

**BUSINESS AND NON-PROFIT  
ORGANIZATIONS FACING INCREASED  
COMPETITION AND GROWING  
CUSTOMERS' DEMANDS**

**Volume 12**

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## **INTRODUCTION**

It is time to present you with a subsequent volume, the 12th in a series concerning organizations faced with the modern day challenges of competition and consumers. This year's monograph features articles, as every year, touching upon the four following areas: business and non-profit organizations as the object of research, modern tools for business and non-profit organizations, management, business and non-profit organizations – global and regional aspects, as well as financial aspects of organizational management.

Commercial and non-commercial organizations are involved in a continuous process of change and adaptability. Hence, there are various concepts accompanying the unending flow of organizational problems presenting themselves. One of these, is a concept developed within the analytical framework of business negotiations useful in the analysis of different types of negotiations. Another is the use of information management systems for decision-making particularly in the context of small and medium-sized enterprises. The first section contains a discussion on the functioning of virtual teams and associated management issues, while also introducing the concept of socially responsible innovation and the impact of social media on the image of the organization.

Information technology is becoming an inseparable part of the functioning of any organization acting in support of management processes. Thus, the concept of using the Graph Theory to analyze the data collected by the managerial tools at [transistorshead.com](http://transistorshead.com), as well as the concept of more effective marketing communication in a virtual environment. In this part, also, the authors refer to the pertinence of developing methods to identify barriers to early detection of environmental changes at the individual, group and organizational level.

In the section of the monograph dedicated to global and regional aspects, some articles appear concerning the overall health of the knowledge economy in Poland and Europe, in which an important element becomes public aid. This aid can be seen as an instrument in the mechanism of state intervention used in the financing of innovation. An assessment is done, also, concerning the functioning of the fee structure for use of the environment and an analysis is included regarding the impact the organization of municipal services for the provision of municipal services.

The final section of the monograph examines financial aspects. At this point there is an attempt to tackle dilemmas surrounding the recognition of financial risk, the attractiveness of financial instruments and particularly convertible bonds on the Catalyst market, as well as the guiding role of bank credit in the economic crisis. Also referred to is the discriminatory use of models for the prediction of bankruptcy of enterprises and related tax aspects.

We hope that these diverse topics and issues will be of interest to you, the reader, as well as the approach adopted by the authors of this monograph to analyzing and solving these. You are invited to read our book.

**Adam Nalepka, Anna Ujwary-Gil**

**I.**  
**BUSINESS AND NON-PROFIT**  
**ORGANIZATIONS AS THE OBJECTS**  
**OF RESEARCH**





# THE CONCEPT OF BUSINESS NEGOTIATIONS ANALYSIS

**Andrzej Kozina\***

## **Abstract**

*The objective of this paper is to present the author's methodological concept (framework) of business negotiations analysis. Such an analysis constitutes one of the crucial stages of the first phase (sub-process) of business negotiations planning, which is called, identification and pre-negotiations analysis. Firstly, the general idea of the entire negotiations planning process and its phases and stages were presented. Secondly, in the subsequent parts of the paper the three following components of the suggested concept were characterized: a general description of business negotiations as an object of research, the process of negotiations analysis as well as particular tools being applied to solve key problems within that analysis. Finally, summing up the paper, the areas of future research were pointed out, focusing on improving the presented concept.*

**Keywords:** *business negotiations, the process of business negotiations planning, business negotiations identification, business negotiations analysis.*

## **1. Introduction**

Nowadays the following features of business negotiations may be observed:

- more and more frequently negotiations involve numerous parties at the table making it difficult to reach a satisfactory agreement between the different stakeholders,
- it is necessary to include their various objectives, either common or conflicting,
- negotiation situations are affected by many external factors, which make them difficult to identify and analyze,
- creating and applying effective negotiations strategies and tactics is becoming more and more complicated,
- considerable risk or even uncertainty is involved,
- short-term or even virtual contracts occur.

These kind of negotiations arise while establishing strategic partnerships, undertaking joint ventures, performing strategic alliances, mergers and

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acquisitions, creating networks and virtual or process-oriented organizations, maintaining industrial relations, and within other complex transactions.

The above listed features of business negotiations are the result of the impact of our turbulent, global environment, which is highly challenging to the managers of contemporary companies. Numerous, very dynamic and complicated inter- and intra-organizational relations of both competitive and cooperative character means a sharply increasing scope and importance of business negotiations. Thus, it is necessary to search for effective methodological tools for analyzing and planning, which could facilitate resolving practical problems commonly met in managerial work.

## **2. The business negotiations analysis stage as part of the negotiation planning process**

According to A. Stabryła's (2006, p. 40) concept, it was assumed that the methodological framework of business negotiations planning was an explorative process focused on elaborating the plan for conducting negotiations, consisting of three elements:

- 1) the description of business negotiations as an object of the study,
- 2) planning process, comprising three phases (sub-processes) – see table 1,
- 3) supportive tools (rules, methods and techniques), applied to solve particular problems in phases and stages of that process (Kozina, 2012, p. 20).

The general objective of the business negotiations planning process is to provide necessary resources and conditions for upcoming negotiations. Particular activities throughout that process are focused on solving numerous problems connected with decisions to be made (their analysis, creating alternatives and selecting the best solutions), according to the basic definition of both planning and negotiations, i.e. as decision making processes.

As can be seen in Table 1, the pre-negotiation analysis (negotiation situation analysis) constitutes a crucial component (one of the stages) of the first phase of the business negotiations planning process. Within the framework of that analysis it is necessary to precisely define and integrate all statements and assumptions concerning a particular negotiation situation (either stated at the previous stages of the identification process or listed below). The scope of such activities is broad as it encompasses all dimensions and determinants of that situation<sup>2</sup>.

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<sup>2</sup> Despite the key role played by business negotiations analysis within the entire negotiation process, so far no commonly recognized, complex and coherent methodological concept of such evaluation has been elaborated. Very few authors have discussed that issue, suggesting only partial solutions to selected problems and presenting limited tools of analysis. Empirical studies on the discussed problem are scarce as well – see for example (Kennedy, 1998), (Mastenbroek, 1996, pp. 94-102), (Thompson, 2001, pp. 9-31), (Walker and Harris, 1995, pp. 41-54) and (Watkins, 2005, pp. 21-52). See also the monograph on negotiations planning (Morrison, 1985).

**Table 1.** Business negotiations planning process

<b>Phases (sub-processes)</b>	<b>Objectives</b>	<b>Stages</b>
1. Identification and pre-negotiation analysis	To characterize the negotiation situation and its context in order to facilitate performing the next two sub-processes within the negotiations planning process.	initial (general) identification of business negotiations, stakeholders recognition, identification of potential multiparty negotiations and coalitions, pre-negotiation (negotiation situation) analysis, identification of links between different negotiations within a company.
2. Determination of the scope and strategy of negotiations	To determine the negotiation situation by stating substantial matters to be negotiated and the selection of tools needed to accomplish negotiating objectives.	evaluation of bargaining power of the parties, determining issues (problems) and objectives of the negotiations, formulating alternative solutions to negotiation problems, creating a strategy for negotiating, selection of supporting negotiating tools (rules, tactics and techniques).
3. Creation of operational plan (resources allocation)	To guarantee proper conditions for negotiations by analyzing and selecting necessary resources.	creating negotiating team, delegating tasks and responsibilities to the representatives, determining negotiations resources, evaluation of negotiation's effects and costs, elaboration of planning documents.

