous innovation processes. The climate of passive imitation can destroy the endogenous climate of innovation.
4) In the interpretation of Table I the distinction of innovation prone and innovation averse societies[1] may be very useful.
5) It is an open question to what extent the civil society[2] is a direct, strong driving force in the development of innovation processes. Maybe the contribution of the civil society in this field is rather indirect acting via the promotion of social capital as an important element of the innovation processes.
6) In the discussion of the proposed framework please consider the conceptual map presented on p. 412 of the volume[3]—"Europe—two strategic choices". The central place of innovation in this conceptual map should be noted.

II. The case of Soviet Union

In the interpretation of the experiences of the Soviet Union—T. Zarycki[4] has presented an interesting comment explaining the failure of the imitation policies designed and implemented in Soviet Union. So the Soviet drama was a great historical failure in the field of innovation policies and in the field of creative imitation of the global technological development.

[1] A.R. Pose, Innovation Prone and Innovation Averse Societies: Economic Performance in Europe. Growth and Change, Volume 30, Winter 1999.

[2] G. Fayl, U. Fayl, Innovation and Civil Society in the 21*st* Century (in:) A. Kukliński, K. Pawłowski (eds) Europe—the global challenges, Nowy Sącz 2005—in the next footnotes quoted as "Challenges...".

[3] A. Kukliński, K. Pawłowski (eds) Europe—the strategic choices, Nowy Sącz 2005—in the next quotations this volume will be quoted as "Europe...".

[4] T. Zarycki, Pułapka imitacji (in:) A. Kukliński, K. Pawłowski (eds) Przyszłość Europy—Wyzwania globalne—Wybory strategiczne, Nowy Sącz 2006—in English—The trap of imitation (in:) A. Kukliński, K. Pawłowski (eds) Towards a new futurology (in preparation).

III. The case of China

The different interpretations of the Chinese experiences, stressing the sunny side[5] or the shadow[6] side of this experiences are opening the grand question if China will be able to overcome the gap separating the imitative and innovative economy and society. Without the solution of this dramatic problem China will not achieve the status of a first class global power.

It is possible to develop in China an innovation economy and society based on knowledge, imagination and freedom?

IV. The case of Latin America

In the context of our discussion I would like to quote a fragment analyzing the experiences of Latin America[7]. This analysis is a dramatic indication of deep structural similarities linking the experiences of Latin America and Central and Eastern Europe.

Naturally "omnis comparatio claudicat"—so the similarities are not incorporating all details and specific features. However it is a fascinating paradox that the Polish scene is grosso modo outlined correctly by Latin American authors analyzing the Latin American Scene.

> *"External obstacles to access knowledge from global science are important. However, the inability of scientific and technological communities of developing countries to gain endogenous economic and political support for their activities appears as a major limitation for this access. Insufficient resources for research, even in countries that could easily allocate important funds for these activities, are shown to be an important barrier to access knowledge, in a word where scientific and technological information is increasingly marketed and expensive. The dynamics leading to low efficiency equilibriums of scientific and technological activities is characterized in this section, based on the experience of some Latin American countries.*
>
> *National scientific communities do not form automatically or as the result of market or other spontaneous social forces. Quite the opposite, the free play of these forces tends to bring developing countries and their scientific communities into low efficiency equilibriums. In those unfortunately stable equilibriums, scientific communities are extremely reduced and stagnant. Structures of production and diffusion of both scientific and technological knowledge need some form of collective action to ensure access to high-efficiency equilibriums, where production and use of knowledge are sufficient and capable of sustaining moderate to high rates of growth.*
>
> *The situation of these communities may be characterized as a trap, in the sense that no endogenous forces disturb the low efficiency equilibrium.*

[5] J.M. Rousseau, D. Wang, Towards which horizons the Dragon would take Wing? (in:) A. Kukliński, B. Skuza (eds) The turning points, Warsaw 2006.

C.J. Dahlman, J.E. Aubert, China and the knowledge economy—seizing the 21st century, World Bank, Washington DC 2001.

Compare also: Powrót smoka, Rzeczpospolita — Świat — zdarzenia — wyzwania — zagrożenia, July 11th 2006.

[6] G. Sorman, L'Annee du coqu. Chinois et rebelles (in Polish:) Rok Koguta. O Chinach, rewolucji i demokracji, Prószyński i S-ka, Warszawa 2006

compare also: Kogut zostanie czerwony—rozmowa z G. Sormanem, Polityla 22 lipca 2006.

[7] C. Forero-Pineda, H. Jaramillo-Salazar, The access of researchers from developing countries to international science and technology, International Social Science Journal, March 2002—The Knowledge Society

> *Three questions may be raised concerning the stability of the trap, which is advanced as a main obstacle to access knowledge:* ***why, if knowledge is a recognized determinant of growth and social development, do governments and politicians of developing countries end up putting science and technology as a low priority? Why do private sector firms in those countries not resort to scientific communities for the knowledge they require? Why are science and technology communities in these countries so rarely mobilized as a political force in favour of knowledge?"***

The last three questions at the end of the long quotation require an answer also in the conditions of the Polish scene (the questions underlined by A.K.).

V. The case of the European Union

The fundamental doctrine of the EU is very well presented by two comprehensive papers published in the volume—"Europe the strategic choices"[8]. I think it is necessary in this context to quote the following comment of R. Galar[9]:

> *"The main competitive asset of Europe used to be freedom, not perfection. At present perfection receives more and more attention, while freedom is being pushed to the preserves of procedural democracy and unconventional lifestyles. The progressing degradation of the once paramount innovative prominence of Europe might be a direct consequence of this shift. Perfection is tempting as it allows to squeeze most from the existing opportunities. Freedom is necessary as to explore opportunities not yet identified, what is the essence of adaptation. It is needed to open the doors into the world of trial and error, spontaneity and soft selection, where subsequent waves of priorities and high-techs emerge rather than are decreed. The specific predicament of the present European might be that its S&T sector and economy are both: not free enough to compete with the US in opening new innovative horizons, and not perfect enough to compete with the East Asian cultures in exploitation of new technologies."*

We can find a much stronger critical comment in the recent paper of T. Zarycki[10] formulating a provocative thesis: "*There is no doubt that the European Union similarly to the past Soviet experiences is more and more clearly falling into the classical trap of imitation.*"

Naturally this is a strong and maybe false judgment. There is no doubt however that this judgment should be discussed seriously and not rejected a priori. The dilemma innovation versus imitation is deeply related to the center—periphery problem in Europe. Ceteris paribus the center is strong and innovative and the periphery weak and imitative.

There are different delimitations of the center and periphery in Europe. I think however that map 1—Knowledge Flows between European Regions as captured by Interfirm Patent Citations

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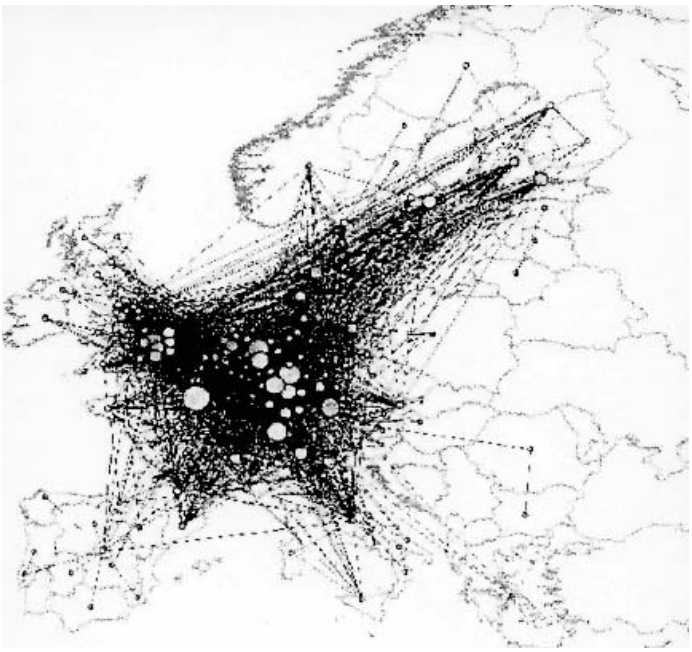
[8] H. Delanghe, U. Muldur, From vicious to virtuous cycle. Europe—growth and knowledge based economy.
J.M. Rousseau, Constructing XXI century economies by reshaping the European Society—both papers in Europe—The strategic choices. Reupus volume 2, see also in this volume p. 53, p. 131, p. 166.

[9] R. Galar, Adaptive versus managerial approach in S and T Policy in Europe, op.cit.

[10] T. Zarycki, op.cit.



Map 1—Knowledge Flows between European Regions

in High Technology Sector (1985–2002) is the best definition. The map is reproduced from M.M. Fisher et alia[11].

The paper of M.M. Fisher et alia[12] is presenting an excellent documentation for the discussion of the double dilemma—innovation versus imitation, center—versus periphery in Europe.

VI. The case of Poland—the golden ages of Poland as an innovative country

There were two really golden ages in the history of Poland[13] the XV and XVI century the era of Jagiellonian Poland. At that time Poland was an innovative country having an innovative society, an innovative political system, an i9nnovative army, and innovative science and culture.

The most glorious symbol of the innovative power of Jagiellonian Poland was Nicolao Copernicus[14]. His opera omnia are not only a reflection of his knowledge and imagination but also of the climate of political, religious, and intellectual freedom which prevailed in Jagiellonian Poland. This climate was more an exception than a rule in Europe of that time.

[11] M.M. Fisher, T. Scherngell, E. Jansenberger, Patent, patent citations and the geography of knowledge spillovers in Europe (in:) T. Markowski (ed) Regional Scientist's Tribute to Prof. Ryszard Domański, Polish Academy of Sciences, Warszawa 2005.

[12] M.M. Fisher, op.cit.

[13] N. Davies, Europe—A History, Oxfors University Press, 1996
compare also: N. Davies, Dzieje własne, Polityka, 22 lipca 2006.

[14] Nicolaus Copernicus, The New Encyclopedia Brytannica—Chicago 1991, v. 16, p. 760
compare also: Galileo Galilei, The New Encyclopedia Brytannica—Chicago 1991, v. 19, p. 638
compare also: Giordano Bruno, The New Encyclopedia Brytannica—Chicago 1991, v. 2, p. 580.

VII. The transformation of Poland 1990–2010. Two decades of success. Two lost decades

I would like to explain the paradox incorporated in the title of this section of my paper. The two decades are and will be seen as the time of successful transformation of Poland into a democratic country incorporating an economic system which is an integral part of the global capitalist economy[15]. The political economic, and social transformation of Poland is a success especially in comparison with these countries of Eastern Europe which were not able to design and implement comprehensive transformation of the economy, society, and the political system.

However the two decades are at the same time two lost decades[16] in this sense that the Polish transformation was not designed and implemented as a strategic transformation towards an innovative knowledge based society and economy.

The consecutive governments of Polonia Restituta were not able to design and implement a grand set of innovation policies in two dimensions:

1) the direct dimension
2) the indirect dimension

as an principle of the presence of innovational motivation in all policies of the public authorities[17] (economic policy, social policy, regional policy, education policy etc.).

In this sense innovation is seen as an ideology of the comprehensive transformation of the society, economy and governance[18].

Two historical chances were lost to promote such a set of comprehensive innovation policies.

The first chance was the beginning of the Polish transformation in the early nineties. It was the eruption of the creation of two millions capitalistic enterprises[19] in Poland. At that time there was a chance to inject the spirit of technological innovation into the emerging community of Polish enterprises by well designed long term innovation policies. This chance was lost.

The second chance was created by the first years of the Polish membership in the European Union. This is a chance to seize the opportunities created by the European Union for the promotion of innovative society and economy in Poland[20].

This means not that no progress was achieved in the framework of these two decades. We can produce a long list of specific achievements in many fields of economy, science, and technology[21]. We can not claim however that the two decades have created a firm foundation for the development of innovative society and economy of Poland of the XXI century. The gap

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[15] W.M. Orłowski, Globalization of Polish economy (in:) A. Kukliński (ed.) The knowledge based economy. The European challenges of the 21st century, Warsaw 2000

compare: J. Staniszkis w rozmowie A. Zybały—Szanse Polski, nasze uwarunkowanie rozwoju w obecnym świecie. Wydawnictwo Rectus, Warszawa 2005.

[16] A. Kukliński, Economic transformation. Experiences and prospects in Poland 1990—2010 (in:) H. Bünz, A. Kukliński (eds) Globalization. Experiences and prospects, Warsaw 2003.

[17] B. Kaeprzyński, Proinnovative policy (in:) A. Kukliński (ed.) Science—Technology—Economy, Warsaw 1999.

[18] J. Routti, Research and innovation in Finland—in Europe, op.cit.

compare also: Charlemagne. In praise or Finland, Economist, July 8th 2006

compare also: M. Castells, P. Himonen, The information society and the Finish Model, Oxford University Press, N.Y. 2002.

[19] A. Kukliński, What will Polish EU Membership Mean for EU (in:) H. Bünz, A. Kukliński, Globalization, op.cit.

[20] compare: J. Olbrycht, Cohesion and/or growth policy (in:) A. Kukliński, K. Pawłowski (eds) Europe—the global challenges, Nowy Sącz 2005

[21] for a clear and competent conventional analysis of innovational policies in Poland please see A.H.Jasiński, Poland in the European research and innovation area (in:) Europe, op.cit.

compare also: I. Goldberg, Poland and the knowledge economy. Enhancing Poland's Competitiveness in European Union. The World Bank, Washington DC, 2004.

separating Poland from Finland in the field of innovation and knowledge based economy is just immense.

VIII. The map of innovative Europe. The weak position of Poland

The European Commission has created an excellent contribution: *"European Innovation Scoreboard 2005—comparative analysis of innovation. Performance—Trend Chart Innovation Policy in Europe".*

This contribution is presenting a consistent input—output methodology as a tool of the evaluation of national innovation performances. I am convinced that this contribution could be considered as a general background and perhaps a common denominator for all papers submitted to our Conference.

In the context of my paper I would like to present only the classification of European countries based on the Summary Innovation Index (SII):

> *"Based on their SII score and the growth rate of the SII, the European countries can be divided in four groups:*
> — *Switzerland, Finland, Sweden, Denmark and Germany make up the group of "Leading countries".*
> — *France, Luxembourg, Ireland, United Kingdom, Netherlands, Belgium, Austria, Norway, Italy and Iceland all belong to the group of countries showing "Average performance".*
> — *Countries "Catching up" are Slovenia, Hungary, Portugal, Czech Republic, Lithuania, Latvia, Greece, Cyprus and Malta.*
> — *Countries "Losing ground" are Estonia, Spain, Bulgaria, Poland, Slovakia, Romania and Turkey."*

The judgment that Poland is "losing ground" in the field of innovative performance should be taken very seriously by the Polish government, the Polish political elites, and by the Polish society *in toto*.

IX. The vision of a new innovative Poland 2050. A feasible reality or an utopian dream

Poland has all capacities and chances to develop an innovative society and economy as an active and creative member of the European Union[22]. Poland has however a dramatic deficiency being a dual country represented not by one integrated society but by two societies. An innovation prone and an innovation averse society. If in the future the innovation prone society will have the prevailing power to determine the substance of the country then Poland will be developed into an innovative society and economy. If however the innovation averse society will have the prevailing power to determine the fate of the country—then Poland will change itself into a firm element of the European and global periphery. The most talented young generations will leave the country to live and work outside Poland attracted by better conditions created by innovative economies and societies. In pessimistic probably wrong evaluations some elements of this dark scenario are already emerging. We have contra spem sperare that this dark scenario will not prevail and that

[22] A. Kukliński—see footnote 19.

the scenario of the innovation prone society will be responsible for the future of Poland of the XXI century.

It is very difficult to answer the question if the vision of new innovative Poland 2050 is a feasible reality or only an utopian dream. The duality of Poland is not an exception in the European landscape of the XXI century.

Mutatis mutandis we can say that such countries like France, Germany, and Italy are also dual societies unable to face the real dramatic choices of the global scene of the XXI century. The list of dual societies is growing very quickly. The latest spectacular example is USA[23]. Naturally the criteria of duality may be different in particular countries. There is however a strong genus proximmum. The division of the country in two parts which have difficulties in establishing a common future.

X. The future of Europe. Two scenarios

At the turn of the XX and XXI century Europe is facing a very deep structural crisis of three dimensions:

1) the crisis of the capacity to create breakthrough innovations[24]. The spirit of grand innovations and creativity was replaced by the routine of perfection of the already existing solutions.
2) the demographic crisis[25]—the loss of will to live as a dynamic European community in global context,
3) the political crisis—the loss of Europe's will to power[26].

The pessimistic scenario is assuming that the present crisis of Europe will have a permanent character and that the catastrophe of Europe is already a historical fact.

The optimistic scenario is assuming that Europe will emerge from the present crisis to enter into an era of a new European Renaissance.

The pessimistic scenario

1) Europe will be not able to overcome the crisis of the turn of the XX and XXI century and will follow the route of Venice[27] of the XVIII century.
2) Europe will be the weakest element of the four megaspaces of the XXI century (China, USA, India, European Union)[28].
3) The tipping point on the route from European success to European catastrophe is already a historical fact[29]. There is no sense to formulate the question how to avoid the catastrophe. We can only try to limit the scale of the catastrophe.

The optimistic scenario

For the sake of clarity we will formulate also three theses related to the optimistic scenario:

[23] Compere two contributions in IHT, July 5th 2006:
G. Lakaff, Divided America. Reclaim the meaning of freedom
J. Tierney, Disunited States of America.

[24] R. Galar, op.cit.

[25] A. Gąsior-Niemiec, Europa jako kontynent imigracyjny (w:) A. Kukliński, K. Pawłowski (red) Przyszłość Europy—Wyzwania Globalne—Wybory Strategiczne, Nowy Sącz 2006.

[26] R. Cooper, The breaking of Nations order and chaos in the XXI century. Atlantic Press, p. 164–165, 171–175.

[27] Compare: B.Jałowiecki, Czy Europejska Europa przetrwa do 2050 roku? (w:) Przyszłość Europy, op.cit.

[28] A. Kukliński, The transformation of the global scene (in:) Turning points, op.cit.

[29] M. György, Futures of Europe—in Challenges, op.cit.

1) Europe will overcome the deep structural crisis of the beginning of the XXI century. In the long history of Europe[30] we find many cases of a deep structural crisis—Europe was always able to overcome the crisis of the past. Why this ability will be missing in the experiences of the XXI century?
2) Europe will regain the power of innovativeness and creativity. We will have again a strong dynamic European knowledge based society and economy as a important element of the global scene.
3) In the horizon of the XXI century Europe—a new turning point will emerge. The turning point of a new European Renaissance as an eruption of knowledge, imagination, culture and science.

To generate the power to implement the optimistic scenario we need a strong shake up of the European public opinion. The present political elites of Europe are paralyzed and unable to formulate visions and programmes to promote a new creative Europe of the XXI century. Maybe this paralysis is an essential feature of the present generation of the European political elite. Maybe this is a task and goal of the young generation acting via a new paneuropean political party—Young Europe.

XI. Innovation versus imitation. The experiences and prospects in Europe in a global context. A proposal of an international research programme

We need in this field a well designed large scale and comprehensive research programme incorporating three dimensions—the theoretical dimension, the empirical dimension, and the prospective dimension.

Maybe the programme could be organized around four grand topics:

1) Innovation and imitation as technological, economic, social and cultural processes. The creation of innovation, the diffusion and absorption of innovation. The creative and passive imitation. The processes of creative destruction and the processes of destructive destruction.
2) Europe as a historical space of innovation and imitation. A set of historical case studies.
3) Europe as a perspective space of innovation and imitation. A set of prospective case studies.
4) The global experiences in the field of innovation and imitation.

The European Innovation Scoreboard 2005 is an excellent starting point for the construction of this programme.

XII. The theses of the Paper

I will not try to present a conventional summary of the paper. In this context I will concentrate attention on six theses of the paper which try to formulate the crucial question—why according to the European Commission European Innovation Scoreboard 2005 Poland's performance in the field of innovation is very weak—Poland is included into the group of countries which are "losing ground".

Thesis one—The great Polish transformation of the years 1990–2010 was a more imitative and less innovative transformation. The main problem was the adaptation following the general

[30] N. Davies, op.cit.

rules and patterns of the global market economy. The idea to accept the ideology of strategic planning as a tool of innovative transformation was rejected by the *grosso modo* excellent L. Balcerowicz team.

Thesis two—The two decades of Poland's transformation 1990–2010 were at the same time decades of success and lost decades. The success is the transformation of Poland into a democratic country incorporating an economic system which is an integral part of the global capitalist economy. 1990–2010 were lost decades in this sense that the Polish transformation was not designed and implemented as a strategic transformation towards an innovative knowledge based society and economy. This historical negligence has produced the "losing ground" effect discovered by the European Commission.

Thesis three—The deep roots of the weak innovation performance of Poland are explained by the duality of the Polish society and economy. Poland is not represented by one society. It is represented by two societies and economies—an innovation prone and an innovation averse society.

Thesis four—If in the future the innovation prone society will have the prevailing power to determine the substance of the Country then Poland will be developed into an innovative society and economy. If however the innovation averse society will have the prevailing power to determine the fate of the country—then Poland will change itself into a firm element of the global and European periphery.

Thesis five—The dilemma—innovation prone versus innovation averse society is related not only to the interpretation of the experiences of Poland. This concept will be very useful in the interpretation of the innovation performance of the European countries presented in the classification outlined in the European Innovation Scoreboard 2005.

Thesis six—It is necessary to consider the design and implementation of an International Research Programme—Innovation versus imitation. The experiences and prospects in Europe in a global context.

* * *

The six theses are to my mind a good introduction to the interpretation of the drama of the weak Polish performance in the field of innovation. Please read the full text of the paper and the comprehensive comments which are prepared by Krzysztof Porwit and Tomasz Zarycki.

Conclusion

In this paper we can see numerous methodological and empirical weaknesses. We can see also an affluence of generalizations which have an insufficient empirical documentation.

I hope however that in this paper we find some inducements for creative thinking related to the field of innovation, and imitation transgressing the limits of conventional wisdom and political correctness.

Warszawa–Łańsk–Nowy Sącz
August 22nd 2006.

KRZYSZTOF PORWIT

Comments to Antoni Kukliński's paper on the dilemma: "innovation vs imitation"*

I. I am sharing A. Kukliński's concern about Poland being backward in rankings of European countries according to the merits of being innovatory and knowledge-based societies and economies. However —in my opinion— the issues at stake, in the search for desirable change, are wider and deeper than the will and competence of policy makers at the stage of composing their policies and strategies.. I am suggesting more emphasis on grass-roots factors and on bottom-up processes, as decisive for feasibility and effectiveness of essays to improve our position in rankings.

II. My comments are concerned with the following three wider issues:

(A) It seems to me useful to remember that growing human achievements in terms of innovations and an emphasis on knowledge-based merits within societies and economies are not always tantamount to similarly growing attainment of correspondingly excellent, relatively greater and more fairly distributed welfare, higher culture, safety and healthy living for the people. One wonders whether our generally conceived sense of desirable innovations and of effects expected from knowledge achievements are really the best for the mankind, for our future, with the chances for success or...survival.

(B) Many experiences indicate that "new" is not necessarily a synonym for "better than in the past". Some innovations are hardly leading to improvements in human life. Thus, some of them may be backed by some people and opposed by others.. What more, some are highly welcomed but their consequences on the time-axis may prove to become more and more dangerous for most people.. In other cases —keeping well known practices without adequate changes and new features may lead to disaster.