The general objective of a negotiations analysis is to create a complex description, which eventually provides desirable informational support and allows the continuation of further activities within the negotiations planning process effectively enough. That analysis comprises either the identification (as information process) or the evaluation of the negotiation situation.

Similar to the entire negotiations planning process, their analysis comprises of the three analogical elements mentioned above (Stabryła, 2006, s. 40). They are characterized below in subsequent parts of the paper.

### **3. The idea and types of business negotiations**

Generally speaking negotiations should be treated as a process, i.e. complex venture (project), including many activities of the parties interested in reaching an agreement and resolving conflicts that may occur. Those activities interact with one another in many different ways. That process is characterized by several aspects, reflecting different features of negotiations.

First of all such negotiations constitute an interactive decision making process. At the initial stage of that process the parties formulate their own alternative solutions to the problems under consideration and specify the criteria

for the evaluation of those alternatives, reflecting own goals and interests. Then the parties must adjust both alternatives and criteria to reach common ground.

The other important aspects of business negotiations are as follows:

- conflict resolution and search for an agreement, which creates:
- mutual dependence between parties,
- an interpersonal communication process,
- mutual exchange of tangible and intangible values,
- new values creation (Lewicki, Saunders, Barry and Minton, 2005, pp. 17-41), (Rządca, 2003, pp. 23-25), (Kozina, 2012, pp. 21-24).

From the point of view of a company numerous types of negotiations can be distinguished, applying two sets of criteria; basic ones – clarifying specific features of such negotiations and supportive ones – reflecting their common characteristics (see table 2).

**Table 2.** Types of business negotiations

Criteria	Types of negotiations
<b>According to basic criteria</b>	
Negotiation environment and partners	Intra-organizational (internal) – between organizational units within a company
	Inter-organizational (external) – between company representatives and external stakeholders
Areas of company performance (business functions), i.e. negotiations within:	Operations (core) processes, e.g. production
	Human Resource Management
	Marketing and trade – sale and supply
	Accounting and finance
	Research and development
Negotiations importance (significance)	Mixed – concerning issues from different areas, e.g. within project management
	Strategic – concerning fundamental issues, e.g. mergers or alliance
	Tactical – creating capabilities, e.g. material supply
Frequency of negotiations	Operational – within processes performance, mainly internal and external cooperation
	Routine (reccurent)
	Occasional (expectional)
<b>According to supportive criteria</b>	
Negotiations scope	Simple – on singular issue, e.g. price
	Complex (multi-issued)
Negotiations goals and character of conflict	Compulsory – e.g. collective bargaining
	Voluntary, e.g. with suppliers
	Alignments – mutual agreements
Number of negotiating partners	Two-party
	Multi-party
Attitude towards negotiations	Integrative (cooperative)
	Distributive (competitive)

#### 4. The analyzing process of business negotiations

Such a process (its analytical procedure) consists of the following steps:

- 1) introductory (general) description of negotiation situation,
- 2) identification of that situation (according to its dimensions),
- 3) establishing the scope for analysis (selection of parameters describing those dimensions),
- 4) determining information needs (adequate to the scope of analysis),
- 5) recognition, selection, and quality evaluation of data sources,
- 6) gathering and verifying information,
- 7) segregation of data into topical groups (sets), reflecting substantial negotiation issues,
- 8) partial analyses of those issues (marketing, financial, organizational etc. ones),
- 9) summarizing and comparing the results of those analyses,
- 10) elaboration of the complex framework for negotiations situation (synthesis).

A general description of the situation is obtained as the result of the synthesis of all statements made in the previous stages of the entire identification process (see table 1), e.g. deciding how many parties are involved in negotiations, what are their interests, stating what kind of potential coalitions may be formed, etc. As the result of such introductory steps the scope of further activities is determined.

As a base in the identification of the circumstances, the following dimensions are taken into consideration:

- the negotiator (negotiating team) or representing company,
- the other party (negotiator or team) – the negotiations partner (opponent),
- internal negotiations context – direct circumstances of negotiation situation,
- environment, i.e. external factors influencing the negotiations.

Those dimensions (general negotiations characteristics) should be defined by distinguishing more detailed features (parameters) – see Table 3. They are of relevant (potential) character, i.e. in particular negotiations some of them may be of crucial importance, whereas others may appear to be inessential and vice versa<sup>3</sup>.

How detailed the description of the situation is, depends on numerous factors (objective and subjective) such as: the type of negotiations, their complexity, essential requirements and standards, elements concerning their effects, negotiators' knowledge and experience, data accessibility,

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<sup>3</sup> In (Zartman, 2002) the five categories of information needs in negotiations were distinguished: structure, strategy, process, effects and behaviors. See also the other concepts of negotiations description, e.g. (Mesjasz, 2000, pp. 80-83) and (Rządca, 2003, pp. 103-162).

methods of processing data, etc. Furthermore it may be required for some parameters to be described in a very detailed way, by distinguishing partial (elementary) parameters, e.g. types of negotiations objective, their variability, differentiation of offers and concessions, changeability of bargaining power, etc. In may be also necessary to consider some parameters together with other ones, e.g. associating resources with objectives, offers with arguments, tasks with competences, etc.

**Table 3.** The framework of the negotiations situation

<b>Dimensions</b>		<b>Parameters (features)</b>
Negotiating parties (negotiators or teams representing particular companies)		goals, needs, and interests, initial (starting) position, alternative options (solutions) and criteria for their evaluation, scopes and limits of potential concessions, negotiation strategies, styles and techniques, offers (tenders, bids), demands, arguments, questions and dilemmas, views, attitudes, manners, expectations, and desires, competences (knowledge, abilities, capabilities, and skills) available resources (financial, informational, material and non-material), performance possibilities and obstacles (difficulties), strengths and weaknesses (as a summary).
Internal negotiations environment (context)	Relations between parties	interdependences between goals and interests – convergent (common), divergent (conflict), and different ones, scope of potential exchange (possibilities and limitations), negotiators’ bargaining power, reciprocal relationships (current and forthcoming), possibilities and limitations of negotiations, concerning time, place, technical facilities, audience, participation or other parties and group of interests, e.g. mediators, external pressures, and other factors.
	Domain (process, venture, project etc.)	negotiations subject (object), e.g. specific product and/or service, reflected by quantitative and qualitative attributes, substantial scope of negotiations – issues to be considered in potential contract, specific features of the transaction, e.g. complexity, risk involved, required standards etc.
External negotiations environment	Direct (contractual)	Other, potential partners to negotiations (described by the same parameters as the parties): customers (clients), suppliers, subcontractors, cooperatives etc., as well as competitors as necessary view-points (not actual partners)
	Indirect (general)	Including the following factors: political, economic, social, technological (PEST analysis), ecological and legal.

While analyzing the negotiations situation, it is very important to take into consideration the point of view of the opposite party. Concentrating only on one’s own objectives and ignoring those of one’s partner is a very serious mistake.

Therefore, after establishing the situation from one's own point of view, it is necessary to look at the same situation from the other person's perspective. That allows us to verify one own's expectations and assumptions. The effects of such consideration may also be treated as a base for mutual agreement at the initial stage of negotiations, e.g. concerning time, place, participation of experts, mediators, etc.

Additionally, the scope of negotiations identification should comprise not only data records describing particular the negotiations situation, i.e. concerning single transaction between two parties, but also reflecting possibilities of accomplishing negotiation objectives in a broader environment, i.e. with other companies as well as presenting the effects of previous negotiations (of particular type, with the same partners, conducted by the same negotiators etc.) and relations with their partners.

As far as the negotiations environment is concerned, actually for particular negotiation situations a traditional division of that environment into micro and macro ones is not important as it is more crucial to distinguish a set of factors which have an influencing effect on the negotiations (direct or indirect) despite their origin.

A more detailed degree of further analysis determines specific information needs defined by relevant data records, and needed to evaluate the characteristics of negotiations. Therefore the selection of proper data sources is of greatest importance. Such sources allow us to gather various data, satisfying specific information needs, e.g. for typical trading negotiations. These are data concerning assortment and volumes of products, their prices, terms for supplying, payment, etc. The most important sources of information for pre-negotiation analysis are people and institutions involved in the negotiation situation, (e.g. negotiators, their supervisors, experts etc.), internet – especially the websites of those institutions involved, different documents and other materials, (e.g. reports, brochures, folders, and so on).

Afterwards, the assessment of data quality and utility takes place as well as ordering and grouping of information into specific sets concerning particular parameters describing the negotiation situation. Then those sets are the object of partial analyses.

Finally, the results of those analyses are synthetized, which allows us to create a complex description of the negotiation situation. This is the final effect of the discussed process and base for performing the two next sub-processes within the negotiation planning process (see table 1).

## **5. Particular tools supporting the analysis of business negotiations**

Identifying specific tools is the last essential component of the presented concept in the pre-negotiations analysis process. These tools are used to

perform all activities throughout that process effectively and should guarantee the objectives of such analysis will be attained.

Therefore, in order to classify such tools in detail, their importance from the point of view of negotiations analysis objectives should be the main criterion. By applying that criterion, pre-negotiations analysis techniques can be divided into two groups.

1. Basic techniques, i.e. of crucial importance for the process of negotiations analysis, including mainly those tools that have been already applied within that process and were elaborated earlier. The most common are the following:

- check lists or sheets, especially constructed for the purpose of negotiations analysis, containing the set of questions and/or statements concerning different issues describing upcoming negotiations<sup>4</sup>;
- study documents (organizational, legal, financial, technical etc.), the minutes from previous negotiations, informal notes made by negotiators and so on,
- group discussions, i.e. exchanging opinions between the members of negotiating team, with the participation of additional experts.

2. Supportive techniques, i.e. those tools which can be implemented in the process of negotiations analysis, accompanying the basic techniques used in that process. That group includes mainly the following tools invented in other areas of management or disciplines of science (of different origin than negotiation theory, e.g. from strategic analysis, decision making theory, economics and so on) and of various form (e.g. graphic, analytical, or descriptive ones):

- management models methods – management by objectives, strategic analysis (scenarios, SWOT analysis), benchmarking, decision trees, needs analysis, control charts, process diagrams, Clark chart and other graphic techniques etc.,
- methods of creative problem solving, such as brainstorming, Delphi method or morphological analysis,
- statistical techniques, e.g. trend analysis, regression models, cluster analysis, ranking techniques etc.,
- information technology tools – e-negotiations and negotiations support systems (NSS),
- financial techniques, like risk assessment techniques, activity based accounting, target costing, budgeting etc.,
- psycho-sociological methods, e.g. sociograms, questionnaires, skills and abilities tests, transactional analysis etc.,
- general methods utilized in social sciences, such as comparative study, surveys, interviews, historical analysis, modeling, classification etc. (Kozina, 2012, pp. 72-79).

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<sup>4</sup> In (Morrison, 1985, pp. 23-112) such check-lists were designed according to thirteen “control points” (for the most important parameters of negotiation situation). See also (Kennedy, 1998, pp. 186-187), (Mastenbroek, 1996, pp. 95-97) and (Schoonmaker, 1989, pp. 264-273).



Negotiations analysis tools may be also divided into 3 groups according to the purpose of their application.

Firstly, in order to gather and segregate necessary data the following methods may be used: interviews, questionnaires, surveys, studying of different materials, check-lists, forecasting techniques (quantitative and qualitative), ranking, and modeling etc. as well as information management tools (Martyniak, 2000).

Secondly, in order to process data both tools may be utilized: traditional methods (especially for particular negotiations or gathered from other records) and management information systems (supporting negotiations, like NSS or general ones).

Thirdly, in order to analyze information the following partial analysis may be applied:

- financial (concerning costs, effects, risk or break even points, budgeting, etc.),
- marketing (focused on competitive offers, clients preferences, market position etc.),
- organizational (concentrated on resources accessibility, tasks to be accomplished, internal and external circumstances, threats and opportunities, etc.),
- legal (determining possibilities and limitations of activities, according to the law),
- technical (concerning specific parameters of operational processes and/or products, considered in negotiations),
- general ones (comparative, historical, etc.).

In order to make the process of business negotiations analysis effective from the point of view of its objectives (pointed out above), it is necessary to obey the following rules.

1. *Completeness (coherence)* – considering all crucial dimensions and parameters of negotiations as well as interactions between them, without omitting any essential issues.

2. *Complexity (multidimensionality)* – including all various aspects and circumstances of negotiations – the analysis and assessment must consider not only all separate dimensions and characteristics of negotiations but also provide us with their general, synthetic picture, which should be the most solid, unequivocal, and precise description of the negotiation situation.

3. *Versatility* – the negotiation situation must be seen not only from the general (complex) perspective, and include the subjective points of view of the parties and relatively objective view „from a distance”.

4. *Accuracy* – one should make sure that before drawing final conclusions all necessary data must be gathered and presented in as precise a form as

possible, preferably using concrete indicators (measures), bearing in mind objective limitations of measurement.

5. *Solidity (reliability)* – for all dimensions and characteristics of negotiations it is required not only to identify and calculate parameters of the negotiation situation, but also to clarify entirely their causes and consequences, determined by numerous, external circumstances.

6. *Utility* – assuring the desired features of data record, i.e. accessibility, solidity, reliability, selectivity, comparability, adequacy, etc.

7. *Rationality (reality)* – especially concerning the statement of negotiations needs, objectives and expectances as well as planned activities.

8. *Flexibility* – including alternatives (options), in particular concerning objectives, strategies and tactics and depending on internal and external circumstances.

Obedying those rules is crucial while setting together and synthesizing the results of partial analyses and elaborating a complex description of the negotiation situation. Those rules determine the usefulness of gathered data, which make the identification and analysis process a proper one and adequate enough for specific features of particular negotiations.

To construct a proper description of negotiations analysis methods, it should be underlined that the scope of the application of potential tools for such analysis is considerably limited, including results of former studies on the discussed issue. The lack of unique, original tools is evident. Usually universal methods typical in social sciences are applied. Occasionally the tools come from other areas of research such as management or managerial economics. Some analytical activities are performed intuitively or using the trial and error approach.