There are strong arguments for an opinion that we need continuous concern for all kinds of changes in inherited practices (i.e. minor and major innovations, nearer either to various "adaptations within imitations" or to path breaking inventions) because our world is characterized by ever growing "proliferation of variety " in manifold features of social and economic life. I would doubt, however, whether there are reasons to argue, that a particular kind of changes is generally better (or more important) than others. It seems—rather—that the basic issues for concern is the adequateness of presently dominating ways of evaluation and decision-making for social and economic changes (in micro—mezzo—macro situations) which would eventually allow to improve effectiveness of respective selective devices.[1], making them more friendly for people i.e. for common well—being...

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* Amtoni Kukliński *"The dilemma—innovation versus imitation— in historical and future oriented perspective. The case of Poland. A paper for discussion at the Seville Conference"*, mimeographed, dated August 22nd, 2006, Warszawa—Łańsk—Nowy Sącz., as well as *"The Theses..."* of the same paper, dated Waeszawa —Nowy Sącz, August 21 st 2006. My comments include some thoughts from my contributions to the volumes edited by A. Kukliński and K. Pawłowski viz: *Przyszłość Europy—Wyzwania globalne—Wybory strategiczne* WSB-NLU, Nowy Sącz 2006, pp. 13–48, *The New Futurology for New Europe* REUPUS—Volume Four, WSB-NLU, to be published early in 2007.

[1] I have in mind here market choices (within a morally healthy market), but also primarily the sphere of social innovations and of non-market human activities and interpersonal relation. There are essential choices to be made besides standard market-order approaches, not only because of the well known cases of "market failures", but also— of various cases of pathological distortions of market forces and of public sector. Such distortions are resulting mainly from destructive ailments of factors, which normally are providing a non-material "moral backbone " for markets and

(C) On the other hand— it seems evident that the choice and implementation of desirable changes depend not only on competence of decision-makers but also on an adequate "innovation and adaptation friendly" micro-environments. The latter are built and kept on by organic bottom-up processes, involving personal features of the people and of interpersonal relations. However, all these factors, forming such environments, can neither develop and exist nor be made friendly towards wisely conceived changes if they are forced upon people by means of orders, through governmental directives or centrally devised campaigns.

It seems that the above mentioned "innovation friendly" micro-conditions can flourish only in a climate with an air of freedom and a spontaneously inspired strong "moral backbone" of conscience of the persons concerned. Fundamental rules and values for such a backbone cannot be made dependent on the will (i.e. preferences) of the people for whom they serve as "the rules of the game", but their validity must be conceived as independently true, transcendental. The governments are assumed then to follow such a supreme moral code and to act according to the "principle of subsidiarity", i.e. they are expected only to provide general institutional framework and procedural foundations for justice arrangements as well as to render emergency support for micro-activities without trying to suppress micro-organic "grass root" forces

This whole set-up, assumed desirable for democracies, is doomed to fail if either of the sides (i.e. respective actors at the bottom or/and in the center) are notoriously breaking the fair-play rules, expected to be active according to the aforementioned superior common moral code and the subsidiarity principle.

Unfortunately—these failures are what happens often in practice, especially in countries without a strong tradition and culture of values attributed to fairness (in short—the center is inclined then to maximize satisfaction from ruling power, whereas the micro-agents—from egoistic motives, often at the cost of other people and of public interests of common well-being).

In such cases the concept of democracy with a fair cooperation, under common moral rules, does not work in practice, which unfortunately is pushing democracy towards a non-democratic social order which, within our socialist practice in the past, was called a "democratic centralism". However, other serious ailments of democracy arise also in cases of "government failures" numerous in a non-efficient state, especially if this is accompanied by a wide-spread neglect of morals in personal behavior and interpersonal relations (i.e. lack of a moral backbone in micro-activities in markets, in public and private matters) [2].

(III)—(A) Taking into consideration arguments above (p. **II**), I am inclined to disagree with suggestions (in the texts mentioned in footnote 1), that the small extent and poor quality of innovativeness and knowledge-based merits in social and economic life in Poland might have been avoided or changed for the better—**(a)** if the governments were willing to construct and implement strategic plans (programs) of transformation towards an innovative knowledge—based society and economy, **(b)** if the society were not so strongly divided into parts being respectively "pro" and "against" the ideas of such a kind of transformation, with the former part being too weak to overrule opponents, **(c)** if the prevailing ideas for transformation were more boldly innovative instead of leaning only on healing powers of "general rules and patterns of the global market economy", i.e. on imitation of practices from most developed countries[3].

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for social & political area together with non-market human relations (especially such as the conscientiousness of the persons active in markets and governments, aa well as **within** families, schools and universities, hospitals, offices and other non-profit organizations).

[2] What happens then resembles the practice, which is called an anarchic type of liberal democracy together with a robber-like political capitalism.

[3] This point of view is more acceptable if understood to mean, that all transfers of satisfactory experiences from abroad need careful reflections and adequate adaptations, because any transferred solution can work only with

It seems to me that diagnostic elements of this approach and the way of suggesting remedies are perhaps somewhat short-cut simplified expressions. A historical part of diagnosis does not pay—in my opinion[4]—enough attention to manifold influences of the earlier past with essential obstacles at the start of transition. I would emphasize some essential unfavorable exogenous impacts, as well as—remind many positive achievements (mentioned in the article cited in footnote 5)—adding however, that the latter might have been less feasible if the state were more strongly engaged in strategic planned interventions into economic and social matters.

In my view, transition towards democracy and market economy could not avoid difficult shocks, because of tremendously unfavorable inherited conditions (after fifty years of war destruction and losses, alien rule, long period of non-democratic and non-market socio-economic order, and besides in transition, which was a return to freedom, democracy and markets but into a "free world" different in comparison with memories from before 1939, i.e. practically hardly familiar to most people in Poland, even the oldest. It is true that transformation had serious dark sides, but—I am sharing rather opinions, that the causes of failures and wrong effects were mainly in a somehow too schematic approach to market oriented transition and primarily—in the poor quality of institutional arrangements, both—in their formal and informal parts (with serious failures of official law and justice and with wide spread neglect of self-imposed morals—respectively).

Retrospective considerations may be useful, not only as assessments of the past but also as relevant references for our present problems, which are still, in many aspects, historically "path dependent". They may be relevant not only from the viewpoint of Polish experiences, but also because the issues in question may have similar counterparts in other newcomer countries to the European Union.

(B) The heritage from non-democratic and non-market social systems includes a wide spread feeling (or even conviction) that achievements of personal success and welfare are depending considerably on political connections with and adequate support from the politicians of a ruling party and/or from appropriate officials in governmental structures. That experience was particularly strong in respect to all kinds of social organizations, i.e. networks of persons willing to be active for a specific purpose; who were either under strict political control of the state or were treated as illegal and vulnerable to persecution. Such connections might have been expected to undergo spontaneous changes, alongside with transition towards democracy and market-friendly social order i.e. to become similar to those known in old democracies. But in practice that proved to be hardly feasible, not only due to institutional weaknesses (in law and justice arrangements), but also because of lacking experience in many kinds of "free world", socially desirable, networks of interpersonal connections (formal and informal alike, but particularly the latter), as well as—because of very scarce endogenous capital in private hands (particularly essential for privatization of formerly state owned property).

The first mentioned of these gaps was of crucial importance (in a negative sense) because spontaneous networks for a common purpose would be very important for successful democracy and for market order. They are wide spread In societies with long tradition of democracy and well developed economies. In the absence of them in earlier transition periods in post-socialist countries, one noticed not only endeavors to build them from scratch, but also various pathological

adequately professional and wise attitudes of the people involved in the new environment. However, it seems that the latter conditions cannot be fulfilled through centrally devised strategies and programs. Anyway—European history of XX century shows that social changes should be rather constrained to innovations which involve very much of existing practice, in the sense of imitating the past with some modifications, but keeping some traditional features and values intact ; otherwise innovations turn into utopian and dangerous projects.

[4] A similar viewpoint was presented in earlier writings of A,Kukliński e.g. :*Economic transformation experiences and prospects in Poland 1990–2019* in Globalization. **Experiences and Prospects** editors Hermann Buenz and Antoni Kukliński, Friedrich Ebert Stiftung, Rewasz, Warsaw 2001, pp 435–442

mutations of networks, which were arising instead (They were partly oriented towards coalitions of morally suspect business and politics, or—towards crime and clandestine vice business)..

Unfortunately—these pathological versions were in their nature very distant —of course—from socially positive civic society arrangements. Their features were far away from spontaneous will to participate in societal self-organizations with aims to contribute to common well being. They did not resemble various social capital clusters, known in ethically stronger societies, which arise among people using their team spirit of trustful cooperation in business, in local matters, in civil service, etc.

It seems likely, that such unfortunate circumstances were partly caused by generally low income and difficult conditions of living, characteristic for a major part of population. Most people were probably too heavily concerned with their personal fight for providing means to meet their families basic needs, so that they could not afford to devote time to social work for common well being. On the other hand, those who could afford, being affluent enough, showed quite often other preferences i.e. going on to multiply their personal wealth. The former part of population was stepwise falling into relatively distinct two categories, i.e. of poverty and of slightly above acceptable standards—respectively, but the distance towards the sphere of high affluence was increasing.

(C) Centrally devised remedies for such social ailments, through progressive taxation and income transfers within public budgets, have well known drawbacks, because they are provoking negative, anti-productive and tax-avoiding, motivations among richer tax-payers and also—because most extensive transfer schemes prove in practice less effective (like a "leaking bucket").

Consequently—one should not forget a potentially feasible alternative (although evidently more difficult and demanding), which is based on four assumptions: **(a)** that anti-poverty measures can concentrate predominantly on promoting earning capacities (so that eventually relief allowances may decrease), **(b)** that entrepreneurial and personal (civic) strategies of more affluent people (combined with incentives from potentially flattened income-tax rates) would increasingly include non-profit, public-welfare aimed, investments, at least instead of never-ending drive to multiply their own personal wealth, **(c)** that a tendency to devolution of government and of a growing part of public financing responsibility will be prevailing, **(d)** that the trends, which are generally prevailing in public opinion, can become less hedonistic and less cynically short-term in their nature, can start to deliberate the future of mankind issues with such questions as possible perspective of replacing the spirit of fighting for leadership (by means of eliminating opponents) through the spirit of charitable love and compassion (by means of considering own personal talents, wisdom and skills—with ensuing remuneration of their effects, as well as inherited wealth—as obligations to offer assistance to people in less favorable positions). Similarly —the knowledge, as the basis for economies and societies, should not be valued for offering more effective instruments for gaining power and destroying all obstacles, human lives included, but rather for more abilities to protect humanity together with its biological and spiritual environment.

In that context I am inclined to argue for addressing an International Research Program rather not to opposite sense of innovations in comparison to imitations, but to the issues of selective treatment of innovations (and emphasis in their promotion), depending on the manner of using potential powers of knowledge and human minds with regard to the well being and future prospects of humanity. This approach offers much more promising prospects for Europe in a global context—in comparison with continuing service to a civilization of contests (and wars?) among powerful leaders.

TOMASZ ZARYCKI

Comment on Antoni Kukliński's discussion paper "The dilemma—innovation versus imitation in historical and future oriented perspective"

In the present paper Professor Kuklinski is asking and reminding as some very important questions facing both entire European Union and in particular Poland in the times of advancing globalization and rising world competition. The problem of "imitative versus innovative development" is undoubtedly at the very centre of the debate on the strategy of development of European continent.

While supporting most of the authors' thesis, I would like to challenge Kuklinski's reliance on the notions of "innovation prone" and "innovation averse societies" borrowed from by A.R. Pose. I don't question the possibility of analysis of societies or regions in the terms of the degree of their aversion or enthusiasms for innovations. However, I see a more important aspect of the problem. Thus, I would propose a framework of analysis which would address not only obvious positive benefits of innovations but also their risks and costs for particular communities and their different segments (whenever they are defined in spatial, political or other terms or in terms of social structures and hierarchies including classes, strata etc.).

In the same time I would suggest that besides the analysis of the obvious aversion toward innovations of the "peripheries" once could also address much less transparent and explicit innovation-blocking forces at the cores. I am using the core-periphery model in a very wide sense, which can refer to a multitude of dimensions including regions, countries, continents or societies. Thus, it seems rather obvious that peripheral communities are quite often adverse to innovation out of their general conservatism, fear of the centre with its cosmopolitan culture and due to their lack or scarcity of resources. This makes investment in innovations, which are usually risky and expensive, very difficult at the peripheries and we should be aware of the complexity of their situation when criticizing those in dominated positions for lack of innovation enthusiasm.

In the same time one could notice that the dominating or "core" segments of different communities (including countries or regions) often appear suspicious of innovation as well. As it seems, the most important reason of fear of innovation at the core, or among the elites, is the revolutionary impact of innovations, which often affect not only the realm of technology but have far reaching consequences in the political, social, cultural and last but not least economic dimensions. These changes are often seen by the elites as dangerous for maintaining the status quo or in other words their own domination position in the system. Revolutions, as we all know after all, almost always bring radical changes of the elites. I would consider this factor as the primary hypothesis for lack of innovation-based development in many corners of the world. We could find many regions and countries, with Latin America as primary textbook example, where

those who could be for many reasons at the forefront of the technological progress, appear skeptical towards it, especially when it comes to financial and political support for financing innovations, and chose to follow the global tendencies rather then lead. The case of the Europe in general, especially in recent years, could be analyzed using such a hypothesis as well. Many analyses, including Kuklinski's paper, point out to the enormous innovative potential in the Old Continent and in the same time lack of the political will and economic impulses to assume a more innovative and courageous policies. As it seems, fear of losing a stable and comfortable position in social and economic systems developed over several past decades is one of the key reasons behind European conservatism in the area of technology.

One could even point out to many cases of fear of innovation in the United States, the present world core state, which could be explained in the similar manner. One of the classic problems is inadequate support of the political and economic elites of the United States for the development and in particular implementation of alternative energy technologies and sources. The need for reduction of American dependence on oil is more and more obvious. Besides it's directs costs, environmental costs, the rising price of oil has disastrous consequences for political and military position of the US. As numerous commentators are pointing out[1], oil-based economy is directly reinforcing all major and mostly undemocratic competitors of the US including several countries in the Middle East, Russia and Venezuela. In the same it reduces the profits from the advantage of the US in the domain of technology. As it seems however, the current political and economic elites of the US are too dependent on the incomes from oil industry as the key element of their dominating economic position, to support revolutionary innovation in the energy sector.

Their fear may be indeed justified. One could quote the example of the famous Google Inc. company, to show the revolutionary effect of the innovation-based development. The company's owners and founders rise to prominence and affluence was spectacular but on the other hand not easily accepted by the elites of the business. The change in all spheres of life which Google's technologies are brining are also fascinating and revolutionary. In the same time, Google appears to be a unique case of a large US company open to Ph.D. holders, who appear to be not particularly sought for even in the American technology sector, as the New York Times reports[2]. In such a context, it's not so easy to be criticize Polish or Latin American business' aversion to innovation and cooperation with academia, if we realize that a Ph.D. in technology may be an obstacle for getting a positing at the largest American companies as Microsoft, who seem to be simply afraid of the revolutionary effects of giving too much power to innovative and independent innovators.

I would explain these phenomena namely by the fear of the revolutionary effects of innovation. One of the ways of accommodating it seems to lay in maintaining the balance between the stability of a social and economic system and its openness to change. The strength of the US in this dimension, compared to Europe, seems to be related to the degree to financial and political strength of the narrow American elites. Their superiority over the rest of the society is so high that so far individual newcomers to the elite (as the Google, or earlier Microsoft owners) do not pose a real threat to the existing social and economic hierarchies. This seems to make them more open to innovations, effects of which can be usually accommodated by the system without serious threat of undermining of the position of the most privileged. In most countries of the Western Europe, on the other hand, the welfare state provides a protection for much larger shares of societies, who fear that any revolution including the one based on technological innovation may further destroy the existing social balance, weaken the already underfinanced and weakening social system and thus reduce the status of large sectors of societies. In such context, one could also

[1] See for example: Thomas L.Friedman, War on Daddy's Dime, *New York Times*, August 18, 2006

[2] Randall Stross, What Is Google's Secret Weapon? An Army of Ph.D.'s, *New York Times*, June 6, 2004.

analyze the successes of the Nordic countries, which appear the leaders of the innovation based development in Europe. One of its dimensions seems to be the cultural and political consensus over the high taxation and social spending allowing to maintain the stability of social structures irrespectively of the new waves of technologic development. In effect Scandinavians and Fins seem to be less afraid of losing their status in effect of innovation based-revolutions in the economies than other Europeans for whom the technological change consciously or not, seems to activate the fear of social degradation.

The difficult situation of peripheral countries like Poland seem to have it roots in the simultaneous strength of their peripheral, conservative constituency as well as weakness of their "cores", or the elites. As it seems, once could also ask the above mentioned question in the Polish context. Namely to what extent Poland's elite's reluctance towards innovation-driven policies is based on the fear of losing its present privileged positions. Here the Leszek Balcerowicz's views are a particularly interesting case. As we remember, he as the minister of finances was the leader of the shock transition to capitalism, one of the elements of which was indifference to the fate tragic of the high-tech industry inherited from the Communist period. The radical Balcerowicz's strategy, which made him the hero and symbol of the economic transformation of the former Communist East-Central Europe, has been always presented by him as the only possible solution at that time. Presently Mr. Balcerowicz, now as the head of the Polish National Bank, is again advocating strategies of development based on of importation of high technologies rather than on investment in national high-tech sector[3]. I don't want to asses the economic rationality of Balcerowicz's strategies, but a sociological analysis of his status self-perception, as well as other members of the Polish elite, could probably add an interesting dimension to the debate on "the imitative versus innovative oriented development" in Poland.

Warszawa, August 21, 2006.

[3] See for example: Leszek Balcerowicz, Renta zacofania, *Wprost*, December 5, 2004. (The backwardness' rent)

Part VI:

The Warsaw Conference

Ministry of Culture and National Heritage of the Republic of Poland

The Ministry of Science and Higher Education of The Republic of Poland

Ministry of Foreign Affairs of the Republic of Poland

WYŻSZA SZKOŁA BIZNESU
NATIONAL-LOUIS UNIVERSITY

CREATIVE EUROPE
Towards a new creative and innovative Europe

WARSAW CONFERENCE

TOWARDS A NEW CREATIVE AND INNOVATIVE EUROPE

CONFERENCE PROGRAMME

Warsaw, November 30th – December 2nd, 2006

Honorary Committee
Undersecretary of State Olaf Gajl
The Ministry of Science and Higher Education
Ambassador Jan Store
The Embassy of Finland in Warsaw
Ambassador Róża Thun
The Representation of the European Commission in Poland
Undersecretary of State Krzysztof Olendzki
The Ministry of Culture and National Heritage
Rector Krzysztof Pawłowski
Wyższa Szkoła Biznesu – National Louis University

CONFERENCE PROGRAMME

November 30th, 2006
The Ministry of Science and Higher Education, ul. Wspólna 1/3, Room 117
6:00 p.m. Introductory Address
Jorma Routti "Finland as a Knowledge Economy. Elements of Success and Lessons Learned"
7:00 to 9:00 p.m. Opening Buffet

December 1st, 2006
Business Center Club, Plac Żelaznej Bramy 10

9:30 to 10:00 a.m. Opening Ceremony
Chairman: **Krzysztof Pawłowski**

Welcome addresses
Jan Store, The Embassy of Finland
Róża Thun, The Representation of the European Commission in Poland
Olaf Gajl, The Ministry of Science and Higher Education
Monika Smoleń, The Ministry of Culture and National Heritage

10:00 a.m. to 12:45 p.m. PANEL ONE
The foundations of European creativity and innovation
Chairman: Louis Emmerij
PANELLISTS:
Mikel Landabaso
Paul Drewe
Karel Mueller
Ron Boschma
Bohdan Jung

11:30 a.m. to 11:45 Coffee break
DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman.

12:45 Press Conference

1:00 p.m. to 2:00 p.m. – Lunch

2:00 to 4:00 p.m. PANEL TWO
Creativity and innovation as a challenge for the European corporation (enterprise)
Chairman: Jorma Routti
PANELLISTS:
Erkki Ormala, NOKIA
Bogusław Skuza, SKANDIA
Krzysztof Bulaszewski, IBM
Andrzej Rybka, The Aviation Valley
Piotr Górecki, BIOTON
DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman
4:00 to 4:30 p.m. Coffee break

4:30 to 6:30 p.m. PANEL THREE
The creativity and innovation as a challenge for the European Union
Chairman: Mikel Landabaso

PANELLISTS:
Olaf Gajl
Tomasz Grosse
Thomas Schauer
DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman.

December 2nd, 2006
Business Center Club, Plac Żelaznej Bramy 10

9:30 to 11:30 a.m. PANEL FOUR
Creativity and innovation as a challenge for European regions and cities
Chairman: Gerd Schienstock
PANELLISTS:
Martti Launonen
Krzysztof Pawłowski
Jan Wais
Hans van Zon
Valtteri Kaartemo
Daniele Ietri, Francesca Silvia Rota

DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman.

11:30 a.m. to 12:00 noon Coffee break

12:00 – 2:00 p.m. PANEL FIVE
Creativity and innovation as a challenge for the European University and R&D Community

Chairman: Wilhelm Krull
PANELLISTS:
Jerzy Langer
Simone Arnaldi
Dimitrios Konstadakopulos
Jan Lambooy
DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman

2:00 to 3:00 p.m. – Lunch

3:00 to 5:30 p.m. PANEL SIX
Creative and innovative Europe of the XXI century towards an European Research Programme
Chairman: Antoni Kukliński
PANELLISTS:
Józef Niżnik
Anna Gąsior – Niemiec
Wojciech Burzyński
Roman Galar
DISCUSSION
Answers by the panellists.
Concluding remarks of the Chairman

5:30 to 5:50 p.m. Conclusion of the conference by Krzysztof Pawłowski

5:50 to 6:30 p.m. A Farewell glass of wine offered by His Excellency Jan Store the Ambassador of Finland

The Conference was sponsored by:
The Ministry of Science and Higher Education, The Ministry of Foreign Affairs, The Representation of the European Commision in Poland, The Embassy of Finland in Poland, Wyższa Szkoła Biznesu – National Louis University, SKANDIA ŻYCIE Towarzystwo Ubezpieczeniowe SA.

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Katarzyna Czapczyńska
Krzysztof Motyk
Iwona Pawlikowska
Anna Maria Torz
Agata Wydmańska

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ANTONI KUKLIŃSKI

THE WARSAW CONFERENCE —TOWARDS A NEW CREATIVE AND INNOVATIVE EUROPE

A contribution to the Pre-Conference Discussion

Thirteen Notes

(reflecting only the personal opinions of the author)

Note One
Towards a New Creative and Innovative Europe
The Warsaw Conference
December 1st–2nd 2006

The Polish Ministry of Foreign Affairs, The Ministry of Science and Higher Education, the Embassy of Finland and the WSB-NLU (Rector K. Pawłowski) are jointly organizing an International Conference in Warsaw on December 1st–2nd 2006: *"Towards a New Creative and Innovative Europe"*.

At this moment we envisage six panels of the Conference:

I. The three foundations of European creativity and innovativeness—knowledge, imagination and freedom
II. Creativity and innovation as a challenge for the European Union. The dilemma creativity versus perfection
III. Creativity and innovation as a challenge for the European corporation (enterprise)
IV. Creativity and innovation as a challenge for European regions and cities
V. Creativity and innovation as a challenge for the European University
VI. The European Creativity and Innovativeness as an answer to the global challenges of the XXI century

In the final Panel the proposal will be presented to design and implement a grand research project "Towards a New Creative and Innovative Europe".

We have the impression that the problematique of the Conference was chosen well both in intellectual and pragmatic dimension. The list of confirmed eminent participants is growing very

quickly—this is a direct confirmation that the initiative to organize in Warsaw an International Conference—Towards Creative and Innovative Europe—is hitting a silent point of the Debate on the Future of Europe.

We are planning to use the precious time in October and November to stimulate the emergence of a pre-conference discourse in which the potential participants will express different, methodological, empirical and pragmatic observation and value judgements. In this way our face to face encounter in the first days of December will transform itself into a new advanced stage of our thinking on Creative and Innovative Europe. This note could be seen as the beginning of the pre-conference brainstorming discussion.

A) The intellectual climate of the conference

There are four elements of this climate which may be useful in our thinking about the conference:

1) The crisis of the European civilization and the vision of the New renaissance in Europe (Please see note two).
2) The controversy related to the concept of Creative Class—The controversy R. Florida[1] versus M. Nathan[2] should be seen as a very interesting input into the intellectual climate of the conference.
3) The innovation performance in Europe—We have a good starting point in the paper of P. Drewe[3] and in the document of the European Commission[4].
4) The Finnish Model—The experience of the Welfare State and the Information Society[5]. In this context the Swedish and Danish Models should also be mentioned[6].

* * *

Naturally this list is only an opening of the list of contributions which may be important for the intellectual climate of the conference.

B) Comments related to the intellectual construction of the six panels

I.

Creativity is an important feature of the individual human being in the integration of the dynamics of mind, dynamics of will and dynamics of emotional dedication. Innovation is a technological, economic and social process transforming the product of the human mind (creativity) into a material or immaterial product which is absorbed by a smaller or bigger segment of the global market. Following the paper of P. Drewe we should recognize the importance of social and institutional innovations.

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[1] Compare: R. Florida, The rise of creative class, NY, Basic Books 2003
R. Florida, I. Tinagli, Europe in the creative age, Carnegie Mellon Software Industrial center, 2004.

[2] M. Nathan, The wrong stuff, creative class theory, diversity and city performance, Centre for Cities, Discussion paper, p. 1, September 2005.

[3] P. Drewe, Innovation—More then just a sound bite? Paper available upon request from the Author and from A. Kukliński.

[4] European Innovation Score Board 2005.

[5] M. Castells, P. Himanen, The information society and the welfare state. The Finnish Model, Oxford University Press 2002.

[6] Compare also: Special Report: The Swedish Model. Denmark labour market—Flexicutity. A model that works, The Economist, September 9^{th} 2006.

The soil and climate for creativity and innovativeness is supplied by knowledge, imagination and freedom. So to my mind the first panel should develop the conceptual map of the conference. There are five nodal points of this map:

— creativity
— innovativeness
— knowledge
— imagination
— freedom

The interaction of these five nodal points can be envisaged in the input—output notation:

Inputs	Outputs				
	Creativity	Innovativeness	Knowledge	Imagination	Freedom
Creativity	X				
Innovativeness		X			
Knowledge			X		
Imagination				X	
Freedom					X

II.

Let me present a few subjective and critical observations:

1) in the present shape the European Union and European Commission cannot be seen as the institutional foundations of the European renaissance (see note Two)
2) the present shape of the Union and Commission will not disarm the spectre of the European Titanic of the XXI century
3) the present shape of the Union and Commission is not recognizing that the promotion of creativity and innovativeness is the most important mission of the Union. All other competences, programmes and activities should be subordinated to this grand mission

* * *

Naturally these observations and value judgements are only personal opinions presented for critical evaluation.

III.

I hope that the conference will have the opportunity to discuss the presentations related to the experiences of grand creative and innovative European corporations.

IV.

In the construction of creative and innovative Europe the role of regions and cities is maybe the decisive driving force. We have however to see that the demographic tragedy of Europe of the XXI century will lead a new type of European Regions and cities—The dying regions, cities and localities.

V.

The European Academic Community[7] should perform a Promethean role in the development of creative and innovative Europe.

VI.

The transformation of the global scene of the XXI century may push Europe into the status of a new global periphery located between dynamic megaspaces of America and Asia. Creativity and innovativeness are the most effective answers of Europe in the framework of global challenges of the XXI century. This is the European "To be or not to be".

* * *

The Thirteen Notes are sent to 40 confirmed or potential participants of the Warsaw Conference. We would be most grateful if you could confirm your participation in the Conference if this participation was not confirmed to the present day.

We would be also very grateful for the title of your panel contribution sent before the 1st of October 2006. We expect to receive before the 20th of October 2006 the full text of the contribution as a short paper of about 5 pages. The contributions will be published in the Pre-conference and post-conference volumes even in the case if it would be impossible for you to participate in the Conference. This pressing timing will make possible to:

1) outline the final programme of the conference in the beginning of October,
2) to print in November the pre-conference volume which will be available at the opening of the conference. The full post-conference volume including the extended versions of the panel contributions will be published in the first months of 2007 in the Reupus Series.

* * *

Naturally this note is just a set of materials designed as an input into the pre-conference discussion. The note is representing only my subjective individual observations and value judgements.

* * *

Let me express our advanced warm words of gratitude for your admirable cooperation in the preparation and implementation of the Warsaw Conference and the European Research Programme in the near future.

Warszawa—Nowy Sącz
September 20th 2006.

[7] Comapre: W. Krull, A Fresh start of European science, A. Kukliński, B. Skuza (eds) Europe in the perspective of global change, Warsaw 2003.

Note Two
The crisis of the European civilization and the vision of the New Renaissance in Europe

I. The historical perspective

The splendid book of N. Davies[8] is the first comprehensive reflection on European history. Comprehensive in three dimensions:

— *primo*—in the substantive dimension analyzing the historical processes as holistic phenomenon of an integrated approach to the political, economic, social, military and cultural dimensions of human experiences,
— *secundo*—in the methodological dimensions—using not only the conventional sources of the knowledge of history but also the achievement emerging in the *opera omnia* created by literature, music, painting and architecture,
— *tertio*—in the geographical dimension covering the whole territory of Europe from Atlantic to the Urals.

The introduction and the three last chapters of the book are a sui generis opening of the discussion related to the crisis of the European civilization:

— Chapter X—Dynamo 1815–1914
— Chapter XI—Tenebrae 1914–1945
— Chapter XII—Divisa and Indivisa 1945—1991

This spirit of comprehensive substance, methodology and geography should be absorbed by the New Futurology proposed in REUPUS Volume Four. In this Note we would like to use also the inspiration generated by REUPUS Volume One[9] and by REUPUS Volume Two[10].

In this context I would like to concentrate a particular attention on three papers presented in Volume Two[11] and two papers presented in Volume One[12].

II. The crisis of the European civilization

There are different approaches in the discussion related to the very deep crisis of the European civilization emerging in the first decade of the XXI century. In this context we would like to concentrate attention on three most pronounced features of the crisis:

1) the lost capacity of innovation
2) the lost will to life
3) the lost will to power

1) the lost capacity of innovation

The lost capacity is well outlined by R. Galar[13]:

> *"The main competitive asset of Europe used to be freedom, not perfection. At present perfection receives more and more attention, while freedom is being pushed to the preserves of procedural democracy and unconventional lifestyles. The progressing degradation of the once paramount innovative prominence of Europe*

[8] N. Davies, Europe—A History, Oxford University Press, 1996.
[9] Europe—the global challenges, Nowy Sącz 2005.
[10] Europe—the strategic choices, Nowy Sącz 2005.
[11] The papers of H. Delanhge, U. Muldur, R. Galar and J.M. Rousseau.
[12] The paper of M. György and A. Kukliński (p.13).
[13] R. Galar, Volume Two, p. 43.

might be a direct consequence of this shift. Perfection is tempting as it allows to squeeze most from the existing opportunities. Freedom is necessary as to explore opportunities not yet identified, what is the essence of adaptation. It is needed to open the doors into the world of trial and error, spontaneity and soft selection, where subsequent waves of priorities and high-techs emerge rather than are decreed. The specific predicament of the present European might be that its S&T sector and economy are both: not free enough to compete with the US in opening new innovative horizons, and not perfect enough to compete with the East Asian cultures in exploitation of new technologies."

2) the lost will to life is well grasped by M. György[14]:

"To balance the dramatic decrease in the number of children European countries must turn to external labour forces, which at the same time deepen the internal cultural differences. Maintaining economic growth, providing the expected standard of goods and services, ensuring welfare services at a relatively high level—still considered low by many people—are possible only by involving external labour force. This will have two types of consequences which will generate complex social effects. On the one hand, the labour force—due to the scope of a relatively free movement—shall migrate from the less developed regions to the more developed ones. It will increase—or at least maintain—the regional differences, differences which in turn will bring about actions directed alleviating them. On the other hand, the settlement of labour from other regions shall become a necessity—it will cease to be an option that one evaluates in terms of its benefits and drawbacks. The choice will only be whether the labour force (and population) is 'exported' from (1) quickly industrialized Asian countries with huge populations—which follow a life-programme very similar to the Protestant ethics, but also face similar population problems in the medium-term, or (2) African or Near-Eastern countries where the mentality fundamentally differs from the Protestant life-programme, and which struggle with severe problems of a demographic boom. In the latter case, however, the cultural assimilation problem the host societies face will increase manifold."

3) the lost will to power is a reflection emerging from the pages of the contribution of R. Cooper[15].

Let us present two quotations of this author:

"Nietzsche is arguing that justice originates not in the desire of the weak for protection, but in the tragic experience of the strong. The same argument could be applied to peaceful, postmodern systems of international relations. Whatever the truth of Nietzsche's insight into the origins of justice, it is certain that the trauma of the twentieth century lies behind what might be described, in Nietzschean terms, as the loss of Europe's will to power."

"The logic of European integration is that Europe should, sooner or later, develop common foreign policy and a common security policy and, probably,

[14] M. György, Volume One

[15] R. Cooper, The Breaking of Nations Order and Chaos in the Twenty First Century, Atlantic Month Press, No. 4, 2003, p. 164–165, 171–172.

a common defense. But the world does not proceed by logic. It proceeds by political choice. None of this will happen unless Europe's leaders want it and choose to make it happen. President George W. Bush has directly explained why we should want it. Speaking to the American Enterprise Institute in February 2003, he said: 'We meet here during a crucial period in the history ... of the civilized world. Part of that history was written by others. The rest will be written by us.' If we want that 'us' to include Europe, we shall need more influence with the United States. And that means we shall need more power, both military power and multilateral legitimacy."

III. The vision of a New Renaissance in Europe

The next decades of the XXI century will answer the fundamental question if Europe will be able to transform the present crisis of the European Civilization into a New renaissance of Europe. This is the European "to be or not to be". The negative answer will transform Europe into the global Titanic of the XXI century. The dilemma—New European renaissance versus the Global Titanic is a great intellectual and pragmatic challenge for the New Futurology.

This vision of a New renaissance in Europe has an especially dramatic dimension—*hinc et nunc*—in the historical time of a deep long term structural crisis of the European Union and of Europe *in toto*.

Warsaw—Nowy Sącz
September 20th 2006

Note Three
Towards a New Creative and Innovative Europe
A Preliminary Outline of an European Research Programme as a follow up the Warsaw Conference

I.

I would like to analyze three challenges which are involved in the processes which lead to the design of a research programme in the field of social sciences:

The challenge of intuition and imagination
The challenge of intellectual capacity
The challenge of implementation

The challenge of intuition and imagination

In the design of a research programme an important role is performed by the artistic spirit of intuition and imagination. Without this spirit we will not be able to dismantle three barriers which are blocking the way leading to an really innovative research programme:

1) the barrier of conventional wisdom
2) the barrier of political correctness
3) the barrier of intellectual self-satisfaction

The challenge of intellectual capacity

Intellectual capacity is the key factor in the design of a research programme. The main test of this capacity is the ability to formulate the proper questions.

In this context it is advisable to quote the following observation of Gunnar Myrdal[16]:

> *"'Theory' in this context means nothing more than a logically correlated system of questions addressed to the material. It is in the nature of this conception of theory—which will be further developed in the Prologue—that the author of a theory should not fear, but expect as a perfectly normal consequence of fresh research, that further insights into various components of the complex of social interrelationships about which he has tried to inform himself will invalidate his theory, perhaps in fundamental respects."*

In order to formulate the proper system of questions we need three elements:

1) "the material"—in other words—the diagnostic knowledge
2) a theoretical framework illuminating the selective process leading towards the proper questions
3) the willingness to reformulate the theory following the results of empirical analysis

I would like to suggest to apply this test of imagination and intellectual capacity—to the system of questions emerging from the rich content of the Warsaw Conference.

In this framework we can also formulate a broader methodological question—how to grasp the interaction on the axis theoretical reflection versus empirical analysis[17].

The challenge of the will of implementation

There is no sense to design research programmes without the real prospect and explicit will of implementation. I am convinced that the broad field of questions created by the Warsaw Conference will promote an intellectual and pragmatic climate leading to feasibility studies—opening the way to a set of research programmes designed and implemented by an innovative consortium of outstanding European and American academic institutions.

I am convinced that the proposed research programme—"Towards a New Creative and Innovative Europe" will transform itself into a modest but important element of the European academic and political landscape.

II. The deficit of visionary thinking in Europe

It is very interesting to note that the beginning of the III Millennium is dominated in Europe by different phenomena which can be described as an intellectual and political paralysis. The prevailing populistic mode and the absence of charismatic leaders in the major of European countries is creating a climate of deep deficit of innovative visionary thinking related to the dramatic future of Europe of the XXI century. We hope that the Warsaw Conference and the Post Conference European research Programme will be seen as a very modest but still somehow significant contribution to create new elements in the structure of our thinking on the Future of Europe.

Verba volant, scripta manent, exempla trahunt. The *verba* of the Conference, the scripta of the Pre and Post-Conference volumes and the exempla of the European research Programme should jointly create a valid contribution related to our thinking on the Future of Europe.

[16] G. Myrdal, Asian Drama. An Inquiry into the Poverty of Nations, Vol I, Penguin Books, Middlesex, England, 1968, p XII.

[17] Compare: A. Kukliński, The development of social sciences—The experiences of the XX century—The prospect of the XXI century (in:) A. Kukliński, W. Orłowski (eds) The knowledge based economy. The global challenges, KBN, Warsaw, 2000.

III. The main methodological assumptions of the Programme

The integration of the diagnostic and prospective analysis is seen as the main methodological assumption of the programme.

The futurological reflection must be very deeply embedded in an honest, courageous, and imaginative diagnostic analysis and evaluation of the status quo. The conventional wisdom and political correctness should not disarm our diagnostic knowledge and abilities in the analysis and evaluation of the present situation and the historical experiences. The false and dishonest diagnosis is leading to a false futurological reflection. In an honest, courageous, and imaginative diagnosis we will find the triple seeds for the future:

1) the seeds of success
2) the seeds of survival
3) the seeds of catastrophe

The analysis of the triple seeds of the Future is a very important task of the proposed programme. In the structure of the futurological analysis we must try to answer two fundamental questions:

— *primo*—how to expect the expected
— *secundo*—how to expect the unexpected

Primo—the demographic tragedy of Europe is a perfect example of an expected catastrophe. The clear trends of demographic change were visible during the last two decades. The late wake up call was acknowledged just now when we observe a demographic turning point in Europe. The first decade of the XXI century is creating a situation when for the first time in our historical experience the size of the older generation in Europe is bigger then the size of young generation.

Another example of an expected turning point is the lost leading position of Europe in the field of Nobel Prizes. During the whole XX century Europe got more Nobel Prizes that the USA. In the beginning of the XXI century the first place is firmly taken by USA (K. Pawłowski).

In the corridors of Brussels establishment you can hear some sounds of very mild wake up calls in this field. We see that the art to expect the expected is deeply neglected in Europe. The art how to expect the unexpected is still much more difficult. It is really difficult to answer questions which are outside the scope of our present knowledge and even imagination. We can however prepare in Europe our minds and abilities to absorb and adapt to totally unexpected situations. This is the great problem of evolutionaly elasticity of European governance, European economy and society and European science and culture (compare R. Galar).

IV. The structure of the programme

The structure of the Programme will emerge as the result of the brainstorming discussion generated by the Warsaw Conference and by the Pre and Post-Conference volumes.

To start the discussion let me propose the following thematic structure:

1) The crisis of the European civilization and the vision of the New renaissance in Europe.
2) The transdisciplinary framework and the conceptual map of the programme
3) Creativity and innovativeness as a challenge for the European Union
4) Creativity and innovativeness as a challenges for the European corporation and enterprise
5) Creativity and innovativeness as a challenge for European regions and cities
6) Creativity and innovativeness as a challenge for the European research and education communities
7) The European creativity and innovativeness as an answer to the global challenges of the XXI century

8) The New Futurology as an instrument of new visionary approaches in our thinking on the Future of Europe
9) Conclusion and pragmatic proposals for the European Debate

V. The crisis of the European civilization and the vision of a new renasissance in Europe (see Note Two)

The diagnosis of the deep structural crisis of the European civilization at the beginning of the third millennium is an valid starting point of the proposed programme. In this diagnosis of this crisis we should analyze the triple seeds for the future:

1) the seeds of success
2) the seeds of survival
3) the seeds of catastrophe

The problem can be formulated in a much more dramatic terminology—The catastrophe versus renaissance of Europe. This can be seen as a verdict of history (M. György) or as a strategic choice (A. Kukliński).

VI. The transdisciplinary framework and the conceptual map of the Programme

The programme must be very deeply embedded in a comprehensive structure of transdisciplinary theoretical, methodological and pragmatic reflection. We have to design a valid structure of this type. In this structure we will outline the comprehensive map of the programme constructed around five nodal points of this map:

— creativity
— innovativeness
— knowledge
— imagination
— freedom (see Note One)

VII. Creativity and innovativeness as a challenge for the European Union

There is a metaphor of the difference in the study of the individual tree and the study of the organism of the forest *in toto*. Our scope of attention is incorporating the study of the forest of the European Union *in toto*. We have to answer the fundamental question, if the totality of the activities of the European Union is promoting the development of the creative and innovative European society, economy, governance, education, science and culture.

VIII. Creativity and innovativeness as a challenge for European corporation and enterprise

Our programme should have a strong empirical dimension. This dimension will be supplied by a set of 50 monographic empirical studies analyzing the experience of selected European corporations and enterprises.

IX. Creativity as a challenge for European Regions and cities

Regions and cities are an stimulating framework of creativity and innovativeness for the integration of knowledge, imagination and freedom. The European regional scene will be deeply

dramatic generating the differences not only among strong and weak regions but among the surviving and dying regions.

In this dramatic framework we should design and implement 50 monographic empirical studies analyzing the experiences of 50 creative and innovative regions in Europe.

X. Creativity and innovativeness as a challenge for the European research and education communities

European research and education communities share a special responsibility for the promotion of the promethean spirit of creativity and innovation in Europe. This is a problem for general historical prospective reflection and also of 50 monographic studies analyzing the experiences and prospects of selected creative and innovative institutions in the field of research and education.

XI. Creativity and innovativeness as an answer to the global challenges of the XXI century (see Note One)

The European "to be or not to be" is to change creativity and innovation into a powerful instrument of survival and success on the global scene. The programme should try to outline and analize this promising but very difficult trajectory.

XII. The new futurology as an instrument of new visionary approaches in our thinking about the future of Europe

The new creative and innovative Europe is the source of a strong demand for a new instrument of new thinking. The proposed programme should try to outline the vision and content of this new futurology. The contributions of L. Emmerij and R. Galar are to my mind an important step in this direction.

XIII. Conclusions and pragmatic proposals for the European Union and for the improved performance of the Grand Debate on the future of Europe.

Conclusion of Note Three—"Towards a New Creative and Innovative Europe".

This preliminary outline of an European Research Programme as a follow up of the Warsaw Conference is—I hope—only a brainstorming discussion leading to the successful design and implementation of the Proposed Programme.

Warsaw—Nowy Sącz
September 20th 2006

Note Four
Towards a conceptual map of the Warsaw Conference

It is extremely difficult to outline ex ante a conceptual map of a conference especially a pluralistic and transdisciplinary one like the Warsaw Conference. I think however that some proposals and suggestions which try to open the space of the conceptual map my be useful, just as a very preliminary input into the discussion of the Warsaw Conference.

In this note I would like to present some observations and comments related to five fundamental concepts which form an intellectual backbone of the conference and especially the First Panel.

I. Creativity

This is a comprehensive multidimensional problem—philosophical, social, economic, scientific and cultural. It is also a transdisciplinary problem having both cognitive and pragmatic dimension.

There is a multitude of definitions of creativity. I think however that the classical Latin definition is the best one—

"Creare est facere aliquid ex nihilo"
"To create is to make something out of nothing"

Creativity is the quality of the mind and will of the human personality. We can accept a democratic definition of creativity as a quality broadly disseminated in any society. We can consider also a point of view that the real cases of creativity are restricted to charismatic personalities which deserved to be called "a genius". Naturally in the XXI century we are rather inclined to accept the democratic definition but it would be wrong to accept the point of view that just everybody is a creative personality. As first quantative approximation we can recognize the Euro—Creative class index presented on page 14 of the study of R. Florida and I. Tinagli—*"Europe in the creative age"*, February 2004.

The Euro—Creative Class Index is defined as creative occupations the percent of total employment.

Let me quote the results:
US—30,08%
Belgium—29,97%
Netherlands—29,54%
Finland—28,61%
UK—26,73%
Ireland—26,01%
Greece—22,08%
Sweden—21,18%
Denmark—21,05%
Spain—19,48%
Germany—18,17%
Austria—16,92%
Italy—13,19%
Portugal—13,14%

It is very difficult to accept the cognitive and pragmatic validity of this classification. For comparative judgments let me quote from the European Innovation Score Board 2005, the following classification related to the Summary Innovation Index (SII).

"Based on their SII score and the growth rate of the SII, the European countries can be divided in four groups:

- *— Switzerland, Finland, Sweden, Denmark and Germany make up the group of "Leading countries".*
- *— France, Luxembourg, Ireland, United Kingdom, Netherlands, Belgium, Austria, Norway, Italy and Iceland all belong to the group of countries showing "Average performance".*
- *— Countries "Catching up" are Slovenia, Hungary, Portugal, Czech Republic, Lithuania, Latvia, Greece, Cyprus and Malta.*
- *— Countries "Losing ground" are Estonia, Spain, Bulgaria, Poland, Slovakia, Romania and Turkey."*

The judgment that Poland is "losing ground" in the field of innovation performance should be taken very seriously by the Polish Government, the Polish Political Elites and by the Polish Society *in toto*.

* * *

For the discussions related to the Creativity of Europe I would like to suggest to consider *inter alia* the contributions of 3 Authors:

Primo—the contribution of R. Galar "Towards creative Europe—the conceptual barriers". This contribution is printed in this volume.

Secundo—the contribution of A. Wierzbicki and Y. Nakamori introducing the concept of Creative Space[18].

Tertio—the already quoted contribution of R. Florida and I. Tinagli "Europe in the creative age"[19].

We should express a deep interest in the proper definition of "Great Europe".