Generally speaking, such a state of affairs in the field of negotiations analysis is determined mainly by the considerable complexity of business negotiations themselves. Many issues are of a descriptive, qualitative character so the possibility of their measurement and the potential application of quantitative techniques is limited. Additionally, numerous negotiation situations are characterized by very specific, unique attributes, which make it very difficult or even impossible to create general, universal solutions, sound enough for negotiation analysis methodology. Some tools constitute rather principles, suggestions, or rules of thumb than systematically applied and proved means of solving negotiations analysis problems.

## **6. Conclusions**

Summing up, it should be stressed that the objectives of the study have been entirely accomplished. The concept of business negotiations analysis

presented in the paper constitutes a very useful methodological framework for analyzing different types of those negotiations. By distinguishing and describing various aspects and key problems occurring while planning those negotiations, some real possibilities for the application of the presented concept to the identification and analysis of practical negotiations situation have presented themselves.

On the other hand, the presented concept must be the subject of further research in order to make it more precise and detailed. According to specific features of business negotiations, the most urgent issue is the establishing of dimensions and parameters describing practical negotiation situations. The use of particular tools to enrich the process of gathering and processing data needed while analyzing such situations, also seems to be very useful and a promising research issue. Empirical research focused on verifying the suggested concept is desirable as well as a special comparative study concerning different types of business negotiations, either typical, routine transactions or unique ones, of strategic character. Such research would facilitate the possibility of implementing the discussed concept.

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# CORPORATE SOCIAL INNOVATION: HOW TO CREATE VALUE BY DOING THE RIGHT THINGS?

**Adrian Pyszka\***

## **Abstract**

*The purpose of this article is to establish a new management idea that supports the integration of sustainable competitive advantage-creating rules and stakeholder relations. A top-down approach was used to develop proposal framework focused on analyzing the main theories including corporate social responsibility (CSR) and social innovations to identify new assumptions of value creation. The paper describes the novel conception of Corporate Social Innovations (CSI) linking innovations, social needs and organizational capabilities and resources to create and claim shared value (social and economic). The original conceptual framework extending the social innovation and CSR approaches by juxtaposing advantage-creating shared value taking into account the constraints of transaction costs associated in the process of exchange between the stakeholders.*

**Keywords:** *CSR, shared value, corporate social innovations (CSI), stakeholders, transaction costs*

## **1. Introduction**

This article is theoretical and is based on two main assumptions. One of the author's intents is to show that the assumption about a lack of fit between the social and economic values in the companies activities is incorrect, because only the perception of the shared value offers the opportunity to develop innovative solutions in theory and practice. The second concerns the intention to introduce a new concept of Corporate Social Innovation (CSI) to fill the gap in the concept of Corporate Social Responsibility (CSR) for the creation of a shared value using social innovation.

The article poses the following issues:

- Why CSR is regarded as a cost-ineffective and worthless activity for the enterprise,

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- How organizations can create shared value (economic and social) implementing actions based on social innovations.

The thought behind these questions is the result of the author's previous research (Pyszka 2011, pp.99-100) and the perceived changes in the company's activities in the Polish and international market. There is also very important moment in the history, where we can observe the stakeholders increasing self-awareness leading to changes in the methods of competing. We can find many examples in support of this thesis especially looking at the business leaders who plan and implement the socially responsible activities of their companies as they are classified as being good citizens. These changes can be seen also in the standards and principles of business conduct by the introduction of socially responsible norms (ISO 26000) or even by belonging to the indexes of socially responsible companies on the stock exchange (for example – Respect Index) which govern both, internal and external behavior and inspire hope that a “responsible investment” will bring shareholders a fair return on investment. This rapidly advancing qualitative change is also visible in literature, where corporate social responsibility (CSR) previously seen as something unreal and illogical<sup>2</sup> from the point of view of the corporation becomes a stimulus for the board of management to act in an innovative manner.

Friedman's critical words can now find justification. When we look at cause related marketing, the formula can be confused with CSR activities, as is the cooperation of commercial and non-commercial entities aimed at implementing a specific social purpose at the same time in helping to strengthen its market position and image (Wikipedia). The problem of cause related marketing is not the goal, but is in the amounts that are spent on advertising compared to what has been given to achieve the objectives of society dedicated to the event.

On the other side, literature points to the need to look for measurability or even replacement of CSR with CSV (corporate shared value) that better reflects the end result of responsible activity (Porter, Kramer, 2006). According to Porter and Kramer (2011) the creation of CSV as an alternative to CSR is a move in the right direction as a guide for the company's investment in the community. CSR is necessary in light of current programs solely based on reputation and limited connectivity to business and thus reducing the opportunity to assess the long-term effects. According to Porter and Kramer (2011) it is important to use resources and expertise in a unique way to create economic value by creating social value. It's a whole new direction, which can provide a basis for socially responsible activities by increasing the level of efficiency and redirecting efforts in a more innovative and ethical way better suited to the problems and needs of society (Schumacher, Wasieleski 2013).

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<sup>2</sup> quoted statement from the 70's, where Milton Friedman undermining the sense of implementing such actions by corporations indicating an economic responsibility as a primary goal for the organization

## 2. Corporate Social Responsibility, disappointed expectations or the chance for innovation?

Looking at the social responsibility of business we need to consider how it is perceived from the perspective of business ethics and related theories. An analysis of literature on business ethics shows the first explorers dilemmas on topics related to the perception of what an enterprise is, often referred as the corporation. The main problem of researchers is attribution of human features to the enterprise associated with a sense of morality that is usually assigned to individuals. According to Crane and Matten (2004, p.43) corporations in the eyes of the law should be seen as ‘artificial persons’ hypothetically attributed to shareholders, but operating independently of them, while managed by managers and directors that have fiduciary responsibility to protect the interests of the shareholders. Such assumptions fuel questions about the legal and moral responsibility of corporations as: only human beings are morally responsible for their actions, managers are only responsible for the action in the interests of shareholders, issues and social problems are specific to the local authorities rather than corporate managers. The contrary argument is crucial to understanding the debate on accountability because we can not deny that the a company is made up of the people involved, while each organization has an internal structure of decision-making and organizational culture that influences decision-makers and public relations.

Currently, the most widely used model of responsibility to the ‘stakeholder organizations’<sup>3</sup> is a ‘pyramid of responsibility’<sup>4</sup> and TBL (Triple Bottom Line), pointing to the need to combine three dimensions of the company: economic, environmental and social activities (Rok 2004, p. 70).

According to literature written on CSR, some fundamental dilemmas concern its superficiality (what the company says it does and what it does in reality differ greatly), lack of knowledge as they utilize CSR only for philanthropic activities, the lack of skillful choice in solving social issues, conflicts between business objectives and implemented CSR activities (Grayson 2010). Although CSR requires a deliberate course of action, many organizations do not think about the strategy of CSR especially when they do not even see the direction in which they want to go (they can not or do not want to set targets in this area). Yet these points are important for interpretation of CSR strategy, as well as the manner of its implementation, which can influence the thinking and behavior of participants in the process and the entire company. According to Hollender and Brenn (2010, p.8) the revolution connected with corporate social responsibility is changing its image of the organization from

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<sup>3</sup> Entities (groups, individuals) influence and under the influence of the organization

<sup>4</sup> Pyramid developed by Carroll i.e. economic responsibility (as a base), legal, ethical and philanthropic

the inside out through : the implementation of innovative models of work, the creation of a new logic of competition, finding other methods of leadership and redefining business objectives.