II. Innovativeness and innovation

Innovativeness and innovation are maybe the most important "products" of creativity. This is not only a scientific, social or economic problem. It is also a problem of good and evil. "Creativity and innovativeness" is not only a blessing of God but in some cases it is an instrument of terrible evil forces.

In the Pre-conference volume we have a synthetic paper of P. Drewe[20] trying to answer the following questions:

1) How to define innovation?
2) How to measure innovation?
3) How to explain innovation?
4) How to promote innovation?
5) Do cities matter?
6) What role of the University?
7) Where do we go from here?

I consider the paper of P. Drewe as important for the intellectual construction of the Conference.

[18] A. Wierzbicki, Y. Nakamori, Creative Space: A method of integration of recent knowledge creation theories (in:) A. Kukliński, B. Skuza (eds) Turning points in the transformation of the global scene, Warsaw 2006.

[19] R. Florida, I. Tinagli, Europe in the creative age, February 2004.

[20] P. Drewe, Innovation—More than just a Sound Bite? To be published in the Warsaw Pre-Conference Volume, November 2006—see also the contribution of W. Świtalski in this volume

III. Knowledge

The concept of knowledge in the context of this note should be interpreted *sensu largo* as knowledge based economy and knowledge based society. The integrated structures of knowledge based economy and knowledge based society are *conditio sine qua non* for the development of creative and innovative Europe.

This thesis is supported by four important contributions:

— primo—the contribution of H. Delanghe and U. Muldur[21]
— secundo—the contribution of J. Rousseau[22]
— tertio—the contribution of A. David and D. Foray[23]

The most comprehensive analysis of this topic is included in the Third European Report[24].

IV. Imagination

A. Wierzbicki and Y. Nakamori outlining recent knowledge creation theories[25] are finding a prominent function for intuition and imagination in the development of knowledge. The broadly quoted observation of Albert Einstein that "Imagination is more important than knowledge" should be taken cum grano salis. De facto both knowledge and imagination are very important foundations of creativity and innovativeness.

V. Freedom

There are many definitions of freedom. In the context of this paper the best definition is the following[26]: "the quality or state of not being coerced or constrained by fate, necessity or circumstances in one's choices or actions".

Creativity, innovativeness, knowledge and imagination can flourish only in the climate of freedom, especially in long term processes. In short term as the example of China is demonstrating innovativeness and knowledge can be developed in a climate where the freedom of choice and action is firmly restricted.

Conclusion

In Note One I have presented a matrix of the five concepts using the input—output notation. This matrix is an inducement to analyze the interaction and interdependence linking the five concepts.

Warszawa—Nowy Sącz
September 25th 2006.

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[21] H. Delanghe, U. Muldur, From vicious to a virtuos cycle—Europe, growth and knowledge based economy (in:) A. Kukliński, K. Pawłowski (eds) Europe—the strategic choices, Nowy Sącz 2005.

[22] J.M. Rousseau, Building critical advantage around strategic nooks and crannies of Europe (in:) A. Kukliński, B. Skuza (eds) op.cit.

[23] A. David, D. Foray, An introduction to the economy of the knowledge society in International Social Science Journal, March 2002, 171.

[24] European Commission, Third European Report on Science and Technology Indicator, Towards a Knowledge Based Economy, Brussels, 2003.

[25] A. Wierzbicki, Y. Nakamori, op.cit.

[26] Webster's Third New International Dictionary, Volume 1, Chicago 1986, p.906.

Note Five
The interpretation of the title of the Warsaw Conference

The Warsaw Conference should be designed as an integrated cognitive and pragmatic structure. We should try not only to design the individual panels but we should try also to build intellectual bridges linking the panels in a system. Naturally the most important integrating metaphor is the title of the conference: *"Towards a New Creative and Innovative Europe"*.

Let us try to present a few comments related to the title of the Warsaw Conference. The formulation "towards" means that we do not pretend that we have already a comprehensive model of creative and innovative Europe. This model will be outlined in the proposed European Research Programme. The Warsaw Conference might be a first step leading along this trajectory.

The formulation "new" means that the present structural crisis of Europe is a crisis of Old Europe. The old Europe left in the present shape is a global Titanic which is not able to survive the global challenges of the XXI century.

The deeply transformed global scene of the XXI century[27] is creating a mega historical demand for the emergence of a New Europe—*"Creative and Innovative Europe—a first class actor of the global scene"*.

These are four foundations of New Europe (see Note Two):

1) the creative capacity
2) the innovative capacity
3) the will to life
4) the will to power

In the Warsaw Conference we will concentrate our attention on the creative and innovative capacity of New Europe.

How to develop those two crucial capacities. The case of innovative capacity is prima facie relatively easy (see the paper of P. Drewe). The case of the creative capacity is more complicated and difficult. This capacity is a great challenge for the system of European education. The first leading mission of this system is to develop the creative capacity as a quality of the individual personality and as a quality of the society in toto. The creative capacity is the ability of permanent self programming in the changing global environment.

The development of the creative capacity is possible only in open minded societies which are able to have a changing vision of the future as the crucial instrument in the evaluation of the present strategic choices[28].

* * *

It is an open question if the European Union can be transformed into a very powerful institution promoting in Europe an intellectual and pragmatic climate permanently stimulating the development of creative and innovative capacities in all domains of the human activities.

* * *

This interpretation of the title of the Warsaw Conference is a very modest contribution in the Pre-Conference discussion. Naturally the bold assumptions of the Warsaw Conference are open to very critical evaluations and judgments. I hope however that the Conference and Pre and Post—Conference Volumes will be an example of interesting intellectual and pragmatic experiences reaching beyond the limits of conventional wisdom and political correctness.

Audaces fortuna iuvat.

Warszawa—Nowy Sącz
September 25th 2000

[27] A. Kukliński, B. Skuza (eds) Turning points in the transformation of the global scene, Warsaw 2006.
[28] A. Kukliński, K. Pawłowski (eds) Europe—The strategic choices, Nowy Sącz 2005.

Note Six
The creative and innovative corporation versus creative and innovative region

Let us present a few reflections linking the content of Panel Three and Four. Panel Three will be an inquiry into the nature of the creative and innovative corporation. Panel Four an inquiry into the nature of the creative and innovative region. Each of the two Panels will have an individual, theoretical, empirical and pragmatic shape. There are important differences related to the deep roots of the nature and modus operandi of the corporation and the nature and modus operandi of the region. There are however important fields of encounter and cooperation linking the performance of corporation and regions.

Maybe the most important link can be seen in the domain of creativity and innovativeness. In this context we can see the common features in the content of Panel Three and Four. Let me suggest three contributions which may be relevant in this framework:

Primo—The Strategic Partnership of Corporations and Regions[29],
Secundo—Regions, Globalization and the Knowledge Based Economy[30],
Tertio—Regional Competitiveness[31].

A broad interpretations of the vision of Panel Three and Four is an instrument to incorporate these Panels into the grand pattern of the Warsaw Conference (see Note Five).

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Note Seven
The Corpo regio Programme (CRP)

The Warsaw Conference should be seen as an inducement to confirm the validity of the proposal to design and implement the Corpo Regio Programme analyzing the Strategic Partnership[32] of Corporations and regions.

Let me mention only the leading ideas of the proposed Programme[33]:

1) TNC as an inspiration for Regions
2) The region as an inspiration for TNC
3) CRP as an inspiration for the metadisciplinary approaches in managerial and regional sciences

The tentative proposals concerning CRP were firmly and critically supported by comprehensive comments of four authors: S. Boisier, R. Galar, A. Gąsior-Niemiec and D. Konstadakopulos[34].

[29] A. Kukliński, Management of the Future, The Strategic Partnership of Corporations and Regions (in:) A. Kukliński, K. Pawłowski (eds) Europe—The Strategic Choices, Nowy Sącz 2005.

[30] J.H. Dunning (ed.) Regions, globalization and the knowledge—based economy, Oxford University Press 2000.

[31] Regional Studies—Volume 38, December 2004, Special Issue, Regional Competitiveness
compare especially the papers of Ron Boschma, Competitiveness of regions in an evolutionary perspective and the paper of K.R. Polenske, Competition, collaboration and cooperation. An uneasy Triangle in Networks of Firms and Regions.

[32] The Corpo Regio Programme (in:) A. Kukliński, K. Pawłowski (eds) Europa—the strategic choices, Nowy Sącz 2005.

[33] A. Kukliński, The Management of the future—The strategic partnership of corporations and regions (in:) Europe, op.cit.

[34] Europe, op.cit.

Jointly we have a brainstorming starting point for the discussions related to the design and implementation of CRP[35].

In the context of the Warsaw Conference we can formulate a question to what extent the strategic Partnership of Corporation and Regions could be recognized as an important trajectory leading towards creative and innovative Europe of the XXI century. This is a very difficult question in the context of a challenging opinion—that there is only one scene for the Strategic Partnership of Corporations and Regions. This unique scene is the global scene. We can however represent the opinion that creative and innovative institutional machinery of the European Union is able to promote the emergence of special conditions and opportunities for the development of the Strategic Partnership of Corporation and Regions in Europe.

I understand very well that the "Promotion" of this type is generating a set of economic, political and ideological problems. However this potential controversy is not eliminating the validity of the value judgment that the Strategic partnership of Corporation and regions could be seen as an important and effective instrument used in the development of creative and innovative Europe of the XXI century.

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September 25th 2006

Note Eight
The European System of Creative Education[36]

The European Union has rather weak competences in the field of Education. European Education is not a system, it is rather an aggregation of the national systems of education. These national systems are a product of history and especially the experiences of the national state of the XIX century and the welfare state of the XX century.

In the majority of European countries the national systems of education are more a reflection of the past experiences than an anticipation of the challenges and strategic choices of the Future. The XXI century has to create a new stage in the political, social, economic and cultural integration inside the European Union. This integration cannot be designed and implemented without the internalization of European identity in the individual perception of the vast majority of societies and communities of all countries which are members of the European Union. This European identity can be developed only by an integrated system of European education which in longer perspective will promote the processes of the creation of the European Society and European identity being at least equally strong as the national identity.

The European system of education will be oriented towards the Future of the European Union *in toto* and not to the dominance of the historical experiences of the individual nations. I understand very well that this point of view can be recognized as wrong and highly controversial. I am outlining this point of view for very critical evaluation by personalities who represent an opinion that the national systems of education should remain forever as a domain of the national state exposed only to a very limited and de facto marginal intervention of the European Union.

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[35] As a comprehensive background for the substance and methodology of CRp. Please compare the contributions published in the following volumes: J.H. Dunning, regions, Globalization and the Knowledge—Base Economy, Oxford University Press, Oxford 2000. Special Issue—Regional Competitiveness, Regional Studies No. 9, December 2004.

[36] Compare Part Two in the Volume: Europe—the strategic choices, op.cit.

In any conditions and approaches we should try to develop a creative education in Europe. I would like to propose to organize a Grand Conference—*Creative education in Europe*. This Conference could be sponsored jointly by the European Union and OECD as two institutions which have the best expertise related to Creative Education in Europe.

Let me say once more that my point of view is only a suggestion how to start a brainstorming discussion related to the Future of Education in Europe.

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Note Nine
The European System of Creative Research

The achievements of the European Union in the promotion of some elements of the European System of Research are very impressive[37]. But we have a very long way to go, to declare that we have a European System of Research competitive in relation to USA and in the near future to China.

The European System is still relatively weak, in comparison with the national systems and the systems of research promoted by the grand transnational corporations. I share the doubts of R. Galar[38] if the present European system is really promoting creative research in Europe. The present system established by the European Commission is more dedicated to the promotion of perfection than the promotion of real creativity. I wonder if Leonardo da Vinci would get a grant from the European Commission? So I would like to present the following theses for discussion:

1) the European system must be much stronger in terms of substantial and financial power,
2) the European system must be much more elastic and open minded to stimulate the emergence of a grand Leonardo da Vinci Team in Europe,
3) in this system a special attention must be given to the promotion of creative, research taking into account that in this field we must be prepared to accept not only the successes but also the failures. In other words creative research is a very risky venture. We can say that without risk there is no creation.

This Note is not trying to underestimate the results of the activities of the European Commission in the field of European research Systems. But the achievement of the European Commission in the framework of the present paradigm are not strong enough to be a decisive driving force leading towards the creative and Innovative Europe of the XXI century.

[37] Compare Part One in the Volume—Europe—the Strategic Choices, op.cit.
[38] R. Galar—in this Volume, op. cit.

Note Ten
The Demography of Europe
The dramatic turning point of the XXI century

The first decade of the XXI century is creating a situation when for the first time in our historical experiences in Europe the size of the older generation will be bigger than the size of the younger generation[39].

The dramatic dimension of this turning point is well presented in the papers of M. György[40] and A. Gąsior—Niemiec[41]. This turning point will generate direct and indirect consequences for all fields of life in Europe and for the role of Europe as an actor of the global scene. A child as a vanishing element of the European landscape is a tragic metaphor of this turning point. It is really so that the tipping point in this domain is already an irreversible historical fact[42]. In this scenario the chances to promote successful pronatalistic policies in Europe are very close to zero. From the narrow economic point of view some solutions can be generated by well designed imigration policies. We have however to recognize the negative consequences of large scale immigration for the identity of Western civilization and European culture.

The analyzed turning point will create a conflict of interests and perception—demonstrating the diverging attitude of the older and the younger generation. It would be very dangerous for the Future of Europe if the inertia of the older generation will get the upper hand in relation to the dynamism of the younger generation.

Naturally we can have some doubts if a young person is always more dynamic than the old person. In fact we are observing in Europe a passive attitude of the younger generations which are not able:

1) to formulate a dynamic vision of the Future of Europe,
2) to find a political expressions for this vision in the shape of a new really European political party—the Party of Young Europe[43].

The present political elite in the majority of European countries and in the European Parliament is not able to formulate and implement a vision of a New Creative and Innovative Europe. This cumulative inertia and passivity of the older and young generation is one of the main features of the deep structural crisis of Europe in the beginning of the XXI century[44].

We have however contra spem sperare that a positive turning pint in the mentally of the older and young generation is not an utopian dream but a feasible reality. So we should not exclude an optimistic scenario for Europe[45] of the XXI century—a scenario including the development of a New Creative and Innovative Europe following the letter and spirit of the Warsaw Conference[46].

Warsaw—Nowy Sącz
September 25th 2006

[39] P. Caracostas, U. Muldur, Society—The endless frontier. A European vision of research and innovation policies for the XXI century, p. 90, Brussels 1997. This is still one of the best contributions of the European Commission.

[40] M. György, Futures of Europe (in:) A. Kukliński, K. Pawłowski, Global challenges, Nowy Sącz, 2005.

[41] A. Gąsior—Niemiec, Europa jako kontynent imigracyjny (w:) A. Kukliński. K. Pawłowski (red) Przyszłość Europy—Wyzwania globalne—Wybory strategiczne, Warszawa—Nowy Sącz 2006.

[42] M. György, op.cit.

[43] K. Włosowicz, Dylemat młodego pokolenia, czyli: zostac obserwatorem czy uczestnikiem życia politycznego? (w:) A. Kukliński, K. Pawłowski, op.cit, p. 244.

[44] A. Kukliński, The Future of Europe—Two Scenarios (in:) A. Kukliński, B. Skuza (eds) The Turning Points ..., Warsaw, 2006.

[45] Compare: L. Emmerij Has Europe a splendid Future behind it?—in this volume.

[46] Compare: Charlemagne, Migration ..., The Economist, September 19th 2006.

Note eleven
Europe facing the dilemma catastrophe versus Renaissance

The Warsaw Conference should see how dramatic is the present global and European situation. The dilemma—Catastrophe versus renaissance analyzed in Part Six and Seven of the Volume—Europe—the strategic choices—is a real dilemma[47]. I share the opinion of Z. Brzeziński[48]:

> *"We observe now a dangerous disintegration of the international system caused by the wrong policies of the Bush administration. When a few years ago I was warning what will be the consequences of such policies my judgment was recognized as biased and I was listened with greet skepticism especially in Poland. Now I have the impression that even in Poland the perception is emerging that we should expect the disintegration of the international system.*
>
> *After the end of cold war and the fall of the Soviet Union—the USA emerged as a power to lead the international system. But the US is not doing it—or is doing in a wrong way. In consequences we have a drifting global situation and emergence of new threats."*

Naturally I am not proposing to change the Warsaw Conference into a Forum to discuss the thesis of Z. Brzeziński. I think however that in the content of the Conference this thesis should be noticed and eventually recognized as a false thesis.

Note twelve
The transformation of the global scene
The crucial turning points

The panorama of the transformation of the global scene is the most general background of the Warsaw Conference. This background is well outlined in Part Six of the Volume—The Turning Points[49] and in the last brilliant Report of The Economist[50]. In this context I would like only to present the idea of the seven megaspaces of the XXI century. The mega spaces of USA, European Union, Japan, China, India, Russia and Brazil. The competition, cooperation, interaction and interdependence of these seven megaspaces will form the main driving forces of the transformation of the global scene of the XXI century.

Let me propose to see this interaction of the framework of an input–output matrix.

Naturally the global map of the XXI century is much more comprehensive and complicated than the vision of seven megaspaces. Nevertheless this vision is a very efficient framework for the analysis of the transformation of the global scene of the XXI century.

Maybe this vision could supply a grand topic for a challenging international conference organized by the EU jointly with OECD and the World Bank.

Warszawa—Nowy Sącz
September 25th 2006.

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[47] Europe— the strategic choices, op.cit.

[48] Z. Brzeziński, Raport—Cierpnie skóra, Polityka, August 19th 2006 (in Polish only).

[49] A. Kukliński, B. Skuza (eds) The Turning Points in the Transformation of the Global Scene, Warsaw 2006.

[50] Compare the special report: The new titans—A survey of world economy, The Economist, September 16th 2006. Compare also: S. Reed, P. Coy, Oil Outlook—How Low can it go? A drop of 13$ a barrel since early August is sweet music to the US economy. The question is how long OPEC will stand pat, Business Week, September 25th 2006.

Table 1

The Seven Megaspeces of the XXI century

Input	Outputs						
	USA	EU	Japan	China	India	Russia	Brazil
USA	X						
EU		X					
Japan			X				
China				X			
India					X		
Russia						X	
Brazil							X

Note thirteen
The Warsaw Conference
Some advanced Treppengedanken

Let me propose 3 questions:

1) Was the title of the Conference well chosen? Was the title answering the intellectual and pragmatic challenges of the European "to be or not to be" of the XXI century?
2) Was the performance of the Conference a really brainstorming event? To what extent the Conference was able to overcome the barriers of conventional wisdom of political correctness and intellectual self-satisfaction?
3) To what extent the Conference can be recognized as a source of 3 multiplier effects?
   Primo—the multiplier effect related to the content and modus operandi of the European Debate?
   Secundo—the multiplier effect of the design and implementation of a path breaking European research Programme—Towards a New Creative and Innovative Europe?
   Tertio—the multiplier effect of rapid publication of Polish and English Post Conference volumes as an valid input into the European Debate and in the proposed European Research Programme.

* * *

The proposal to formulate the advanced Treppengedanken already in the Pre-conference discussion is a challenge to the conventional wisdom related to the design and implementation of an International Conferences. This proposal is however well incorporated into the wisdom of the Latin rule *"Quidquid agis, prudenter agas et respice finem"*.

Warsaw—Nowy Sącz
September 25th 2006.

ANNA GĄSIOR-NIEMIEC

WARSAW CONFERENCE TOWARDS A NEW CREATIVE AND INNOVATIVE EUROPE (an overview)

Introduction

The multidisciplinary international conference "Towards a New and Creative Europe" took place on November 30 – December 2, 2006. The conference was co-organized by the Polish Ministry of Science and Higher Education, the Representation of the European Commission in Poland, the Polish Ministry of Foreign Affairs, Ministry of Culture and National Heritage and Wyższa Szkoła Biznesu-National Louis University in Nowy Sącz. The venue was held under the auspices of the Finnish EU Presidency and specially supported by the Embassy of Finland in Poland. The public attending the conference was granted an opportunity to hear speeches by top representatives of the organizing institutions and discuss papers and presentations delivered by international experts, eminent speakers and discussants coming from the fields of science, business and public policy.

The conference was dedicated to debating issues such as creativity and innovation as the main factors needed to drive the development of Europe; transdisciplinarity as the most promising approach to foster creativity and innovation; Finnish transformation in the second half of the XX century as a source of inspiration for creative and innovative Europe of the future. Specific problems, such as for instance the role of innovativeness in strategies of development pursued by European enterprises, regions and cities, the innovative potential of European universities and research institutes as well as current and future input of the institutions of the European Union in building global competitiveness of Europe, *inter alia*, by means of its research and development policy were put on the agenda, too. The conference was also expected to contribute to a discussion over a new methodological framework for the design of transdisciplinary research programmes in Europe. At the background of the mission there appeared an attempt to increase visibility of Poland as a valuable partner in the discussion concerned with the future of Europe.

The conception, mission and a general agenda for the Warsaw conference had been outlined in a series of publications co-authored, edited and circulated by Antoni Kukliński and Krzysztof Pawłowski during the years of 2004–1006 under a general heading of *Eurofutures* and *Biblioteka Wiedzy o Przyszłości Europy* series, both published by Wyższa Szkoła Biznesu-National Louis University. The publications were complemented by an on-going online intellectual exchange established by Antoni Kukliński and engaged in by a number of authors representing various countries and fields of expertise.[1] Background papers, draft presentations, comments and

[1] The original grand conception of the Conference was most fully presented by Antoni Kukliński in his "Thirteen Notes": The Warsaw Conference: *Towards a New Creative and Innovative Europe*, a contribution to the Pre-Conference

preliminary outlines of panel contributions to the Warsaw conference were in turn published in a pre-conference volume edited by Antoni Kukliński, Cezary Lusiński and Krzysztof Pawłowski under the title *Warsaw Conference. Towards a New Creative and Innovative Europe*.

Programme of the Conference

The conference lasted three days. It was opened by Krzysztof Pawłowski, Rector of Wyższa Szkoła Biznesu-National Louis University in Nowy Sącz, while welcome addresses were delivered by Jan Store, Ambassador of Finland in Poland, Róża Thun, head of the Representation of the European Commission in Poland, Olaf Gajl, Undersecretary of State at the Polish Ministry of Science and Higher Education, Monika Smoleń, a representative of the Polish Ministry of Culture and National Heritage. The proceedings of the conference were organized in two parts, consisting of a keynote address by Professor Jorma Routti and six consecutive panel presentations, held altogether in five sessions. The keynote address was to introduce the case of Finland as the, so far, most successful case of European transformation based on creativity and innovativeness. Taking the Finnish case as a background measuring stick, the six following panels were devoted, respectively, to 1) foundations of European creativity and innovativeness; 2) creativity and innovation as a challenge for the European corporation (enterprise); 3) creativity and innovation as a challenge for the European Union; 4) creativity and innovation as a challenge for European regions and cities; 5) creativity and innovation as a challenge for the European university and R&D community and 6) creative and innovative Europe of the XXI century towards an European research programme. The conference was concluded by Rector Krzysztof Pawłowski.

Keynote speech

The keynote speech by Professor **Jorma Routti**, Chairman of Creative Industries Management, former Chairman of the Finnish National R&D Fund and Director of the European Commission Research Directorate, was dedicated to presenting "Finland as a Knowledge Economy. Elements of Success and Lessons Learned". Putting the Finnish case against the global context, the speaker stressed the fact that in the circumstances of a radically changed paradigm of economic development, increasing competitiveness of rising global powers such as China and the general condition of increased uncertainty inscribed in current and future trends, the only strategy to deal with real and potential crises as well as to join the global competitiveness race is to invest in creativity and innovativeness.

Finland, facing a severe economic and financial crisis at the beginning of the 1990s, was able to overcome the crises exactly owing to the fact that its elites chose to invest in a visionary, long-term programme of a radical and holistic transformation oriented towards knowledge underpinned by enhanced creativity and innovativeness. The strategy succeeded not the least because it relied upon a consensual and systemic approach to institutional *and* social change aimed ultimately at creating *a creative society*. Involving both public and private actors as well as encouraging private capital to form durable linkages with knowledge-producing actors such as universities and research institutes, orienting the latter more towards the market logic as well as launching a large

Discussion, Warszawa (2006). The actual Conference partly implemented the ambitious agenda set out in the Thirteen Notes program.

scale programme of upgraded education accessible to all Finns constituted the basic elements of the implementation of the strategy.

As a result, in terms of industrial, economic and social development, Finland transformed from a stage of resource-driven economy (dominated by forest industry) through a stage of investment-driven economy to the stage of knowledge-driven economy&society (dominated by Nokia). Managing to build and constantly enhance its economic competitiveness, the country has also invested significantly in maintaining and enhancing its internal cohesion and sustaining a strong national identity coupled with national pride. Finland has achieved a healthy balance between being open and remaining bounded. In this respect, as Professor Routti concluded, one of the golden maxims proved to be the following: "inside the country we have to have safety networks to help out our losers but outside the country we have to be committed to stay on the side of winners". Another golden rule for Finns proved to be to stay open to learn and accept external knowledge while ready to share internal insights without being imperialistic about them.

Panel Presentations

Panel One: The Foundations of European Creativity and Innovativeness.

The panel was chaired by Professor **Louis Emerij**, Co-Director of United Nations Intellectual History Project, former President of OECD Development Centre. Five panelists Mikel Landabaso (European Commission, Directorate General for Regional Policy), Paul Drewe (Delft University, the Netherlands), Karel Müller (Charles University, the Czech Republic), Ron Boschma (Utrecht University, the Netherlands) and Bohdan Jung (Warsaw School of Economics) offered their contributions to the panel which was designed as a forum to present and discuss ideas concerning most general factors stimulating or, conversely, blocking creativity and innovativeness.

The panel chairman introduced the panel presentations and discussions by pointing to the fact that creativity and innovativeness are phenomena deeply embedded in culture. An inquiry into causes of rise and fall of institutions and organizations throughout history could reveal determinants and factors which might have a recurrent or universal meaning. Moreover the determinants and factors may be discussed in terms of stimuli and blockages to creativity. Power relations, knowledge producing and reproducing systems, cultural openness and communication, demographic structures of the societies could be found among them. The case of the decline of Chinese empire which used to be the most innovative in the world and the present rise of the new China would seem a very interesting object of research in the respect. Such studies should be conducted to provide a comparative dimension to analyses focusing on factors contributing to creativity in Europe and the European Union.

Mikel Landabaso focused on the role of financial and institutional inputs as a factor to stimulate growth and innovativeness. Building on the historic example of the Marshall plan applied in Western Europe after WW II (ca. 18 billion euro), he stressed extensive outlays currently made by the European Union institutions in this respect (ca. 350 billion euro only in the period of 2007–2013). As much as he viewed the outlays as a great opportunity, especially for countries such as Poland, he called to the attention of the audience the fact that in reality considerable shares of the outlays are wasted in a sense that they are not really used to stimulate and enhance innovativeness. Yet, to innovate is a condition *sine qua non* in the contemporary world. The real issue is then not if but how to innovate. One of the recently recognized means is to act through support for regional innovation systems based on networks. In this respect, there is for instance a rising awareness at the European level that member states' national administrations have to

allow for more local flexibility and must make an effort of trusting the regions to find their own ways to innovativeness. At the same time, both the EU institutions, national and regional ones need to evaluate the process to identify both best and worst practices—to support and spread the former but, even more important, to eliminate the latter as quickly as possible.

Paul Drewe dedicated his contribution to a discussion of a provocative question: "How do latecomers make it in the world where only the rich get richer?" The panelist highlighted that innovations are strongly dependent on many contextual factors which, on the one hand, makes them difficult to measure, but, on the other hand, might make it easier to stimulate them by concentrating on their contextual features. One of the conceptual tools to tackle the process is the concept of *innovative milieux*, which, itself, also constitutes one of good examples to conceive of innovations in broader terms, as of *social* innovations which are, in turn, conducive to scientific, technological and economic innovations. Innovative milieux consist of the following components:

- A group of actors (business firms, research and educational institutions, local public authorities)
- Material, immaterial and institutional elements (plants and infrastructures, public authorities and other organizations, know-how)
- Cooperation (networking of actors to make best use of existing resources and create added values or synergies).

The concept of the innovative milieu is premised upon a joint framework made up of the four major actors in the current developmental paradigm, that is regions, cities, enterprises and universities. The key factor is, however, the existence and stimulation of a dense network of linkages between and among the actors, leading to synergies. While the concept of innovative milieux has been built using the European best practice experience, the question still remains whether it really is possible to copy automatically such best practices from one context to another.

Karel Müller, drawing on his comparative studies of national innovation systems in the USA and the EU, pointed to several factors which, in his view, play a major role in building innovative potential. The most universal factors are: the education system, a diversity of innovative firms, a model of a learning firm, good governance capacities of the national systems. However, a mechanical choice and support for any selection of stimuli is to be discouraged since different societies are driven by different rationalities and have divergent orientations. The adequate approach to both studying and building national systems of innovation (NIS) needs therefore to be rooted in a theoretical framework of reflexive institutions (cf. theoretical contributions by Anthony Giddens or Christopher Lash), which includes culture as a crucial factor of NIS. Accordingly, one of the solutions to stimulate innovativeness proposed by Giddens is to bring knowledge to the agora where, *inter alia*, trust—essential in creative and innovative societies—is produced and reinforced. As much as the united Europe invests in institutions which are to stimulate innovativeness directly, such as the planned European Institute of Technology, it would not be counterproductive for the united Europe to invest simultaneously in European institutions of culture as the ones that address social foundations of innovativeness.

Ron Boschma presented findings and conclusions derived from an empirical study driven by the concept of a creative class proposed by Richard Florida as one of the putatively dominant factors explaining processes of creating innovations. According to Florida's theory the creative core of the society is a group of creative professionals employed in the R&D sector, education, management, health care as well as including the bohemia—artists and people employed in cultural business. The research project concluded by the speaker involved selecting and analyzing the following independent variables relative to the creative class and their impact on high path growth processes in the Netherlands: a) urban culture, consisting of a bohemian index indicating to what degree the city is trendy; an openness index indicating the proportion of foreigners living in the city; b) urban facilities, consisting of a public provision index indicating the number

of people working in education and health care; a cultural opportunity index and a level of employment. Statistical analyses show, *inter alia*, that the putative existence of the creative class is not correlated in a meaningful way with the level of high-tech employment. Research projects, like the one outlined above as well as results obtained in them could, in fact, be used as a warning against the employment of one-factor theories in theoretical frameworks designed to explain such complex phenomena as innovation and creativity.

Bohdan Jung spoke on the interlinkages between the leisure economy, media economy and creativeness. The linkages are fostered by a visible trend in the leisure economy to not only cater for but also to expand consumer needs by creating life-style spending programmes based on products and services to sell experiences. In this sense, there is a need to analyze the impact of a new class of cultural intermediaries as a serious factor contributing to innovativeness. Already seven millions of jobs in the EU are found in the sphere of creative industry. According to Richard Florida the creative core in the USA is composed of fifteen million people, while the copy right industry is America's number one export. The speaker advocated an increased interest and investment in the creative industry in Europe. Europe has several advantages in this respect: European brands, European cultural diversity, European heritage etc. He concluded by quoting a golden maxim: "Creativity is one of the last remaining legal ways of gaining an unfair advantage over the competition".

Panel Two: Creativity and innovation as a challenge for the European corporation (enterprise).

The panel was chaired by Professor **Jorma Routti**, Chairman of Creative Industries Management, former Chairman of the Finnish National R&D Fund and Director of the European Commission Research Directorate. Five panelists: Erkki Ormala (NOKIA), Bogusław Skuza (SKANDIA), Krzysztof Bułaszewski (IBM), Andrzej Rybka (Aviation Valley), and Piotr Górecki (BIOTON) offered their contributions to the panel which was designed as a forum to present and discuss ideas and experiences concerning factors stimulating creativity and innovativeness from the perspective of successful business management.

The chairman of the panel opened the panel presentations and discussions by pointing to the fact that corporations, firms and enterprises are major actors in producing and consuming innovations. Both big and small businesses must innovate and be creative, otherwise they will not survive in the market environment. Creativity can be discussed both from the point of view of established market players and emergent ones. In the case of the former it is most interesting to learn how they manage to maintain their market position. In the case of the latter it is interesting to learn how they make an entry. In addition, the panel presentations offer an additional benefit to the conference participants since some of the speakers, most notably Erkki Ormala, the Nokia Director of Technology Policy are best qualified to discuss in practical terms the ways to close the gap between business and research.

Erkki Ormala made a brief overview of the Nokia corporation current assets, pointing to the fact that Nokia is already 140 years old and its current success best evidences the role played by constant innovativeness and creativity in business environment. He stressed in particular Nokia's reciprocal linkages with direct producers of knowledge. Nokia collaborates with a hundred of universities which are just part of its creative network where innovations are produced and, almost simultaneously, marketed globally. The traditional, fragmented and linear, industrial model of creating innovations no longer obtains. At the same time, the speaker underlined the importance of creating an external environment friendly to innovation-creating networks and corporations. He named a few factors which would continue to put the EU environment at the disadvantage from

the point of view of global companies such as Nokia: a 100 billion euro loss per year because of a lacking possibility to make on-line international money transfers; costly and time-consuming patent making procedures which are, in addition, not harmonized across member-states, fragmented scientific performance, low interest of young people to pursue engineer studies in Europe etc. As a result, European companies increasingly export their R&D activities abroad as well as recruiting knowledge workers outside Europe. This trend will continue unless systemic changes are implemented throughout the European Union.

Bogusław Skuza chose to emphasize a factor without which creative companies do not exist. It is the human factor—managers, employees and customers. Skandia Insurance Company is one of the best examples of enterprises whose renewed prosperity depends on the intellectual capital of its human milieu. Investing in a corporate culture premised on sharing knowledge and building trust, the company invented a new model of its more than century old business and has, in fact, created its own market space. The Skandia market space is characterized by two interrelated features: constant innovativeness and long-term trust.

Krzysztof Bułaszewski presented IBM as an American company which went global and local at the same time, building collaborative linkages with universities and other companies. Its model for innovation is a network underwritten by a high degree of mutual trust. However, in the era of global competitiveness, the network model needs to be improved as well. The existence of an enormous computer potential world-wide is the best example thereof as the actual potential of such a network is still far from being satisfactorily deployed. Moreover, innovation is no longer chance or art, according to the speaker. A sound methodology of innovation is needed.

Andrzej Rybka introduced the concept of creating Aviation Valley in the Polish region of Podkarpacie as an example of a developmental model driven by innovative clusters. Owing to inward investment and external funding, the concept has already started to produce visible results. A densely interrelated network of educational institutions, technical universities, companies producing airplanes and airplane parts as well as a number of business support institutions has been consolidated and put into operation. Having the advantage of a good balance between high-technology and cheap labor force, the cluster has attracted companies which on daily basis are competitors but are also able to cooperate in some areas for the common good. The next step is to build more linkages with other European aviation clusters.

Piotr Górecki presented BIOTON as an example of a company which had undergone a successful transformation from a local company to a global enterprise. It was created as a research institute in 1957. The real turning point came with an investment from Prokom company in 1996. The research institute was significantly upgraded and oriented towards market needs. It started to manufacture for the global market. The production of Insuline was a great success followed by more research and marketing of the Gensulin project, which has a global reach as well.

Panel Three: Creativity and innovation as a challenge for the European Union.

The panel was chaired by Dr **Mikel Landabaso**, Deputy Head of Unit Spain, European Commission Directorate for Regional Policy. Three panelists: Thomas Schauer (Director of the European Support Centre of the Club of Rome in Vienna), Tomasz Grosse, (Institute of Public Affairs) and Olaf Gajl (Undersecretary of State, Polish Ministry of Science and Higher Education) offered their contributions to the panel which was designed as a forum to discuss ways in which the European Union contributes to creativity and innovativeness.

The panel chairman drew attention of the conference participants to the fact that the European Union may itself be rightly seen as an innovation. This impression of creativity and innovativeness inherent in the idea of the EU is reinforced by its definition as an "unfinished

project". While the European Union has successfully managed to achieve its most fundamental aims so far—the single market, the single currency and Eastern enlargement—it still faces new challenges such as the need for more jobs and higher growth and therefore is in need of more creativity and innovativeness. While the UE is not a perfect machine, it is investing heavily in all kinds of actors and factors that may enhance its overall competitiveness. Notably, the EU in its effort to stimulate creativity and enhance competitiveness is not a zero sum game. This is also why it invests in its internal diversity, acting through such empowering principles as those of partnership and subsidiarity. Nevertheless, there is still a lot of room for more and new investment in creativity.

Thomas Schauer argued in his presentation predominantly for a need to rethink the EU strategic document—Lisbon Strategy—in order to propose a new formula of development and competitiveness. According to the speaker, the new European formula ought not to follow disastrous competitiveness formula practiced by the USA. Hence, one of the starting points of the new formula is to put a much greater stress on the issue of natural environment and elaborate a realistic framework for environmental sustainability. Another is to include approaches to innovations such as the model of Open Source offering free access to innovations instead of patenting and guarding them by means of intellectual property rights. Successive supplementing of Lisbon Strategy with new, more innovative programmatic documents in 2005 and in 2006 is a step in the right direction. However, much more thought and attention are still needed to elaborate more radical strategic documents related to the issues of eco-innovation. Another important issue which ought to be considered is related to the demographic structure of the EU. According to the speaker, the creativity and innovation-driven conceptualizations of the strategy for the EU need to face the fact that the ageing European societies might not quite fit the proposed model of development premised on competitiveness.

Tomasz Grosse concentrated on pinpointing some of the institutional blockages which make the current EU system not very efficient in creating innovative policies. *Inter alia*, he named mutual blockages in the sphere of economic policies which occur in a situation when national authorities lose control over the economic processes while EU institutions do not take an increased responsibility for processes. Moreover, the varieties of capitalist models across Europe as well as the existence of particular national innovation systems increases internal rivalry within the EU. Similarly, internal contradictions might undermine the efficiency of particular institutions and policies of the EU—this is, in the speaker's view, evident for instance in the case of Lisbon Strategy itself and the EU budgetary and fiscal policies whose objectives and priorities seem mutually exclusive from a certain perspective. Apart from the general conviction of the speaker that the EU should more closely follow solutions inherent in the American model, he listed four institutional solutions to overcome the internal weaknesses which block building global competitiveness of the EU. These are: 1) a stronger combination of OMC and redistributive instruments; b) an increase in technocratic management (coupled with the development of delegation method); c) rationalization of economic policies in the EU; d) a thorough reconstruction of political institutions of the EU leading towards the development of federal institutions.

Olaf Gajl focused on the problem of the still inadequate functional linkages between science, economy and innovativeness. He saw the problem as both characteristic of Europe as a whole and of particular national traditions, such as for instance the Polish tradition of mutual relations between producers of knowledge, investors and users. He pointed to the fact that what is to blame is not only factors such as low level of investment in R&D, the bureaucratic model of the academia but also fragmented markets and lack of specified demand on the part of the market actors that inhibit scientific innovativeness in countries such as Poland. Whenever a specified demand appears it is much more likely to be met—the history of inventions related to the military testifies to

the claim in an unambiguous way, according to the speaker as well as the fact that 54% of the research budget in the USA is spend on military research. The speaker stressed also the fact that in terms of its scientific potential Poland has a good starting point in the united Europe, however, it should reformits current model of the sphere of science. Especially, the interrelations with the other spheres of social life need to be strengthened. Also, more reliance on domestic traditions and less dependence on imitative models of creativity and innovativeness might be advocated. On the other hand, it is also necessary to stress that Europe-wide institutions and scientific standards are equally necessary to be developed and incorporated in the reformed model.

Panel Four: Creativity and Innovation as a Challenge for European Regions and Cities.

The panel was chaired by **Gerd Schienstock**, Professor Emeritus of Tampere University, Finland. Five panelists: Martti Launonen (Vice-President of Technopolis Plc, Finland), Krzysztof Pawłowski (Rector of Wyższa Szkoła Biznesu-National Louis University in Nowy Sącz, Poland), Jan Wais (Deputy Head of Foreign Relations of Wrocław City, Poland), Hans van Zon (Professor at University of Sunderland, Great Britain), and Valtteri Kaartemo (Research Associate at the University of Turku, Finland) offered their contributions to the panel which was designed as a forum to discuss regions and cities as driving forces of creativity and innovativeness in the European Union.

The panel chairman stressed the view that creativity and innovativeness are strongly context dependent phenomena. They are also multi-faceted, involving both technological change, institutional change, and social change. While it may still be argued, especially in the case of small countries such as Finland that both policies and intervening factors in path development processes exhibit strong national features, it is equally plausible to claim that in the contemporary world and under the current economic paradigm, processes of innovation creation cannot be regarded without taking into account new dimensions of social and political organizations such as regions and cities. Especially in the situation when borders of the nation-state are disappearing and consequently, the nation state is losing control over processes and networks, the role of intermediary levels such as regions and cities increases. Regions and cities certainly have several advantages over the larger national scales. *Inter alia*, specialization and clustering is easier achieved in the scale of region, face to face communication is also more common and this in turn breeds trust and produces social capital. Factors such as these, especially when enhanced by the functioning of supportive institutions, are crucial in the process of innovation production and increasing competitiveness.

Martti Launonen presented the experience of the Finnish Technopolis enterprise which is dedicated to assisting regions in developing innovation systems. Stressing the fact that Technopolis receives half of its financial resources from companies while remaining an important public sector institution, the speaker explained the conception of the venture: first to grow companies, then to give them premises and place them in a stimulating and supportive environment. Located in a distant Finish northern town of Oulu, Technopolis's ultimate aim is to look for growing (and not leading) markets world-wide in order to advise Finish small and medium companies global-wise strategies of development and to facilitate their reach from regional to global markets.

Jan Wais made an overall introduction to the idea of the Wrocław EXPO 2012 Project, stressing the potential of the city to drive innovative projects of such strategic significance. Part of the strength of the Wrocław bid for the EXPO 2012 derives from the fact that this Polish city, once peripherally located within the once peripheral Communist Poland, has undergone profound changes over the last 15 years and become one of the regional metropolitan leaders in the New Europe. Apart from being a gateway for foreign investment in Poland—top 33 investors

in the agglomeration have invested more than 5 billion Euro here and there are more than 3,000 companies in Wrocław with foreign capital today—the city also plays an important role being part of a cross-border region that includes provinces of the Czech Republic, Germany and Poland. The total population of this border region is 16 million, being larger than that of Austria and Switzerland. The GDP is 175 billion Euro, which means that the cross-border region is economically as strong as Greece. Moreover, Wrocław is an important academic center. Education plays a key role in the life of the city with well over 100,000 students enrolled in its 22 further education institutions. Good working interlinkages have been established between academic institutions and research centers and business entities. These are also factors that make the city such a promising applicant in the competition to be home of the planned European Institute of Technology—a flagship initiative of the European Union in the context of the debate about creativity, innovativeness and global competitiveness.

Hans van Zon chose to stress the fact that creativity and innovativeness seem strongly correlated with models of societal interest representation, participation in political parties and trade unions as well as with modes of territorial decentralization. In this respect, it is quite apparent that further regionalization or federalization may enhance both democracy and economic performance. Being closer to the needs and potentials of citizens, regional authorities and interest organizations stand a better chance of both making adequate strategic choices and being more accountable and responsible. However, it needs to be remembered that no institutional and legal arrangements can on their own guarantee innovation and creativity. Innovation and creativity are very complex phenomena. Moreover, there is growing awareness that it is extremely difficult to quantify them, not the least when they are typified in terms of social innovations. According to the speaker, a lot of intellectual effort needs to be directed to such problems.

Valtteri Kaartemo stressed the fact that experiences and strategies of growing global powers such as China need to be analyzed and accommodated by analysts focused on Europe. The rationale he put forward for this type of agenda is a growing trend of Chinese companies to invest directly in Europe. A research project conducted by the speaker aimed at establishing the motives of Chinese investments in the Baltic Sea Region from the perspective of competitiveness. The findings point to the fact that, contrary to the expectations, the Chinese investments are not driven solely by the imperative to exploit their current competitive advantages, especially low cost production models. It was found that the Chinese investors seek to gain access to cutting edge competitive local knowledge available in Europe and to establish stable networks which could increase their global competitiveness in the future. According to the speaker, the local and regional European companies should try to exploit the Chinese presence in a more active manner. One way could be to create *via* the Chinese partners European companies' own linkages with the Chinese market. Another way could be to use the Chinese companies' model to make the European companies' cost structures more competitive.

Krzysztof Pawłowski drew on the history of the sub-region of Nowy Sącz in Poland to show how an entrepreneurial *genius loci* may be—if not invented—then radically refashioned and spurred in an area which at the start is seen as peripheral and inaccessible in terms of traditional business criteria. The current experiment in building the *genius loci* of Nowy Sącz has—quite uniquely—its predecessor in the late 1950s and in an ambition and subsequent effort made by local Communist party officials to turn Nowy Sącz into an economically thriving area. While the Communist experiment has ultimately been abandoned, the current one seems to have already produced long-lasting effects whose impact much exceeds the local/regional area boundaries. Apart from the most successful, top quality educational venture—Wyższa Szkoła Biznesu-National Louis University, Nowy Sącz has become home to several leading, global (or at least European) rather than local companies such as Konspol (poultry industry), Optimus (computer manufacturing), Koral

and Koral brothers (ice cream industry), Fakro and Ryszard Florek (roof windows producers). The effort to sustain the entrepreneurial *genius loci* is, however, a never ending one, which is why the local leadership has started to develop a new project of the "Multimedia City". The idea is to create a research & development centre, an enterpreneurship incubator and an educational centre all intertwined with a cluster of multimedia companies in Nowy Sącz.

Panel Five: Creativity and Innovation as a Challenge for the European University and R&D Community.

The panel was chaired by Dr. **Wilhelm Krull**, Secretary General of the German Volkswagen Foundation. Four panelists: Professor Jerzy Langer (Member of the Polish Academy of Sciences, Member of the European Research Council), Dr. Simone Arnaldi (Director of Jacques Maritain Institute in Triest, Italy), Dr. Dimitrios Konstadakopoulos (Professor at the University of the West of England) and Professor Jan Lambooy (University of Utrecht, the Netherlands) offered their contributions to the panel which was designed as a forum to discuss ways in which the public and private actors could better contribute to creativity and innovativeness in Europe.

The panel chairman outlined his views for a discussion of institutional parameters that could both stimulate European creativity in general and improve European performance in terms of indicators used to measure the achievements of the academia and the soundness of its relations with the economy. The overall trend that the speaker indicated as most important is captured by notions such as flexibility and transdisciplinarity of research and creativity-friendly institutions. In the context, one of the most vital issues and challenges in contemporary Europe is to both more involve private actors in the institutional support for scientific activities and to reform the existing public institutions. The targeted areas are an improvement in the conditions offered to researchers (pay, careers, openness to cutting edge ideas) and upgraded marketability of the research output in Europe. The panel chairman listed seven conditions which in his view are necessary for the creation and cultivation of creative scientific cultures. These are: 1) competences; 2) courage; 3) communication 4) innovativeness 5) perseverance; 6) diversity; 7) serendipity.