This approach is feasible, but only by a conscious and active involvement of stakeholders in co-operation. As indicated by Laszlo (2008, p.154-156) there has to be a redefining of the role of stakeholders and their relationships with the business (as a source of potential value for shareholders) and a shift from managing stakeholders to co-operating with them by encouraging good relationships in order to create new opportunities associated with long-term objectives. This requires building a win-win co-operation model in which the place of values is moving from the realm of contracts and transactions, in the direction of trust and cooperation.

An approach based on cooperation and trust and focusing on partnerships with stakeholders can lead to many successful innovations (both closed and open), where the shared value will yield a positive result for all participants in the process (see innovative business model based on CSR – Pyszka 2011, p. 106 )

### **3. Social innovations – old problems and new solutions**

A book edited by Nicholls and Murdock (2011) points out the importance of social innovation today. It is a ‘sixth wave’ of macroeconomic changes, whose impact is as strong and destructive as technological and economic changes in recent years. According to Nicholls and Murdock (2011, p.1), these changes do not occur only in existing systems, but lead to a self-reconfiguring of systems through the internal logic of institutional norms and traditions. In view of the negative criticism of other systems and undermining the ability to deliver social and environmental performance, there are processes based on the opposition and resistance, on the other hand cooption and cooperation, which are typically characterized by acts of institutional entrepreneurship and blurring the boundaries between structure and agency in a manner identical to the structuring models in sociology. In this way, social innovation contributes to the creation of new ideas and structures within socially reconstructed re-contextualization of public standards of goodness, justice and equality. Social innovations demonstrate the conditional structure of social change giving priority to social resources of knowledge and culture, which is a foreground for creative reconfiguration of social relations.

According Moulart and company (2005) social innovation refers to the dynamics of social relations and social inclusion, where social innovation is conditioned by the context in which it is implemented and includes changes in agendas, agencies and institutions, leading to a better integration of excluded



groups. On the one hand it concerns characteristics such as creativity, innovation and art. On the other hand there are elements of management such as local development strategy, management science, politics, or relationships within economics, society and the environment. Moulaert and company (2005) in the overlapping dimensions point to: (1) satisfaction of human unmet needs or those who have lost their attractiveness to the market, (2) changes in social relations aimed at increasing the participation of disadvantaged groups, (3) positive reinforcement (empowerment) by increasing the rights of human needs and participation.

Nicholls and Murdock (2011, p.2-3) noted that the multidimensional nature of social innovation means that it can be seen in two ways; from the perspective of the country, as a search for welfare reform in increased efficiency and effectiveness in the area of financing excessive demand on social services and changes in the structures of government (eliminating the inefficient allocation of resources), and from the perspective of civil society, where the internal processes of organizational change (new legal forms and cooperation), with novelty on both external outputs and results (new products and services). In such a context the creation and implementation of social innovation means that from the perspective of imbalance accompanying social innovation, they are never neutral, but always politically and socially constructed as presented in Table 1.

**Table 1.** The levels of formation and diffusion of social innovation (SI)

<b>The level of social innovation</b>	<b>Characteristic</b>	<b>Example of use</b>	<b>The consequences for the environment</b>
Incremental Products and services	Focused on market failures and gaps.	Kickstarter (the low cost irrigation pump)  Cooperation	The emergence and spread of the wave of social economy companies targeting the BoP market. IS considered as a good business opportunity.
Institutional Markets	It leads to the reconfiguration of market models and structures to create a new social value and social performance – driven by experts repositioning new technologies and intellectual capital to social ends.	M-PESA Safaricom (PPP Government of and Vodafone) – the use of mobile phones in Africa to pay for goods, money transfers, etc. ‘Fair Trade’, co-regulating the concerns of food producers in the third world. Cooption, institutional entrepreneurship	It is usually a response to problematic patterns of economic change in the sectors of society. It leads to commercial solutions.

<p>Destructive System, cognitive dimmension (way of thinking)</p>	<p>The aim of cognitive change references around the markets and structures. A change in system, the domain of social movements and political activists, groups, networks aimed at changing power relations. Changing the social hierarchy. It can be stimulated by state structures through entrepreneurial policies and ideologies of the revisionists.</p>	<p>Politics, social-movements (Greenpeace, BRAC micro-finance).  Resistance to the old order, breaking the status quo.</p>	<p>Characterized by the participation of political parties or formal membership in social movements, social media, etc..  Social Innovation as a systemic change can be sudden and immediate (The Arab Spring in 2011), or evolutionary such as changing gender roles in the workplace over the last 30 years.</p>
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Source: developed on the basis of Nicholls i Murdock (2011, pp.4-5).

Searching for a suitable definition of “social innovation” also is problematic at the level where we attempt to define the word “innovation”, which is referred to as a renewal, improving or creating of something new (new ideas) and implementation (creating a successful practice). The expression “social” has a number of possible interpretations depending on who defines the word (Figure 1).

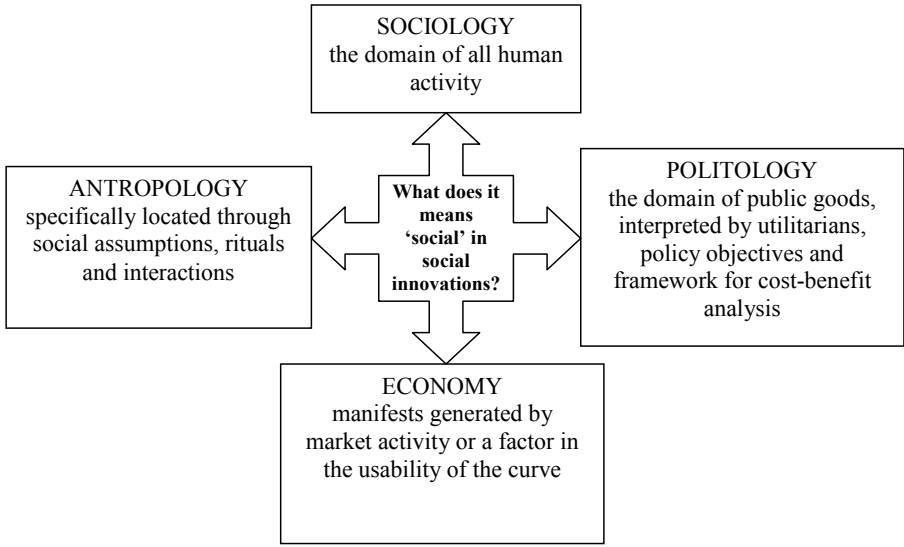


Figure 1. The perception of the concept of ‘social’ in the social sciences  
Source: developed on the basis of Nicholls i Murdock (2011, p.6).