Jerzy Langer argued for a New Deal between European scientists and business actors that would result in the scientists leaving their traditional ivory towers and the business actors becoming committed partners in the processes of knowledge creation. He also claimed that another promising aspect has been indicated by the Finnish politicians who in a report dedicated to innovativeness pointed out to the fact that truly innovative systems have to involve society at large—a statement that testifies to the thesis that creativity and innovativeness *are* social phenomena. Nonetheless, creativity, innovativeness and scientific performance need also good institutions and a sound set of benchmarks. Recent developments within the European Union seem to promise a move in this direction. The flagship initiatives of the European Commission such as the European Research Area, the European Research Council and the planned European Institute of Technology—following consultations with many, diverse actors, appear to be developing well. Moreover, they privilege the flexible and efficient network-based organizational model. A further need is to create an European Innovation Council—an institution which could act as a provider of venture capital for innovators in Europe. Europe needs an institution like this to assist its own future Bill Gates to appear and grow.

Simone Arnaldi attempted to argue for a need to acknowledge within the framework of social science the centrality of technology as a prime driver of innovation and change in the contemporary world. However, the acknowledgement must be accompanied by a conceptual shift by means of which technology is considered in terms of social action. Another condition is a development of a certain level of mutually recognized expertise and a common discourse by

means of which social and natural scientists could meaningfully communicate with each other. These three moves are likely to spur a commitment to interdisciplinary studies of the field. More studies are also needed to analyze networks of various types of technology-contributing actors. More insight is necessary to reveal their different social ontologies, visions of the social, models of knowledge creation and mutual interactions. According to the speaker, this new research orientation constitutes a great challenge for existing scientific institutions and traditional modes and modes of designing and conducting research.

Dimitrios Konstadakopoulos spoke on the need to reform radically the higher education systems in Europe in the context of an emphasis put currently on creativity and innovativeness. The traditional organizational structures of the European university seem inadequate and unprepared for more active involvement in the production of competitive knowledge. Therefore, a move from the classic command-and-control type of university management to a new style of management based on the concepts of self-direction, self-control and creativity is called for. Recent experiments in granting publicly funded academic institutions more flexibility and freedom, implemented in countries such as Finland, Norway and the United Kingdom, are in general successful and seem generally correlated with the Bologna Process.

Jan Lambooy likened the model of the European university to the concept of growth pole as devised by Perroux to explain models of economic growth based on territorial concentration of activities and flows. The university could be seen as a hub located at the core of an interrelated system. Such a comparison allows for further employment of network-oriented thinking about the university. The metaphor of the network implies relative openness and less hierarchy. However, the problem with organizations such as the traditional university is that they tend to be rather hierarchical and prefer to remain closed rather than open to external influences. Hierarchical configurations and boundaries are in turn linked to the issue of power relations. Power is indeed a factor which is difficult to eliminate from considerations dedicated to science. This is especially clear in the case of publicly funded research institutions. From the fact that they are publicly funded there follows that they should engage in research oriented to the public's needs. However, two vital political questions arise at this point: first, who is to decide what are the public's needs and second, whether it is the present, short-term needs or future—the long-term ones that ought to be taken into account. Notably, while the transformation of the university from the Greek model (pure knowledge) to the Anglo-Saxon model (pragmatic knowledge) is claimed to take place, this still does not eliminate the political issues as long as research institutions are financed from the public funds.

Panel Six: Creative and Innovative Europe of the XXI Century Towards an European Research Programme.

The panel was chaired by Professor **Antoni Kukliński**, Director of the Research Centre for European Regions, Wyższa Szkoła Buznesu-National Louis University in Nowy Sącz. Six panelists: Daniele Ietri and Francesca Silvia Rota (research associates and contracted professors at the Turin University and Polytechnic, Italy), Dr. Wojciech Burzyński (Programme Manager at the Foreign Trade Research Institute, Poland), Dr. Anna Gąsior-Niemiec (a research associate at the Institute of Philosophy and Sociology, Polish Academy of Sciences), Józef Niżnik (Professor at the Institute of Philosophy and Sociology, Polish Academy of Sciences) and Roman Galar (Professor at the Wrocław University of Technology, Poland) offered their contributions to the panel which was designed as a forum to discuss methodological premises of building creative and innovative research programmes in Europe.

The panel chairman stressed his deep conviction that only a *new*, creative and innovative Europe will be able to face the challenges of the XXI century. Adequately designed research programmes are necessary to help the vision of Europe come true. Research programmes are, according to the speaker, best understood in terms of paradigms, that is sets of questions exploring the empirical reality and sets of answers formulated in an imaginative and innovative way. Following insights derived from the works of Gunnar Myrdal, the speaker argued that elaborating an efficient meta-disciplinary methodology for such research programmes is necessary. The new methodology should respond to, at least, three following intellectual challenges: the challenge of mega-disciplinarity, the challenge of the interpretation of diagnostic and prospective approaches, observations and value judgments, and the challenge of the new interpretation of the philosophy of path dependency and the novel philosophy of path creation.

Daniele Ietri and Francesca Silvia Rota, taking as their point of departure their on-going research into the current transformation of the European city, have outlined a methodological proposal to develop a trans-scalar approach to studying complex social phenomena which are enacted *via* networks anchored at different levels of social organization, different geographical scales etc. Following Bonavero (2005) they introduced the concept of trans-scalarity in two senses: 1) weak trans-scalarity and 2) strong trans-scalarity. The notion of weak trans-scalarity applies to models in which concepts and analytical tools found at divergent scales are brought together and used to explain phenomena and processes found at the different scales. The notion of strong trans-scalarity applies to models in which the concepts and tools are used to consider at the same time different scales and their reciprocal relations. On the basis of the concept of trans-scalarity a specific methodology may be developed such as network analysis metrics and geo-referenced graph techniques which make it possible to analyze complex networks of actors located at different scales and their reciprocal relations—a configuration of research objects which has become predominant in contemporary science.

Wojciech Burzyński addressed methodological, conceptual and structural dimensions of the discussed European research programme. On the methodological level, one of the major difficulties faced when designing research problems is to accommodate values within them and designate indicators that apply to them. The models devised for the UNDP Human Development Index, the World Bank Institute's Knowledge Index and the EU Innovation Index may be taken as a point of departure in this respect. On the conceptual level, the research programmes need to be framed by both future and global orientations while dealing with an increased scope of objects to capture which new concepts are needed. A learning region or an intelligent city—despite their shortcomings are good examples of such new concepts. On the structural level, Kukliński's pre-conference notes seem to capture the most important building blocks of such a research programme: the crisis of the European civilization and a vision of a new European Renaissance; the role of the EU, R&D communities, cities, regions, corporations and SMEs as promoters of innovation and creativity etc. Moreover, according to the speaker, the conceptual scope of the European research programme needs to broadened in a more radical way by an inclusion of the fields of fine arts and culture on a par with typical social science research fields.

Anna Gąsior-Niemiec highlighted creativity as a complex *social* and *cultural* phenomenon. Dealing with creativity requires 1) a conceptual revolution and 2) constant experimenting with a variety of organizational and methodological models of research programmes. The first premise might be illustrated by a dilemma "competitiveness" vs. "social cohesion" which appears, at the first sight, to be irresolvable and effectively blocking innovative political solutions in the EU. According to the speaker, an intellectual effort is needed to overcome such dilemmas (which are frequently posed in terms of a zero-sum game). The meaning of "competitiveness" should, for instance, be applied in a systematic manner to the realm of the social, the political etc. In this

respect it may be worthwhile to study experiences of countries such as Finland where it has been possible—*via* a radical transformation—to build a competitive and creative *society* and not only to stimulate economic growth. As for the second premise, transdisciplinarity has several advantages over the more traditional approaches to the production of knowledge in situations when *new* and not just better knowledge is expected. Transdisciplinary research programmes are premised on an assumption that research activities will focus on areas which may conventionally be seen as borderlands, margins, black holes, white spots or no-man's-lands or may not be seen as areas of knowledge at all. At the same time, transdisciplinarity ought not to be treated as a single best solution to enhance research programmes. If a social system is to continue to exist, apart from the production of the new, it still needs accumulation and reproduction of the old knowledge.

Józef Niżnik argued that creativity is indeed to be seen as the leading concept in the debate about the future of Europe, especially as projected against the global context driven by competitiveness. However, an even more essential context within which creativity needs to be tackled is the context of the future of European integration as a political and social project. The development of this project as well as an introduction of momentous innovations into it are, according to the speaker, blocked by the conceptual rigidity of political discourse framing the project. The innovative development of the European project cannot take place as long as it is arrested by a conceptually obsolete language derived from the experience of the nation state, which was created in the past and is not capable of expressing either the existent reality or its future projections. "Sovereignty", "liberal vs. social Europe", "federal vs. intergovernmental Europe" are most clear examples of the conceptual inadequacy, according to the speaker. New quality of the European project needs to be expressed by means of new, creative language. Therefore, the need for conceptual creativity is vital for the future of the EU.

Roman Galar focused on the problem of conceptual barriers on the path to European creativeness as well. He listed a few strongly entrenched conceptual frames which, according to him, make it difficult for Europeans and Europe to act creatively at present. "Magic optimism" coupled with too much reliance on institutions and specialists is one of the strongest inhibitors to face the challenge of the future. Standardization and shallowness of experience was identified as the second inhibitor. Simplistic education characterized at the same time by narrowly utilitarian orientations, prevalence of bureaucracy etc. do not lead to the expected ideal of a well educated, sophisticated and creative European knowledge society either. The dominant ethos of success instead of an ethos of leisure undermines the very foundations of creativity by substituting freedom and playful excess of exploration with short-term marketable improvements. A decomposed or altogether lacking vision of what Europe is (to be), what are the parameters of its identity as well as the prevalence of utilitarian attitudes towards the European project do not serve European creativity well. Lastly, a visible trend to institutionalize and proceduralize innovativeness seem to the speaker at best ill conceived—they foster perfection and not creativity.

Conclusion

Questions and discussions following the panel presentations testified to the fact that the presented problems and issues raised a great interest of the conference participants and in fact could only be fully accommodated by extending the time span and scope of the conference proceedings. It is with this conviction that the conference was concluded by Rector Krzysztof Pawłowski. He expressed a special thank you to all of the participants, speakers, sponsors and organizers. The conference has been a success in intellectual and managerial terms.

Finland as a Knowledge Economy

Elements of Success and Lessons Learned

Overview

Edited by
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Jorma Routti
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This Overview summarizes a longer report on *Finland as a Knowledge Economy: Elements of Success and Lessons Learned* (2006). This study was developed in cooperation with Finland's Ministry for Foreign Affairs, Ministry of Trade and Industry, Finpro—Finnish National Agency for Corporate Internationalization, ETLA—The Research Institute of the Finnish Economy and the World Bank Institute.

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Foreword

Knowledge is fueling economic growth and social development in every region of the world. The forces of globalization such as migration, travel, trade, foreign investment, and communications are speeding the dissemination and use of information across boundaries. New ideas and innovation are spreading faster than ever. Knowledge-based growth and development offer opportunities for both developed and developing economies. Advancement in information and communication technologies (ICTs) has been a necessary condition for these new developments in the global economy.

ICTs provide the means for developing countries to accelerate their progress or even leapfrog into a more advanced phase of development and to enable their integration into the global economy. For developed countries the knowledge-based economy allows further specialization, improvements in productivity, and the achievement of sustainable growth: knowledge capital is the only asset that can grow without limits; and new knowledge increases the efficient use of resources that are in finite supply.

The Finnish experience in the 1990s is an example of how knowledge can become the driving force in economic transformation and growth. Although as recently as the 1970s Finland was relying mainly on resource-intensive industries, it is now the most ICT specialized economy in the world. This achievement is all the more remarkable considering the deep recession it experienced in the early nineties, with a major banking crisis that led to rapid worsening of public finances, unemployment, and the external balance.

Rapid structural transformation beginning in the mid nineties coincided with equally rapid improvements in macro balances. By the end of the decade the country's macroeconomic performance was one of the strongest in Europe. The Finnish experience shows that it is possible to make significant structural changes in a relatively short time. It also shows that long-term decisions that shape research and education are possible, and indeed necessary, during short term economic crisis, since they provide guidelines for longer-run growth and help create a sustainable competitive edge.

The study has been a joint effort by the World Bank Institute, the Finnish Ministry of Trade and Industry and Ministry of Foreign Affairs, Finpro—Finnish National Agency for Corporate Internationalization, and ETLA—the Research Institute of the Finnish Economy.

Although Finland has many characteristics that cannot easily be replicated by other countries, much of its experience in designing knowledge-based economic and social strategies is highly relevant. A key lesson is the importance of flexibility in responding to change, and the critical role of a responsive education system. Finland's experience also highlights the importance of developing a vision and a process for consensus-building. We hope that Finland's example of turning a crisis into opportunity provides inspiration to other countries forging their own path in today's global knowledge economy.

Frannie A. Léautier
Vice President
World Bank Institute

Acronyms and Abbreviations

EU	European Union
GDP	gross domestic product
ICT	Information and Communication Technology
IT	information technology
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPP	purchasing power parity
R&D	research and development
S&T	science and technology
SITRA	Finnish National Fund for Research and Development (Suomen itsenäisyyden juhlarahasto)
TEKES	National Technology Agency (Teknologian kehittämiskeskus) of Finland
VTT	Technical Research Center of Finland (Valtion teknillinen tutkimuskeskus)
WEF	World Economic Forum

Overview

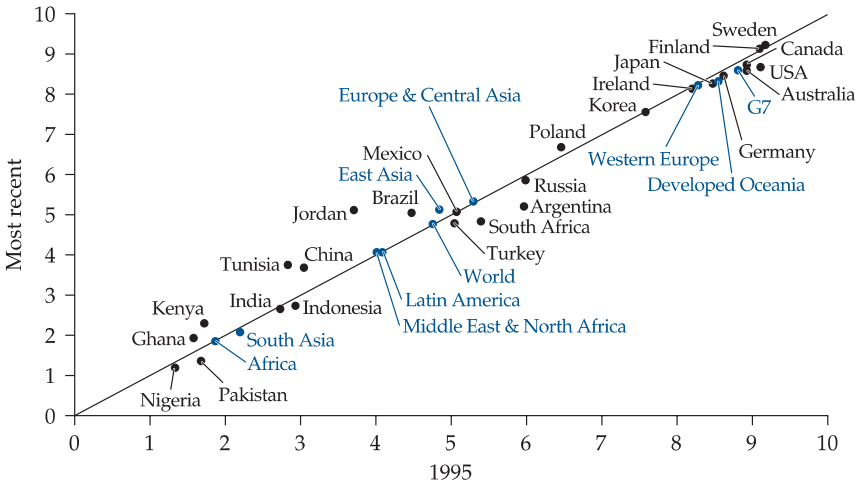
Finland: A knowledge economy driven by information and communication technologies

In the 1990s Finland became the most ICT-specialized country in the world

Finland is a country that has successfully transformed itself into a knowledge economy in a short time. The Finnish experience of the 1990s represents one of the few examples of how knowledge can become the driving force of economic growth and transformation. During that decade, the country became the most ICT- (information and communication technology) specialized economy in the world and thus completed its move from the resource-driven to knowledge- and innovation-driven development. Four times to date at the beginning of the twenty-first century, the country has ranked as number one in the World Economic Forum's (WEF) competitiveness index, and as one of the most developed IT economies. It was ranked top in the OECD's Program for International Student Assessment (PISA) studies of learning skills and educational attainment, and also achieved the highest Knowledge Economy Index in the World Bank comparisons (figure 1). The various elements pertinent to a

Finland ranks highest in WEF competitiveness index and PISA studies

Figure 1. Global view: Knowledge Economy Index by countries and regions, 1995 and the most recent year



Source: World Bank-Knowledge Assessment Methodology. www.worldbank.org/kam.
Note: The Knowledge Economy Index (KEI) consists of 80 structural or qualitative variables that benchmark performance of more than 128 countries. KEI is an aggregate of all variables that are normalized from 0 (worst) to 10 (best).

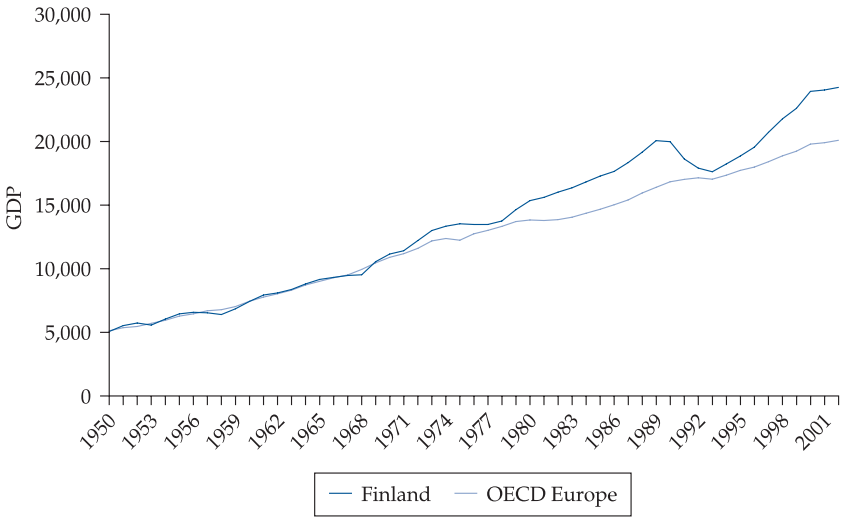
knowledge economy—economic incentives, education, innovation, and IT infrastructure—also seem to be well balanced in Finland.

This achievement is quite remarkable especially when considering Finland's economic situation in the early 1990s. The country went through a severe economic recession characterized by a major banking crisis, unemployment rates rising from 2 percent–3 percent to over 15 percent, and the accumulation of government debt from modest levels to over 60 percent of GDP and approaching international lending limits. These difficulties were caused and exacerbated by uncontrolled deregulation of financial markets and a rapid increase in foreign borrowing, which led to an overheated domestic economy. High inflation pushed up interest rates and overburdened the public sector due to smaller tax revenues and larger unemployment and welfare costs. Furthermore, the collapse of the Soviet Union wiped out 15 percent of Finnish foreign trade with attractive barter arrangements. The collapse also left some traditional Finnish industries, including clothing and footwear, with less competitive technologies and cost structures, and without market access. The resulting recession is clearly visible in a drop in Finland's real GDP of more than 10 percent from 1991 to 1993 (figure 2).

In the 1990s, the economy still was going through a deep recession

Finland's difficulties were amplified by its not being well prepared for economic integration and globalization, its membership in the European Union (EU) and Monetary Union, and its lack of export diversity. Exports were dominated by the

Figure 2. GDP per capita in Finland and OECD Europe, at 1995 prices and purchasing power parity (PPP) exchange rates



Source: Rouvinen and Ylä-Anttila 2003; original sources: www.sourceOECD.org, Penn World Tables.

forest-related industries, which still play an important role in the Finnish economy. Their position now is much stronger as a result of consolidation and the emergence of a few multinational companies with advanced technologies and market approaches. In earlier times, the competitiveness of the forest-related industries was secured by frequent devaluations of the currency in response to the cyclical nature of the international pulp and paper markets. In today's Euro regime, this is neither possible nor desirable because of the ensuing inflation and increase in foreign debt that Finland would experience.

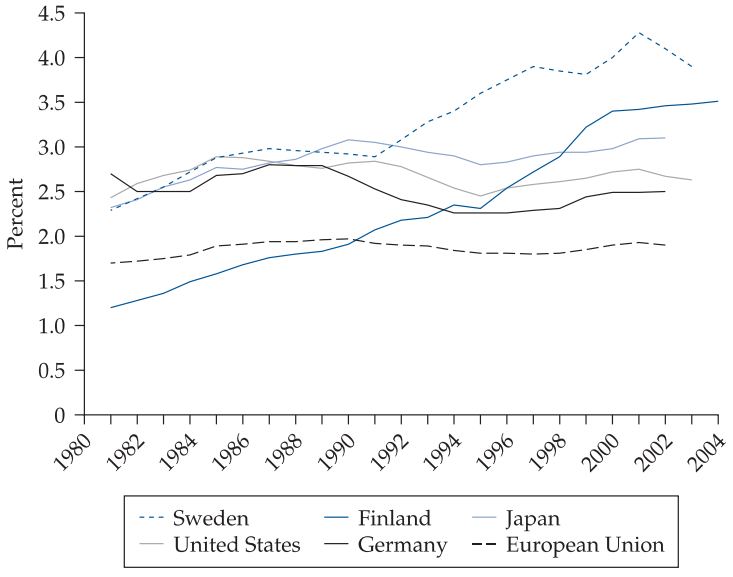
Diversification of both technology and exports was a prerequisite for improved performance

Thus, the diversification of exports has been mandatory to improve the performance of the Finnish economy. This diversification has been due largely to the persistent emphasis given to higher education, linkages and spillovers among various industries, and the emergence of new knowledge-based industries. Since 1980, research and development (R&D) investments by the government—but primarily the private sector—have more than doubled to reach levels equivalent to 3.5 percent of GDP in 2004, which is above the EU average of less than 2 percent (figure 3).

Finland's innovation system successfully converted R&D and educational capacity into industrial strengths

The Finnish innovation system also has been successful in converting its R&D investments and educational capacity into industrial and export strengths in the high-technology sectors.

Figure 3. R&D expenditures as a share of GDP *(%)*



Source: OECD 2005.

This conversion can be illustrated by patent statistics that put Finland among the world's top performers in technological innovation (figure 4).

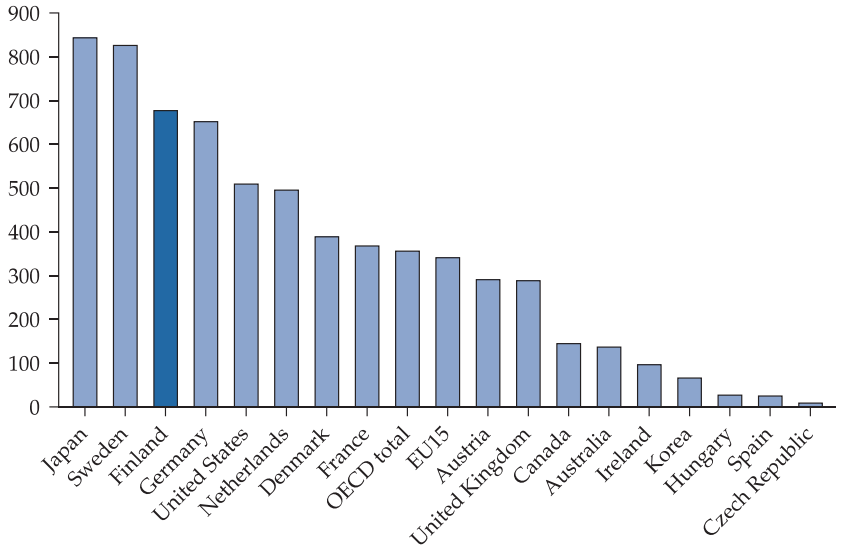
Finland is among top performers in patenting

High technology's share of total exports also has grown from 5 percent in the late 1980s to approximately 20 percent in 2004, resulting in a significant trade surplus (figure 5). Today, Finland's telecommunications exports are as high as those of its forest-related industries, and the Finnish Nokia Corporation has grown into a world leader in mobile communications. Hundreds of other smaller high technology companies also have been established, and many have become world leaders in their niche markets.