Some authors (Phillis, Deiglmeier and Miller, 2008) refer more to social innovation as improvement than change, a new solution of social problems, which is more effective, more efficient, sustainable than existing solutions and for which the value increases first produced for society as a whole rather than for individual units.

Given these conditional contexts and overlap of dimensions, we can suggest (Caulier-Grice 2012, p.18) that social innovation is new solutions (products, services, models, markets, processes) that allow us to meet social needs more effectively than existing solutions and lead to new or improved capabilities and relationships, and better use of resources and capital. In the opinion of Caulier-Grice (2012, p.21-22) social innovation is both, good for society and improves social capacity to act, and it can be achieved based on five key elements: (1) novelty – new to the sector, region, market, user, or used in a new way, (2) complexity – from idea to implementation, (3) addressing social needs, (4) efficiency – better than existing solutions with measurable results, and (5) increased social opportunities for action – the empowerment of beneficiaries, new roles and relationships, development and better use of resources and opportunities for action. These key elements are subject to such features as cross-sectorial nature, open and cooperation, grassroots initiatives, presumption, mutualism (the principle of reciprocity and supporting each other), new roles and relationships, better use of resources, the development of capital and opportunity.

At the end of the discussion we should consider the interpretation of Saul (2011), who identifies social innovation directly to the generation of value for the business by solving social problems, which is an interesting extension of earlier proposals. As Saul says, the only solution for business is to create a next generation strategy designed to generate economic value through positive social change. Therefore he suggests that social innovation can not be actions resulting from the social contract that is a result of CSR and strategic philanthropy, which he believes is an attempt to present the corporations diligence in fulfilling the role of a good citizen through philanthropic activities (doing good) and submissiveness (non-maleficence). According to Saul (2011) social innovation should be business strategy, transparent and targeted directly to the benefits, and therefore he excludes businesses developed by social entrepreneurs.

In support of their position Saul (2011) gives examples of social innovation, highlighting four key elements: (1) the intentional business strategy (based on solving a specific business problem and indicators such as ROI), (2) the use of the core business and functional departments to generate social innovation, (3) the creation of new value (economic and social) in undervalued new markets, new customer segments, new relationships, (4) positive social change (the

solution of social problems using the key business – to increase access to products or services, creation of opportunities for unsupported market segments and customer groups to achieve public purposes).

An overlap of the sectors and nature of changes to improve and activating society may mean that social innovation can lead to a redefinition of the organization and its activities. This could be important to the private sector, driven into commercial products and services, which is dominated by technological innovation. Social innovation is strongly conditioned by social relations inside and outside the organization, which involves changing the role of business in society and society in business (Porter, Kramer, 2011). This is due to the legitimacy of such changes by the public at the normative, pragmatic and cognitive level, which results from the neo-institutional perspective where any changes are limited by the existing social norms as the status quo by maintaining a standstill as a result of processes of „isomorphism” (Marsh, Stoker 2006 pp. 96-100).

#### **4. Economic vs. social value – the enterprise’s paradigm shift towards shared value**

The previous analysis of the cited authors showed that the effects of the use of social innovations are: performance and efficiency, sustainable use of resources, encouraging the participation of marginalized groups and activities, discovering new potentials in unattractive markets, better and measurable development based on the social relations and cooperation, linking economic and social value creation.

This point of view is closer to the concept of ‘new capitalism’ forced by the falling level of legitimacy for business in the community. The article of Porter and Kramer (2011) emphasize that this change is revolutionary and leads to a paradigm shift in the process of the value creation for companies and their suppliers. The current method of value creation is narrow and short-term oriented, looking at the economic needs of customers and the lack of prospects for long-term success.

Porter and Kramer (2011) stated that “(...) concept of shared value resets the boundaries of capitalism by better connecting companies success with societal improvements”. According to the developed idea of shared value they recognize key elements important in the process of value creation:

- Reconceiving products and Markets (asking the most basic questions about the sources that bring value),
- Redefining productivity in the value chain (linking competitive advantage with social issues),

- Enabling local cluster development (building supporting industry clusters at the company's locations; including businesses, academic programs, trade associations and standards organizations).

The new approach involves the transformation of business thinking by bringing business to the society, the treatment of social responsibility as a key instead of the peripheral and the creation of shared value through the creation of economic value by reference to the needs and social challenges.

According to Porter and Kramer (2011) an approach based on shared value provides an opportunity to re-legitimize business in society based on the „blurring” of the boundaries between commercial and non-commercial sectors. In their view it presents interesting business opportunities, i.e.: new skills and knowledge for leaders, better understanding of the fundamentals and growth factors of productivity, collaboration between commercial and non-profit organizations, and increased innovativeness.

The quest for common values will lead to cooperation and cooption focusing on the mutual benefits of the partners rather than seeking the lowest cost. Such a strategy of action poses questions concerning the measurement of these benefits and if the result of the new approach is to increase efficiency. However, it takes into account not only the economic potential revenues, but also expenses such as generating costs. From an exchange perspective there is the question of transaction costs, where a full description of the value of the transaction should be included to avoid the pitfalls associated with uncertainty and limited rationality of a decision.

## **5. Corporate Social Innovation – the idea and connection with other areas**

An innovative company seeking shared value (CSV) is open to the creation of new products, services, models and strategies based on other criteria than those traditionally dominant. It requires the assumptions of the modification method for generating revenue through the creation of a new quality of relations with collaborators starting from the needs and problems of society. This approach is contrary to the stable and evolutionary process of forming a successive view of products and services based on the economic model. In this case there is an innovative activity resulting in an experiment and discovering new ways to generate and deliver value to the company and its partners using the assumptions of CSR programs or the experiences of social entrepreneurs.

From the perspective of the theory, there are several interesting ways to describe the dual relationship between the area of values and innovations. On the one hand when CSR drives innovation there is the materialization of values

resulting from the activities of socially responsible companies in the form of innovative products and services. On the other hand when innovation drives CSR, there is also the impact of innovation to CSR activity. This dual dependency is seen in different ways although research conducted on leading investments in R&D companies in Dow Jones Sustainability Index (DJSI) didn't confirm explicitly the dual relationship between innovation and CSR (Gallego-A 'lvarez, Prado-Lorenzo, Garc' a-Sanchez 2011). The problem which has been identified by the authors was the long time it took to generate the value of such a relationship (three years) and the ambiguity of the results and the course of action in different sectors. The practical implications were that the companies do not implement innovation coincidentally with the issues of sustainable development and there is a lack of compatibility between the realized investments in R&D and stimulated behavior of CSR and sustainable development. It was also found that the measured values should cover a longer period of time.

In turn Bocquet and Mothe (2010) in their article examined the relationship between CSR and innovation. Their study shows that the relationship is dependent on the size of the company and the formalization of CSR strategy. According to them, both large and small companies can create innovation driven CSR. In the case of large companies the main influencing factor is the formalization of CSR strategy, while the small companies rely on the attitudes and values of the founders, which can lead to revolutionary innovations.

An analysis of the relationship between CSR and innovation made by Midttun (2007) gives some explanation of the alleged lack of fit between innovation and CSR. According to Midttun there are differences in the dynamics of the processes because CSR is perceived as static while innovation as dynamic. The fit is possible only on the cognitive level through actions and results that show the ability of the company to provide to the stakeholders an expected value based on created reputational capital. Midttun (2007) calls for the creation of social clusters focused on creating value-based co-operation with stakeholders. However, there are important questions concerning: (1) understanding the social dimension of the context of competition, (2) the consequences of the value chain. The prize for the parties could be dynamic development, as long as they work together in the cluster.

The cognitive dimension of the relationship has been well translated into the value of the article of Bhattacharya, Korschun and Sen (2011), which demonstrated that innovative companies gain a greater rate of return on investment in CSR than companies considered to be less innovative. However this relationship only applies to the selection of high-quality products. In the case of lower quality, consumers choose products from companies less responsible.

To sum up, the relationship between innovation and CSR is not clearly established, but the cases shows that the rate of ROI needs to be perceived over

long-term period. Additionally the relationship may be bi-directional depending on a company's size and the degree of formalization of CSR strategy, the owner's vision and the quality of the products. Another aspect is the proper alignment of the declared value and realized projects to the business activity which contribute to the implementation of the activities within the social clusters.

The above analysis of the shared value, social innovations and the relationship between innovation and CSR as a value driver, points to the need for a uniform concept of these issues. This concept could be called Corporate Social Innovation (CSI) and has been already used by other authors (Saul 2011) as a substitute for social innovation focused on delivering dual value, both economic and social. The main assumption is the participation of commercial enterprises in innovative projects while being measurable and dependent on cooperation of all the entities. The presented concept is evolutionary, because it has been isolated from the wider whole, by narrowing an uncertainty of the macroeconomic innovation phenomenon to the microeconomic organization and its stakeholders.

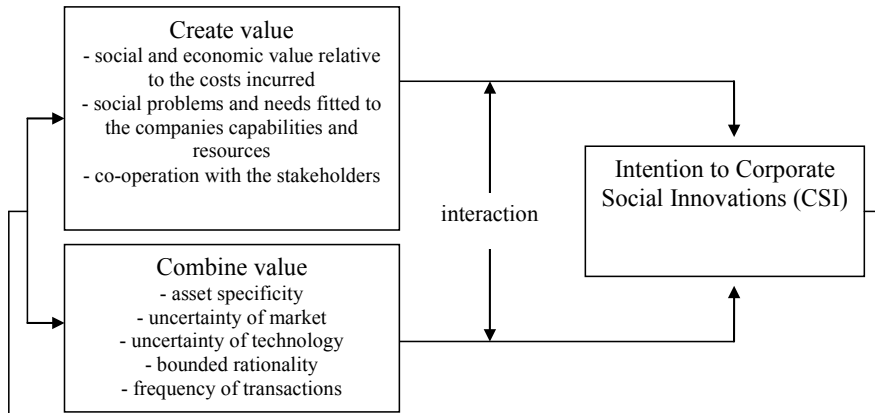
An example of CSI is presented in Table 2.

**Table 2.** An example of the solution on the idea of CS

CSI program	Main assumptions and partners	Potential sources of Transaction Costs	Shared value	
			economic	social
Product and educational action – “Milk start”	<p>Problem/social need</p> <p>Lack of consumption adequate amounts of vitamins and minerals by poorer children (at the base of the social pyramid)</p> <p>Partners: PARTNERSHIP FOR HEALTH Danone (FMCG), Lubella (FMCG), Institute of Mother and Child, discount shops Biedronka (FMCG), the group of Jeronimo Martins corporation)</p>	<p>Coordination between partners, drafting and enforcement of contracts, working on the preparation of the concept, working on an analysis of cost-effectiveness, time spent in meetings and arrangements between partners, additional legal services, labor intensive preparation of the new campaign, the time and expense of negotiations between the two sides, additional research fees and analysis of the new products, contracts renegotiating, difficulties in the process of implementation (partner's opportunism).</p>	<p>Since 2006., more than 50 million servings of cereal went to Polish homes. Margin on sales Improving the image and growth of interest in the media.</p> <p>The increase in sales of other products.</p> <p>A new model of cooperation.</p> <p>In 2011 creation of the new product „Grains sandwich.”</p>	<p>In 2011 y. 80,000 breakfast every day. Nearly one third of them reaches families with relatively low incomes.</p> <p>Education. The program improving children's diet and it is a positive example of an activity in the commercial market. Breaking stereotypes.</p>

Source: developed on the basis of: <http://www.danone.pl/Spoleczna-odpowiedzialnosc/Spoleczenstwo/Mleczny-start-marka-z-misja-spoleczna>.

The present example clearly shows that the combination of two types of values (economic and social) are not conflicting, but tailored to the type of business and knowledge of the cooperating organizations. This concept will therefore link such areas as: shared value, CSR, social innovation, transaction costs (arising in relations with partners sharing). This interaction allows to propose a mini-model which reflects the specificity of these relationships and showing the conditions of intentional CSI to undertake the organization and its partners (Figure 2).



**Figure 2.** Determinants of conditioning initiatives in the form of CSI

Concluding we can propose some definition for designing CSI, where corporate social innovation we call „innovation” resulting from the relationship between the organization and its partners in the process of exchanges and targeted to meet present and future needs and the solutions of social problems resulting in co-creation of shared values through organizational stakeholders.

## 6. Conclusions

The analysis of the assumptions forces a new look at the tools that companies should use. First, the companies and their leaders must reformulate their assumptions and change the way they think about competing, especially with the use of corporate social responsibility (CSR). According to Porter and Kramer (2011) the creation of shared value (CSV) forces a shift from focusing on CSR reputation, philanthropy and sustainability to the action-oriented real benefits and costs, both economic and social.

In this way, some shared value should be formed integrally with an approach to compete and maximize profits. On the one hand, these kind of



activities should be integrated with the organizational strategy and focused on the new needs, products, customers, and ways to set up the value chain. On the other hand, new value may be created with changes and by eliminating gaps in the clusters arising from the process of identifying and meeting social needs in cooperation with commercial, governmental and non-profit entities.

Despite focusing on shared value based on avoiding conflicts between cooperating partners, companies need to take into account transaction costs arising from the process of building new relationships. Despite the altruistic reasons relating to cooperation, focusing on economic value will lead to opportunistic behavior and rationality decision-making. This combined with the specificity of resources and frequency of relationships can lead to additional transaction costs that reduce the value of the transaction as part of CSI and limit supporting behavior of other partners.

Therefore, in the process of creating and claiming CSI the most important role is played by conscious government policy and institutional regulations to stimulate innovation and appropriate targeting of the actions of cooperating entities. This will be helpful in setting the properly formulated social objectives and measurable results with the establishment of efficiency standards (without imposing ways of achieving goals), defining periods of the tasks and methods of measurement, reporting and auditing.