Finland's success shows that a strong knowledge economy can be built in a small and comparatively peripheral country

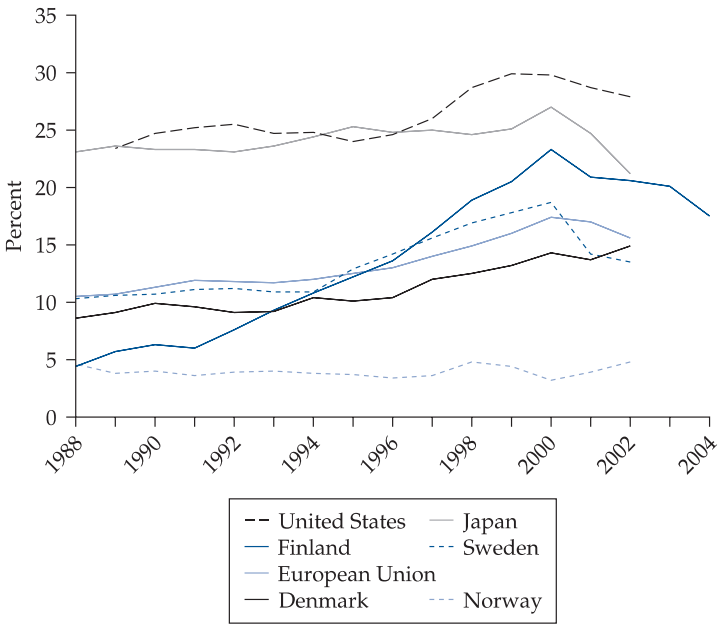
Finland's success is remarkable not only in light of its earlier economic difficulties. It also is interesting to see that a knowledge economy can be built successfully in a small and comparatively peripheral country. Finland is a relatively large country covering an area equivalent to that of the Japan or the United Kingdom. Finland is located between latitudes 60 and 70 North extending beyond the Arctic Circle. However, although more than half of the people in the world living this far north are Finnish, the total population of the country is only 5.2 million. Furthermore, the Finnish language is spoken only by Finns. While this is an asset for a strong national culture, it makes international communications difficult.

Figure 4. Number of triadic patent families *(per million habitants, for year 2000, patents from 1990–2000)*



Source: OECD 2005.

Figure 5. Share of high technology products in total exports of goods in selected countries (*percent*)



Source: Finnish Customs Statistics Finland, and OECD 2005.

How did Finland become a knowledge economy?

As late as the late 1970s, Finland ranked at the lower end of the OECD countries in R&D intensity. Today, Finland's investment in R&D accounts for approximately 3.5 percent of GDP, which is the second highest in OECD and the third highest in the world, just after Sweden and Israel.

Increasing R&D intensity was facilitated through national consensus building

Increasing investments in R&D during times of high unemployment required great political wisdom and courage, when an easier path would have been to generate immediate employment rather than build up longer-term strengths. Increasing R&D was helped partially by national industrial and innovation strategies communicated by the government. These national strategies were important for consensus building, for example, by organizing economic policy programs attended by practically all members of the Finnish Parliament and other decision makers from the public and private sectors, media, and labor market organizations.

Specialization in high-tech and R&D-intensive production needs to be preceded by major structural change in economic and social structures

What we observe today are outcomes of longer-term transformation processes. *Specialization in high-tech and R&D-intensive production needs to be preceded by major structural change in economic and social structures.* Recent research seems

to indicate consistently that while poor countries get richer with this specialization, their sectoral production and employment become more diversified or less concentrated. On the contrary, countries with high levels of income that specialize in high tech and R&D intensive production are characterized by concentrated sectoral specialization. These conclusions are supported by cross-sectional analysis of countries and apply well to the development of Finland over the past few decades.

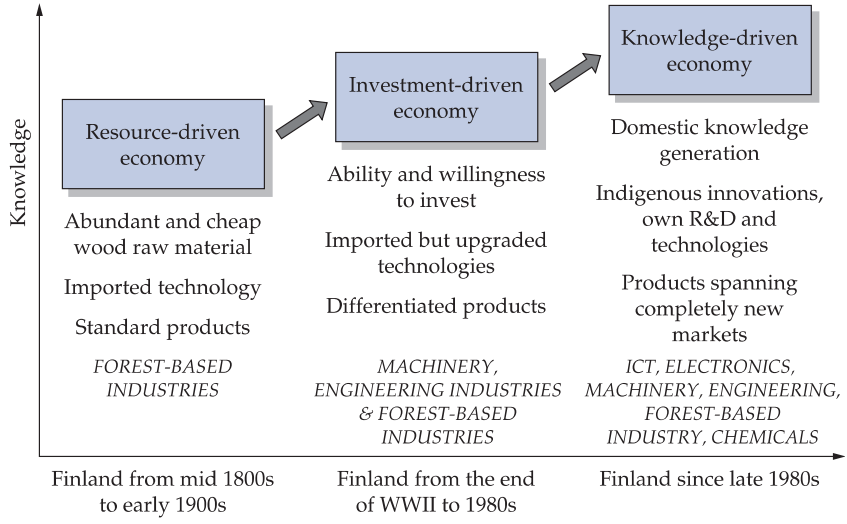
Finland has evolved quickly from a resource driven economy to a knowledge driven economy

It is important to note that *a knowledge economy is an ensemble of elements that must be in balance.* It is not necessarily the lack of technological infrastructure or skilled engineers that restrains economic growth. It might equally well be the lack of entrepreneurs or proper economic incentives and opportunities.

Finland's industrial renewal benefited from liberalizing trade and lifting the remaining restrictions on capital flows in the 1990s

In Finland, the specialization of production, trade, and R&D in more knowledge-intensive goods and services coincided with the gradual opening of the economy and deregulation of capital flows. *A peculiarity of the Finnish case is the atypical pattern of industrial renewal from essentially natural-resource-based industries toward machinery, engineering, electronics, and ICT.* There are few, if any, other examples of natural-resource-abundant countries that have managed to transform their industrial structures toward higher knowledge intensity and value added so rapidly and successfully as Finland. *The origins of the Finnish knowledge economy can be traced back to user-producer linkages between the forest-based industries as early users of high technology, and the emerging engineering, electronics and ICT industries in the 1960s and 1970s* (figure 6).

Figure 6. Finland's stages of industrial and economic development



Sources: Adapted from Porter 1990 and Hernesniemi and others 1996.

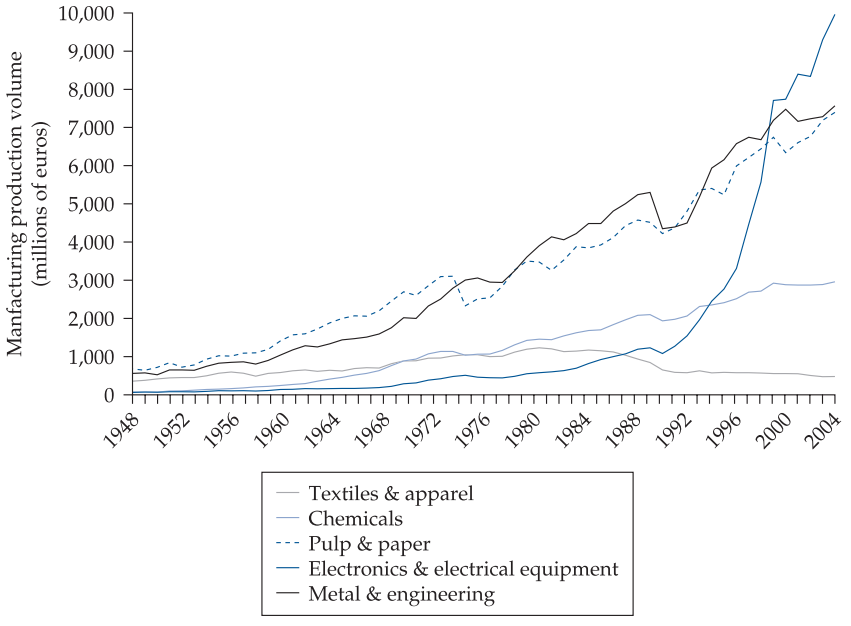
Finland's industrial renewal has benefited from the government's liberalizing trade and lifting the remaining restrictions on capital flows in the 1990s, which promoted investment in general and the inflow of foreign capital in particular. It is important to note that the developments in industry were pivotal to the Finnish ICT-driven path toward the knowledge economy. These developments resulted from the increased investments in R&D. However, even though *public* funding of R&D has increased substantially during the past decades, its relative share of total R&D expenditures has decreased. Increasingly, investments in R&D have been *privately* funded. Presently, private funds account for some 70 percent of the total.

The increase in private R&D is attributable, above all, to Nokia. Although there are also other firms, Nokia was the industrial engine for developments in the ICT industries in Finland. Nokia thereby to a significant extent influenced the rapid industrial restructuring in the 1990s toward electronics and electrical engineering (figure 7). By 2003 Nokia accounted for 25 percent of Finland's total R&D expenditures, 3.7 percent of GDP, and 20 percent of total exports.

Policy emphasis has shifted from macroeconomic toward microeconomic policies

In addition to Nokia, industrial and innovation policies contributed to the development of the Finnish knowledge-based economy, both indirectly and directly. *Especially noteworthy is the shift in the focus and content of industrial policies in the 1990s away from macroeconomic policies and industrial subsidies toward microeconomic "conditions-providing" policies.* The latter

Figure 7. Finnish manufacturing production volume by industry *(millions of € in 2000 prices)*



Source: Statistics Finland, National Accounts and ETLA calculations.

put R&D and innovation center stage. Public subsidies are now increasingly R&D-based, and market failure remains the main justification stated for these policies. Furthermore, science and technology (S&T) policies have been integrated under the common umbrella of innovation-oriented industrial policies. In addition, most public research funding is competitive—that is, not only companies but also research institutes and universities are put in competition for the project financing provided by various government agencies.

On a sectoral level, Finland had a long tradition of a competitive market structure in telecommunications operation, in which the state monopoly covered only the trunk networks. This tradition combined with further liberalization of the telecommunications market early on are the main explanations for the rapid diffusion of mobile telephony in Finland. At present, despite almost full trade liberalization, Finland still has some regulations and trade restrictions in the service sector as part of common European Union policies.

Specificities of Finnish industrial and innovation policies

A systems view was adopted early in industrial and technology policies

A specificity of the Finnish "model" has been the early application of a systems view of industrial policy. This systems view could be described as *an acknowledgement of the importance of interdependencies among research organizations, universities, firms, and industries due to the increasing importance of knowledge as a competitive asset*, especially in the case of small open economies with a well-developed welfare system. Furthermore, *the systemic approach to policymaking is based on the notion that the various stages of innovation process—from basic research to commercialization—often are simultaneous rather than sequential, and funding and services are demanded accordingly.*

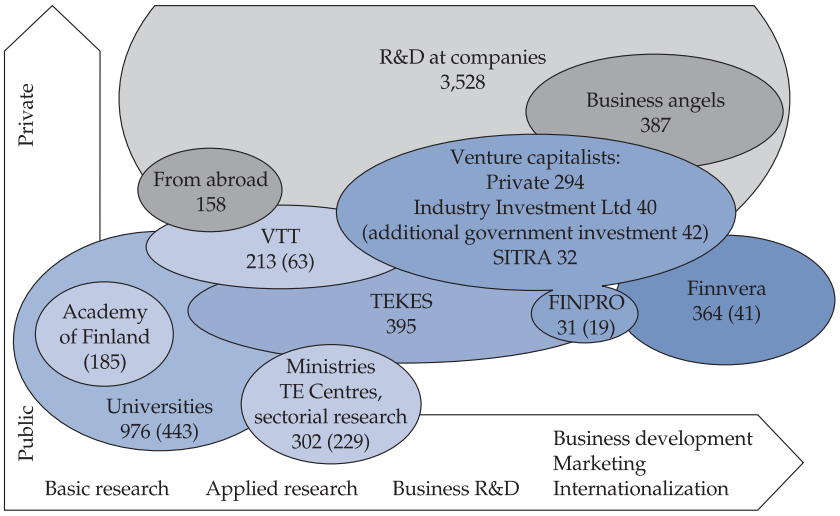
However, it is important to stress that a systems view of industrial policy does not imply that Finland has followed a "master plan" in which the government played a strong leading role. Rather, *the systems view was concretized through an emphasis on responsive longer-term policies to improve the general framework conditions for firms and industries, especially in knowledge development and diffusion, innovation, and clustering of industrial activities.* The systems view was formulated through various public-private partnerships involving economic research organizations, industry federations, and firms; and was anchored in broader economic policy circles.

The first definition of the systems view of industrial policy is found in the 1990 Review of the Science and Technology Policy Council. The council made the concept of a national innovation system an important cornerstone for science and technology policy. However, *the more significant and concrete consequence of this new systems view was the high priority that the government gave to investments in R&D.* In hindsight, given the severe economic recession that Finland was enduring at the time, this prioritization appears a bold one. However, it again exemplifies the strong integration between technology and industrial policy in Finland.

Institutions and policy organizations have also played an important role in Finnish knowledge economy development

As just mentioned, institutions and policy organizations also have played important roles in Finnish knowledge economy development. A systemic view of policies is reflected in how different organizations in the national innovation system see their roles in promoting science and technology. Each organization

Figure 8. Science and technology system in Finland: Resources and funding



Source: Tekes 2005.

has its relatively well-defined function in the national innovation system, but at the same time there are public initiatives and efforts to increase collaboration among various innovation agencies. Such collaboration extends from basic research and R&D to business development and the commercialization of innovations.

The collaboration between funding and innovation-promoting agencies is based on the systemic model of innovation defined above, as opposed to the old linear model. *The various stages of the innovation process—from basic research to commercialization—are funded simultaneously* to a greater extent than before (figure 8). This new funding logic demands closer collaboration and coordination among the various public and private sector funding organizations. The collaboration intensified in the 1990s during the ICT boom and has proved to be important in many other fields of science and technology as well.

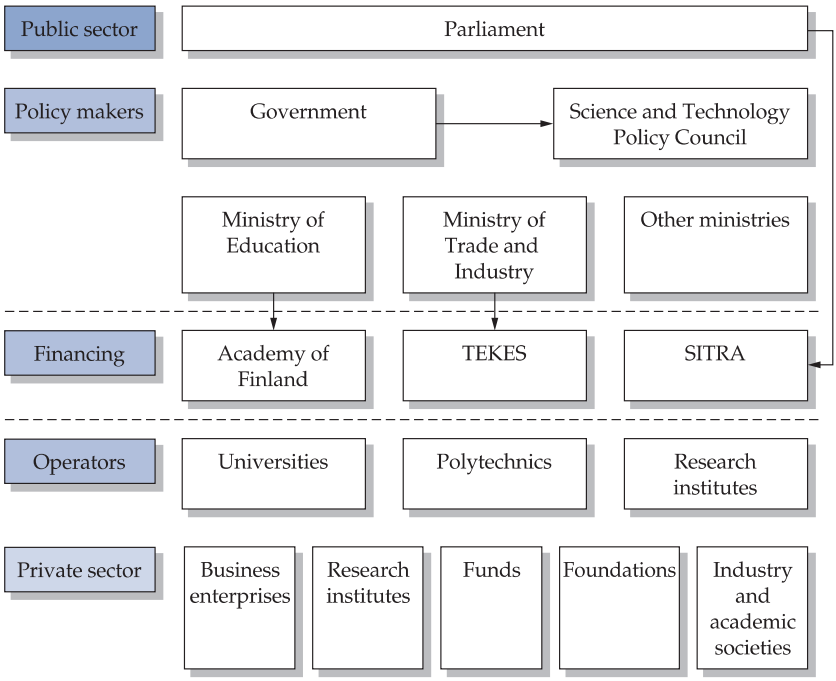
The science and technology system in Finland has many public and private institutions with specialized functions

The most important public players in the national innovation system and their positions and roles in the Finnish system of innovation are illustrated and described below (figure 9). The Science and Technology Policy Council is a relatively independent player and the most important coordinator of science and technology policies. The other public players are subordinated to either the Ministry of Education or the Ministry of Trade and Industry. Sitra is a public foundation operating under the Parliament.

There is close coordination between the public and private sectors

The Science and Technology Policy Council is chaired by the Prime Minister and is responsible for the strategic development and coordination of Finnish science and technology policy as well as of the national innovation system as a whole. The high

Figure 9. Finnish innovation system: Organizations and coordination



Source: Adapted from www.research.fi.

level of the Council is also clear from the fact that it consists of the other most important Ministers, and other major stakeholders in science and technology.

The Academy of Finland focuses on financing basic research. The Academy's objective is to promote high-level scientific research through long-term quality-based research funding, science and science policy expertise, and efforts to strengthen the position of science and scientific research. The Academy's operations cover all scientific disciplines. It operates within the administrative sector of the Ministry of Education and is funded through the state budget. Approximately 15 percent of all government research funding is channeled through the Academy.

The National Technology Agency, or Tekes, has a major role in formulating Finnish innovation and technology policy by allocating funds for research and development in private firms and research organizations as well as in universities. Approximately 30 percent of the government's total R&D budget is channelled through Tekes. The agency was established in 1983 and functions under the Ministry of Trade and Industry.

Tekes—the National Technology Agency—has a major role in building university-industry collaboration

The major financial instruments of Tekes are (1) industrial R&D grants and loans to firms and (2) grants for applied (technical or technology-related) research in public organizations. Typically, research grants are allocated via technology programs planned in collaboration with firms and research

institutes. The technology programs launched by Tekes set priorities for specific sectors of technology or industry and define the allocation of money for R&D in different fields.

The Technical Research Centre of Finland, or VTT, was established in 1942. It has become the biggest polytechnic applied research organization in Northern Europe and is integral to Finland's innovation system. By developing new technological solutions and applied technologies, VTT helps its clients to improve their competitiveness. VTT also promotes technology transfer by participating in national and international research programs and collaborative networks.

Good public governance and a low level of corruption are essential to the knowledge economy

The Finnish National Fund for Research and Development, or Sitra, to fill the need on the public side to have an instrument by which to experiment and start new activities without the budgetary delays and political commitments of government to carry them out immediately on a broad front. To do this requires sufficient economic means preferably as an endowment and flexibility in decision making. Sitra was established in 1967. Initially, it was subordinated under the Central Bank of Finland, but since 1991, it has operated as a public foundation under the Parliament.

For economic success, certain social and institutional innovations are as important as technological ones. For almost two decades, good governance and a low level of corruption have been strongly connected to the notion of the knowledge economy. Good governance and political transparency play an invaluable role in the Finnish society, particularly in its knowledge economy. Institutions, both administrative and political, also do matter. One example of institutional innovation is the Committee for the Future, a standing committee of the Parliament of Finland, which has signified the need for longer-term orientation and consensus building in politics and the development of a sustainable knowledge-based economy (box 1).

The Committee for the Future is an example of an institutional innovation for creating consensus

Education: quest for equity and high quality

Education is the key element of a knowledge-based, innovation-driven economy. It affects both the supply of and demand for innovation. Human capital and skilled labor complement technological advances. New technologies cannot be adopted in production without a sufficiently educated and trained workforce. The demand side is also important since innovations may not take place in the absence of educated and therefore demanding customers and consumers.

Education is the key to both the supply of and demand for innovation

In OECD's recent Program for International Student Assessment studies (PISA 2000 and 2003), Finland emerged at the top in terms of learning skills among 15-year-olds in mathematics, science, and reading literacy. Other high performers included Asian countries: Hong-Kong China, Japan, and Korea. What is unique in the Finnish case is the low variation among schools and across students. Significantly, the low performing group did better than the average of the some 40 countries surveyed.

Box 1. Committee for the Future

The Committee for the Future is one of the Parliament of Finland's 15 standing committees. The committee has 17 members who all are Members of Parliament and represent different political parties. The committee is the only of its kind in the world. Its task is to conduct active and initiative-generating dialogue with the government on major future problems, including knowledge economy developments. The committee has been given the special task of following and using the results of research on future trends.

The idea of conducting policy work on the future in Parliament came from the floor. In 1992 a large majority of Parliament Members accepted an initiative that called for the government to submit a report to Parliament on Finland's long-term prospects and options. In 1993 Parliament established a temporary Committee for the Future to prepare responses to the policies outlined in the government's report. In 2000, in connection with Finland's constitutional reform, Parliament decided to make the Committee for the Future a permanent committee.

The tasks of the committee include[1]:

- Assessing the social impact of technological development and serving as the Parliamentary body responsible for assessing technological development and its consequences for society
- Issuing statements to other committees on matters related to the future when asked
- Initiating public discussions of issues pertaining to future development factors and development models
- Analyzing research regarding the future.

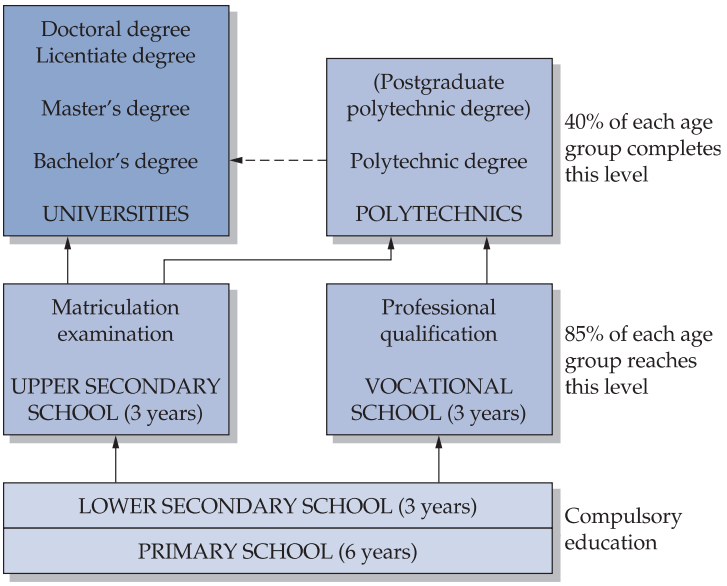
In the Finnish education system, the local authorities are largely responsible for organizing basic education and schooling. Equality by gender, region, and socioeconomic background are fundamental principles of the Finnish education policy. Everyone receives the same basic education, and, furthermore, it is the goal of the educational system that no one relies on basic education alone. Previously, equality was considered quantitatively, and the distribution of schools and access to them were measures of equality. Nowadays, equal quality of education for everyone is the goal, and individual learning results are the measure of success. The social security system in Finland also exerts a strong incentive for young people to continue educating themselves after the lower secondary school, which is normally completed in the age of 15–16 (figure 10). One example of this is the requirement that a person must be 18 or over to qualify for unemployment benefits. Hence, there is an incentive to continue to go to school (free for everyone) after completing the lower secondary education.

Equality by gender, region, and socio-economic background are fundamental principles of Finland's education policy

Initially, starting in the twelfth century, all education in Finland was in the hands of the Church, and classes were taught only in Latin. However, since the early nineteenth century, education policy and the development of the education system in Finland have exhibited the above-mentioned principle of equality. The country also recognized the connection between educating the populace and economic growth

[1] See www.parliament.fi/FutureCommittee.

Figure 10. Finland's education system



Source: Ministry of Education 2003 and Leijola 2004.

early on. Finally, educating the common people served as tool in nation-building prior to Finnish independence in 1917.

In contrast, in higher education, economic trends and the demand for certain skills have played significant roles in education policy. The expansion of the Finnish higher education system has followed and supported the course of economic development. Since the mid-1990s, the number of researchers in both the private and public sectors has risen faster than ever before in the country's history and ranks first in the world when compared to total employment (figure 11).

The expansion of the Finnish higher education system has followed and supported the course of economic development

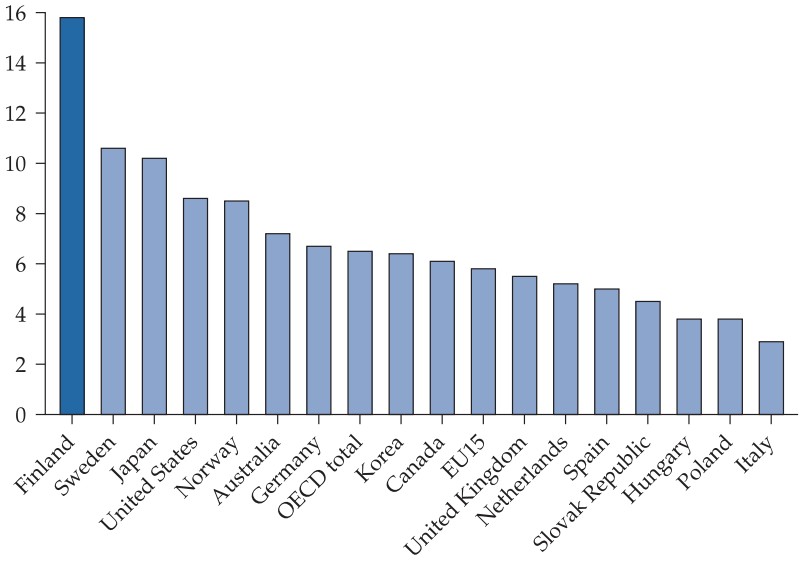
Challenges ahead

Clearly, the knowledge- and R&D-oriented, "high-road" strategy that Finland has pursued since the early 1990s has been one of the European and the world's success stories. *Giving high priority to sound macroeconomic policies but gradually shifting the policy emphasis to microeconomic policies have proved wise choices.* After all, the competitive edge of an economy is created at the micro level: in firms, innovation and policy organizations, and educational institutions.

The country's stellar economic performance during the past 10 to 15 years is attributable in considerable part to developments in the ICT sector. Being one of the leading pro-

Giving high priority to sound macroeconomic policies but gradually shifting the emphasis to microeconomic policies have proved wise choices

Figure 11. Number of researchers *(per thousand employed)*



Source: OECD 2005.
Note: Refers to 2001 or the latest available year. See the source for additional notes.

ducers of a new generic technology certainly has created a strong competitive edge for the country. Consequently, many of the future challenges relate to ICT and the sustainability of competitiveness. Can the position gained be maintained?

Current competitiveness is not a guarantee of future growth

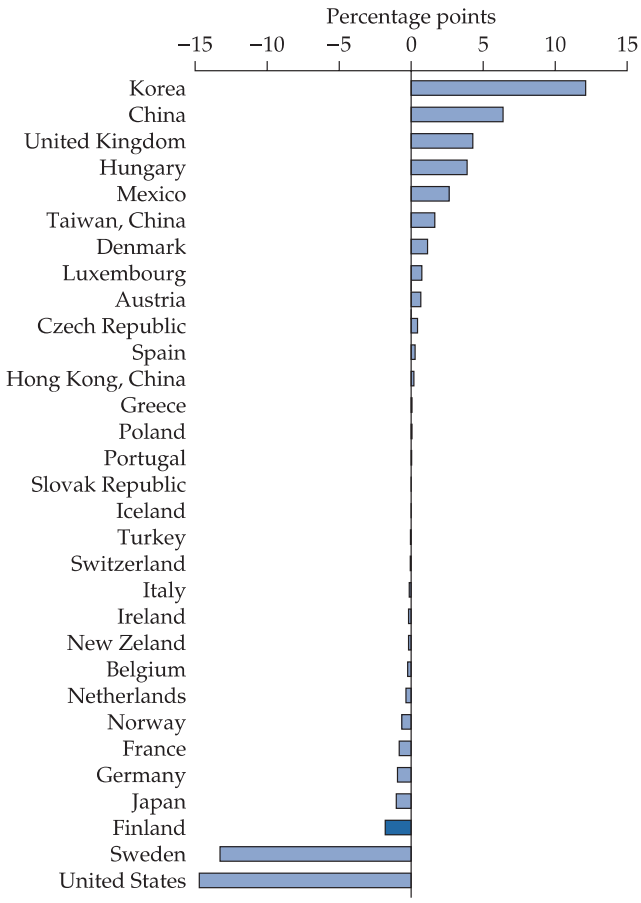
The current competitiveness is not necessarily a guarantee of future growth. Across the world, competitiveness rankings seem to predict future growth relatively poorly. Many of the Asian countries that were ranked high in the early 1990s serve as examples. *Sustainable competitiveness is built on constant upgrading and renewal which, as this case study demonstrates, is made possible by a responsive higher education sector, a strong capability to innovate, and an effective ICT infrastructure.*

*Regarding the latter, it is the **use** of ICT—not necessarily its production—that is decisive for long-term economic growth.* As the technology matures, the production gradually will spread to new locations. The ICT revolution is by no means over yet, but parts of both technology and service production have started to relocate. The geography of the ICT industry is reconfiguring in a similar way as previous breakthrough technologies (figure 12).

The big policy issue today is whether Finland can keep its Nordic welfare model and still compete successfully in the globalized world economy

The big policy issue today is whether the country can keep its Nordic welfare model and still compete successfully in the globalized world economy. In Finland, *productivity is the key to meet the increasing financing requirements of the welfare society.* Due to Finland's relatively larger baby boom generations after the war, the aging of its population is proceeding

Figure 12. Changes in the countries' global mobile phone market shares between 1996 and 2002



Source: Rouvinen and Ylä-Anttila 2005. Calculations are based on OECD International Trade by Commodities Statistics.

Notes: Percentage points. Here "mobile phones" refers to the International Trade by Commodity Statistics (HS96) code 852520 (Transmission apparatus, for radiotelephony incorporating reception apparatus). The total global export market is defined as the sum of the above 31 countries. The difference of the shares are calculated from the nominal US$ values in 1996 and 2002. Export statistics unavoidably include some through-traffic, so they must be interpreted with caution.

somewhat faster than that of other European countries. The working age population (15–64) will start to decline before 2010. This decline will have several consequences for knowledge economy developments as well as for the whole society. On the one hand, the decline will provide opportunities to develop ICT-based welfare services in the public sector. On the other hand, it implies a tough challenge to keep the productivity growth fast enough. However, as the labor input of the aging population declines, keeping up this growth becomes increasingly difficult.

Can both the dynamism of the economy and social cohesion and welfare be maintained in the future? To address these issues, a high-level expert group with representatives from various expert organizations and ministries was initiated by the Prime Minister. Its report recommended, among other things, focusing on a few world-class centers of excellence in science and technology. The report also recommended further increasing public R&D funding but, basically, only for competitive research. The main idea of all of the group's recommendations was to pursue maintaining the competence base across the board, but increase it in selected focus areas by concentrating public efforts. The rationale of the policy shift would be that a small country simply cannot be competitive except on a very few sectors or industrial clusters in the global economy.

Can both the dynamism of the economy and social cohesion and welfare be maintained in the future?

Lessons to be learned

Finland has many specific characteristics that cannot be replicated easily by many other countries. One of these characteristics encompasses two attitudes: an independent spirit of self-reliance and a "can-do" mindset that have been tempered by weather, geography, and occupations. Before national independence in 1917, long periods under the rule first of Sweden and then of Russia also contributed to the independent spirit and strong national spirit of self-reliance with the will to overcome difficult odds.

Finland has many specific characteristics that cannot be replicated easily by many other countries.

Another tempering factor is that since Finland has 60 percent of the world's population who live as far north as the Finns do, partly above the Artic Circle, over time, the very cold climate has created a very hardy population who must plan ahead to survive. For example, in the 1860s, when two summers were too short for a growing season, 5 percent of the population starved to death.

A second specific characteristic—shared with other Nordic countries—comprises a strong spirit of cohesiveness, high moral values, an emphasis on equality, and relatively equal income distribution. These traits probably result partially from Finland's historical geographic isolation and quite homogeneous gene pool. The traits also may have been strengthened by its unique language, which is distinct from the other Nordic languages and which forms an exclusive bond among the Finns and differentiates them from others.

A third characteristic is a willingness to interact with the outside world in an open but strongly nationalistic way. Perhaps because of the country's geographic isolation, Finns have a natural curiosity about the outside world that has made them very open to outside ideas and technology. In the 1800s, Finns relied heavily on timber and sawmill technologies from their Nordic neighbors and the Germans. Finns also were among the first to introduce electricity and to use the telephone. Similarly, they were very open to experimenting with different telephone technologies almost as soon as they were invented and to develop their own versions.

One characteristic encompasses a strong spirit of cohesiveness, high morals, and emphasis on equality

While several other characteristics may be somewhat unique to Finns, these three have been highlighted because they appear to be part of what has enabled Finland *to build a successful nation state* and, more recently, turn a major economic crisis into an opportunity and *to transform itself from a somewhat marginal economy in Europe to the most competitive and knowledge intensive country in the world in less than a decade.*

On another front, key policies that are partially responsible for Finland's success are quite typical of the Washington consensus. These include:

- Strong rule of law
- Strong governance and accountability
- Stable macroeconomic policy
- Strong financial sector (after the 1990s crisis)
- Openness to outside ideas and a free trade regime
- Strong focus on encouraging domestic competition.

Liberalization of financial markets in the 1990s was instrumental to developing the knowledge economy

Some of these—strong rule of law, strong governance and accountability, and strong tradition of encouraging domestic competition—are among Finland's strong cultural and historical characteristics and traditions. The strong openness to outside ideas and technology dates back to the early development of the forestry industry in the nineteenth century and has been a marked feature of the development of the ICT industry. It should be noted that, even before joining the EU, Finland undertook significant trade reform to foster stronger competitive pressure that would improve performance across many sectors of its economy.

Other policies, however, such as strong macroeconomic policy and financial sector and the free trade regime, are relatively more recent and were strengthened as part of the commitments that Finland made when it joined the European Union. Before it joined the EU and the European monetary union, Finland suffered from significant macroeconomic and exchange rate instability. In fact, its financial crisis of the early 1990s was not too dissimilar from those common in many developing countries.

Many of the Washington consensus policies may be considered necessary but not sufficient to explain Finland's transformation to a knowledge economy

After the 1990s crisis, reforming the banking system and strengthening the capital markets, including venture capital, were important to make financing available for the growth of the new knowledge-intensive sectors of the economy, particularly the ICT cluster. Moreover, the financial and economic restructuring that took place after the crisis broke the traditional banking-led relationships including with Germany and Japan and led to a more dynamic and open financial system led more by stock market capitalization. The financial restructuring also included the liberalization of capital accounts and the removal of restrictions on foreign investment. These two actions did not occur until 1993, when Finland joined the European Economic Area, and they were fundamental in transforming the economy. By 2000, 67 percent of the shares of the Helsinki stock exchange were foreign owned as were more than 90 percent of Nokia's shares.

Clearly, all of these policies have been very important for Finland's success and may be considered necessary conditions, even if not sufficient, to explain its successful transformation into a knowledge economy. However, it should be re-emphasized

Other policies are less typical of the Washington consensus

that Finland's very strong early focus on competition in the telecommunications sector in particular was critical in laying the basis for a very dynamic sector and strong domestic capability. These then were critical for the development of Finland's very strong ICT sector.

Other policies are less typical of the Washington consensus. These include:

- Strong welfare state, particularly the very strong focus on education
- Strong focus on coordination of policies among key government agencies and between them and the productive sector
- Strong focus on R&D and innovation
- New type of industrial policy
- Strong focus on the future.

The Nordic welfare state with its strong social safety net and strong focus on free public education was an important element of Finland's transformation. The social safety net was particularly important in addressing the jump in unemployment during the early 1990s crisis. The focus on retraining people and linking unemployment benefits to getting additional education also were very important in restructuring the economy toward high-technology industries. A special characteristic of Finland's educational system, which differentiates it from the Anglo-Saxon Washington Consensus, is that education is free all the way up to the university level. Other notable characteristics of Finland's education system are its strong focus on equality measured by outcomes, tying welfare payments to training for young persons, tremendous openness; and focusing higher education on the needs of productive sector.

On a broader level, it is appropriate to reflect on what can be learned from the Finnish experience and what this implies for developing countries.

One key lesson is that it is possible to make a dramatic recovery in GDP, undertake a major restructuring, and turn a crisis into an opportunity

The first lesson is that it is possible for a country to make a dramatic recovery in GDP and undertake a major restructuring, as Finland did. An important corollary is that a crisis can be turned into an opportunity. However, for this to happen, there may need to be certain preconditions as well as great flexibility in the economy.

Finland is not unique in turning a crisis into an opportunity. Korea turned its major 1997 financial crisis into an opportunity to undertake a major reform of its economic incentive and institutional regimes. On the other hand, Japan did not turn its early 1990s crisis into an opportunity for major reform. This difference requires reflection.

In the case of Finland, what made this restructuring possible included the special characteristics already noted of a strong "can-do" attitude and strong social cohesiveness. These were complemented by the strong safety net of the welfare state. Without these three, it is not clear that it would have been possible for Finland to cope with unemployment that grew close to 20 percent and a wrenching restructuring process in which people were redeployed from declining sectors in the old economy to the new ICT sectors. The already high education level of the population and the very robust response of the tertiary education sector to expand and produce workers with the new ICT skills were additional facilitating elements.

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Another special element was that there was a large conglomerate, Nokia, which was able to rise to the challenge. It is particularly noteworthy that, at the time of the crisis, Nokia was a large diversified conglomerate that had been growing through mergers and acquisitions. Besides feeling the effects of the general economic crisis, it was going through its own internal identity and management crisis. However, it decided to divest most of the traditional business and focus on the ICT sector, and mobile telephones in particular. Its success in making this transformation is legendary and hard to explain and ultimately probably has to be attributed to its new management.

Nokia's success was facilitated not only by its long history of developing capabilities in the ICT sector and its acquisition of some companies in the sector but also by the government's strong vision of the potential of the sector and by the flexibility of the economy in responding to the opportunity. The opportunity included the:

- Availability of high-level manpower who had been idled by the collapse of other businesses
- Strength of the university and research infrastructure
- Quick response from the educational system in producing the needed new engineers, managers, and skilled workers
- Availability of foreign capital to fund the growth of the ICT sector
- Availability of venture capital and government seed funding to start up new high-tech enterprises that became part of the ICT cluster that grew up around Nokia.

A second lesson is that globalization is a double-edged sword and a demanding task-master

A second lesson is that globalization is a double-edged sword and a demanding task-master. Finland's crisis in the early 1990s, in part, resulted from the global downturn of the forest-related industry as well as the collapse of its trade with the former Soviet Union. Part of the solution to the crisis also resulted from globalization. The dramatic development of the ICT industry is part of globalization. Finland's rapid growth in the ICT area was possible because of globalization both in terms of (a) producing for a world market and (b) its ability to access the foreign capital and knowledge that it required to develop the industry.

On the other hand, Finland is also struggling with the impact of globalization, which is putting pressure on it to improve its technology and education system to stay competitive in a very demanding global environment. Finland still has an unemployment rate of nearly 10 percent. As noted in the Prime Ministers report on Finland's Competence, to face the challenge of globalization "*requires an economy and society that are capable of change and can make best use of their strengths*." To this end, the report proposes that "*a competence-based strategy requires continuous renewal from the economy. Reforms must apply not only to the weak points of the crucially important education and innovation systems, but also to the functioning of the markets for labor, goods, and services, and the public sector*."[2] It then sets out a series of reforms to strengthen all these areas, even though, by most international comparisons, Finland is already doing better than most countries. All of Finland's concerns above emphasize just how much pressure globalization is putting on even the most competitive player.

[2] Prime Minister's Office, 2004.

The third, and perhaps the most critical, lesson is *the importance of flexibility or elasticity of the economy to react of changing opportunities.* Finland's case aptly demonstrates the importance of this flexibility in the way that it was able to significantly restructure its economic structure as a result of the crisis of the early 1990s. Two critical aspects of that process of creative destruction were the very strong social cohesion and strong safety nets. However, *it is perhaps the educational system that has played the most critical role.* Finland already had a high level of educational attainment, which facilitated the necessary restructuring of the economy. In addition, the educational system was able to respond very quickly and flexibly to the new opportunities. Furthermore, *increasing this flexibility is seen as a key priority to respond to the continuing challenge of the constant restructuring that results from globalization*

A third lesson is the importance of flexibility for an economy to react to changing conditions, and the critical role of a responsive education system

The Finnish experience also has several implications for developing countries.

The first implication is *the continued importance of the basic elements of the Washington Consensus.* These elements are essential to give the economies the flexibility they need to constantly redeploy assets to their most productive uses.

The second implication is *the imperative to develop vision and consensus-making mechanisms.* Reforms involve changing the status quo, and doing so usually does not happen unless there are major external or domestic forces pushing or demanding such changes.

Finland's experience drives home the importance of developing vision and consensus making mechanisms

The third implication is *the importance of developing appropriate knowledge strategies,* Finland had to increase higher educational attainment in general, and scientific and technical skills in particular. These challenges involved not only increasing R&D expenditure but also focusing on getting the fruits of R&D into the market. Finland's strong emphasis on the systemic approach to innovation evolved, including bridging the entrepreneurship and financing gaps to turn invention into commercial application.

*These strategies have to be adjusted to the specifics of each country. F*or the majority of developing countries the focus needs to be somewhat different than Finland's. Because, in virtually all sectors, developing countries are still very far from the technological frontier, they still need to put priority on developing effective means of tapping the pre-existing and rapidly growing stock of global knowledge.

Finland's experience demonstrates the importance of developing appropriate knowledge strategies which, however, have to be adjusted to the developing countries' conditions

Developing countries need to put more weight than they do now on understanding, acquiring, adapting, diffusing, and using existing knowledge, including indigenous knowledge. This includes putting in place basic technological infrastructure such as norms and standards, metrology, testing, and quality control, as well as strong dissemination mechanisms and institutions such as technical information centers, productivity organizations, and agricultural and industrial extension agencies. In addition, developing countries need to

set up public research institutes that can help them access what global technologies may be relevant and help them adapt these technologies to their circumstances.

More importantly, utilizing their existing knowledge also involves creating technological capability in their productive firms and in getting them to invest in improving and eventually creating their own technologies in their most advanced sectors.

Developing nations also will have to pay more attention to all levels of education. To the extent that many still have very low educational attainment, they will have pay more attention to strengthening universal basic and secondary education for their citizens to become effective users of technology. They also will need to improve higher level secondary education and even higher education to keep up with and make effective use of the rapidly expanding technological frontier.

Developing an effective innovation system also involves attracting FDI that can bring in relevant new technology to advance local economies. Attracting FDI also includes getting into global value chains controlled by multinational companies and trying to move up those value chains. It also includes developing linkages and networks between domestic public and private research institutes and universities and foreign ones, as well as among all of these domestic institutions.

It is important to focus not only on what can be learned from the past, but also to anticipate and prepare for the future

A final implication for all countries is *the importance of focusing not only on what can be learned from the past (their own and other countries' experience) but on anticipating and preparing for the future*. This is one of the key lessons of the Finnish example and explains to some extent why Finland not only was able to make such a dramatic transformation to a knowledge-based economy but also why it has been able to remain so competitive.

Moreover, as can be inferred from the challenges that Finland is facing as a result of the rapid advances in knowledge and the continuous challenge of globalization, the world is not standing still. What worked in the past may not work in the future, and the prerequisites for being successful seem to be rising ever higher and becoming ever more demanding. Thus derives the importance of looking forward to see to what extent it is possible be better prepared for future challenges and opportunities. Developing countries in particular need to monitor this aspect closely because there may be important new areas that can be exploited, and it will be necessary for them to be ready to move to take advantage of them.

What worked in the past may not work in the future, and the prerequisites for being successful are becoming ever more demanding

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ANTONI KUKLIŃSKI

Towards a new creative and innovative Europe A SUBJECTIVE POST SCRIPTUM

This *post scriptum* is representing only my personal opinions which do not have any institutional validity. To my mind the rich and differentiated content of the volume should be seen as an element of a brainstorming trajectory introducing some new dimensions in the grand debate related to the Future of Europe. In this trajectory we could be inclined to see four problems which are a challenge for our wisdom and imagination.

Primo—the challenge of an honest and courageous diagnosis of the deep structural crisis of Europe facing the greatest transformation of the global scene in the last 500 years.

Secundo—the challenge to develop rapidly the art of strategic thinking in Europe. Eurofuturology is a imaginative framework in this context.

Tertio—the challenge to develop and implement a magnificent dream of a New European Renaissance—a Renaissance of Creative and Innovative Europe[1].

Quarto—the challenge to mobilize our intellectual and financial capacities to design and implement a grand research, conference and publication programme *Towards a new creative and innovative Europe*.

A dynamic reading of the rich content of our volume will find many brainstorming inspirations for our thinking and *modus operandi* in the near future.

Warsaw – Nowy Sącz 2007

[1] Compare the interview with José Manuel Barroso (in:) Forum on Politics, Culture and Business Deutchland, No. 6/2006 German EU Presidency 2007, the title of the interview: Innovation and creativity are our source of opportunity.

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Definitely, the decisive moment when a radically new idea emerges, or a major scientific discovery is made cannot be planned for. But there are numerous examples in the history of university-based research which prove that it is possible to establish a particularly stimulating environment which is clearly more conducive to achieving scientific breakthroughs than others. And although there is no one-size-fits-all kind of recipe we can apply, it is certainly worthwhile to try and try again. In research as well as in research funding it sometimes helps to remind ourselves of what the French writer Albert Camus once said: "We must conceive of Sisyphos as a lucky man." So there is nothing left but start rolling the heavy stone of creative research once more up the hill.

from: Wilhelm Krull, *Creativity and Innovation as a Challenge for European Universities and Foundations*

Creativity is addressed to the future and performs best when embedded in some open-ended vision that extends beyond practical considerations of the present; be it art, duty, freedom, science, truth, etc. This provides criteria, which creators might use to evaluate their progress.

[...] Many attempts to produce creativeness on demand have generally failed. Evident successes in fine tuning and combining of the innovations which already existed were misleading. The breakthrough inventions, with capacity to make a real difference, are of another breed.

For some time, huge financial and organizational inputs in European research have failed to provide an adequate economical output. Europe's creativity lag behind the US and East Asia would not be so galling, if not for the fact that just three generations ago Europe's amazing innovative flair was a beacon of progress on Earth.

Creativeness is a plant growing in the specific cultural soil and in the specific social and business climate. The key words are adaptation and social capital. Creativeness is a very subtle plant and cultivating it can be tricky. Imitation of general conditions, which prevail in the countries where it grows, leads nowhere; as it grows mostly in niches. Statistics are not very instructive, as the most important things happen within margins of errors.

The fixing of Europe's innovative drive has been put on the top of the EU political agenda. Understanding what has happened to the once superior mechanism might help to reach this goal. It might turn out that EU should look for inspiration in its cultural roots rather than in technocratic practices elsewhere.

from: Roman Galar, *What is behind the European Paradox*

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