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# THE INFLUENCE OF SOCIAL MEDIA ON A COMPANY'S IMAGE. THE POSSIBILITY OF INTERNET MONITORING

**Marcin Flieger\***

## **Abstract**

*The paper deals with issues concerning management of a company's image, especially in an crisis situation. This aspect of management is analyzed in the context of social media – the way they function and influence an organization's image. Using the Nestle company as an example the author scrutinizes sources and the development of negative campaigns against the firm. Then the author presents the characteristics and possibilities of applying Internet monitoring aimed at detecting negative phenomena having an impact on the company's image.*

**Keywords:** *image, social media, Internet, monitoring, crisis*

## **1. Introduction**

In analyzing the realities of doing business in recent times, it can be stated that the vast majority of companies realize their business objectives in an environment characterized by extreme complexity. An organization's efficiency level depends not only on economic and legal factors, but also on social, cultural and political ones. Moreover, a company's environment constantly undergoes dynamic changes. It is also vital to realize that there are even more and more factors which influence companies in an *indirect* way. The impact of advanced globalization processes, including the free flow of information and data in a global Internet seems to be especially important. Organizations have very limited possibilities of both influencing and controlling these phenomena. As a consequence, the risk connected with doing business are on the increase including the risk of deterioration of a company's image (Maroń, 2006), which in turn might lead to the development of an image crisis situation. An image crisis is understood as some occurrence which conjures up indignation from the public. Their negative reaction destroys the desired, positive image of a company (Smektała, 2000).

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Nowadays the Internet is becoming an increasingly important aspect in the creation of an organization's image (Łebkowski, 2009). On one hand a company can and should exploit actively the array of public relation instruments which are adaptable to the Internet. It would allow managing image in a concise and integral way. However, it seems essential to realize that a company is not able to control all the factors and phenomena taking place on the net and which at the same time have an impact on the way the organization is perceived by the public.

In this context the so-called *social media* might appear to be especially perilous. This *social media* consists of both the Internet and mobile technology media which allow communication with other people. An especially important element of social media are so-called social portals. Blogs, convent services and social virtual worlds also ought to be mentioned as very popular aspects of social media ([www.marketinginternetowy.pl](http://www.marketinginternetowy.pl), access: 12.03.2013).

Basically, social media operate without any control from any organization, including the way they pass on the information connected with a company to the public. It can be stated that currently we are all witness to a global revolution which allows each person to express his own opinion in a both free and sound way. Increasingly more people are taking advantage of this privilege as hundreds of thousands of blogs dedicated to every aspect of life are appearing constantly including those with comments regarding the way companies operate (Sadowski, 2012). In order to show the scale of development and spreading of information on social portals, it would be good to present a few facts such as the following:

- over 50% of all Internet users are active on social nets, which amounts to over one billion people in the whole world,
- on Facebook.com about half a million comments and over 700 thousand new statuses appear every minute,
- on YouTube service each and every minute around 25 hours of new video material is added ([www.e-profit.tv](http://www.e-profit.tv), access: 23.02.2013).

At the same time it appears that over half of the people active in the Internet use this tool to observe some brand or a product. What is more, over one third of them write comments on the net about these brands. Thus, every day in the Internet a large number of comments regarding companies activities, products, brands and services are added. A natural consequence of this fact is a considerable increase in the risk that in the net *negative* information or comments about the organization, its products or employees may also appear. In this way social media have become an extremely important medium which potentially may have a substantial impact on strategies and future operations of even the most prominent, respectable companies holding a strong position in the marketplace.

In spite of all these threats the majority of organizations still have not undertaken any active measures to create a concise, comprehensive system of image management which would include, among other things, the use of Internet monitoring. It is worth presenting the results of research done by Alert Media Communications and Polish Public Relations Society. The results show that every fifth company in Poland still does not feel the need for protection against an image crisis and over 40% of entrepreneurs believe that crisis communication planning is not necessary. At the same time the results show that over half of Polish companies have already experienced a crisis situation ([www.ideo.pl](http://www.ideo.pl), access: 12.01.2013).

Taking into consideration the above-mentioned remarks, it seems that taking active measures in order to take at least partial control over when and what information concerning a company appears on social portals is a necessity. For firms it is essential to attain the possibility of collecting and scrutinizing the opinions expressed in the global net.

As an example of an organization which has experienced the negative impact of social media and which was forced to cope with very serious criticism concerning the way it operates, the case of the Nestle company has been analyzed in this article. In the latter part of this paper the author presents Internet monitoring tools which are currently available for companies feeling the need to actively limit the risk of an image crisis.

## **2. Image problems for Nestle**

The Nestle company has a long and rich history. It was founded in XIX century when Henri Nestle conceived and started production of the first baby food based on milk. Soon Nestle initiated an extensive expansion into foreign markets. Through successive mergers and buy-outs they were able to expand its assortment.

Today Nestle is the largest food company in the world and the leader in producing instant coffee, baby-food, ice-cream, milk, mineral water and food for animals. The company employs 280 thousand people and its products are sold in over 130 countries.

In Poland the company has operated since 1993 as Nestle Polska S.A. Currently it produces and sells food products using brands such as Nestle, Nescafe, Gerber and Winiary. Also, the it is a shareholder of the largest producer of cereals in Poland as well as companies producing and distributing mineral water ([www.nestle.pl](http://www.nestle.pl), access: 07.01.2013).

Definitely one of the most serious image crisis Nestle has encountered in social media concerned issues with one of its most popular and recognizable products – a Kit Kat candy bar. The crisis began on March 17, 2010 when

Greenpeace published a report about the way Nestle operates on its website. In the document it was stated that Nestle, being one of the world's biggest food producers, is a contributor to the destruction of Indonesian rain forests and as a consequence constitutes a direct threat to orangutans living there. In the report it was suggested that the biggest problem concerns the uncontrollable cutting down of trees in order to grow oil palms from which palm oil is extracted. Palm oil itself is one of the main ingredients in many sweets – it is also an ingredient of Kit Kat candy bars produced by Nestle. The bars have been called 'a chocolate destroyer of Indonesian rain forests'.

At this point it ought to be stated that Nestle was not involved in such actions directly. Palm oil was being produced by the Indonesian company Sinar Mas and Nestle was one of its main buyers. However, the accusations of unethical behavior were directed mainly at the Nestle company as a conscious partner of the highly-criticized Sinar Mas company, and so was considered to be an organization which contributes to rainforest destruction and killing of orangutans.

Greenpeace carried out a vast and complex campaign against Nestle in social media, using an array of various instruments. One of the first initiatives was publishing a film in the Internet service, YouTube. The video was a parody of a previous Nestle commercial. In a very believable, while at the same time controversial way it showed a connection between Kit Kat candy bars and uncontrollable cutting down of trees in Indonesian forests and killing of orangutans. This negative information spread through the Internet at enormous speed – in the course of a few days the advertisement was watched by over one million people.

Another Greenpeace initiative was to put on its web page and on numerous social portals a modified version of the Kit Kat logo – the name Nestle Kit Kat had been changed into Nestle Killer. This motif was also used in other Greenpeace activities, e.g. during demonstrations. In this way the *visual* element of the company and product's image was damaged.

Moreover, mainly on social portals, a massive campaign of e-mails being sent to Nestle, including to the president, Paul Buckle, was organized, carried out and publicized. In these e-mails people from all over the world expressed their indignation to the company's irresponsible activities and they were called upon to take proper measures to correct the situation. The scale of the campaign was indeed impressive – all in all Nestle received over two hundred thousand messages. Additionally, supporters of the campaign sent hundreds of fax messages and made a great number of calls to the Nestle customer service department.

The next vital initiative triggered by users of social portals took place on the official Nestle profile on Facebook.com. There they published a new

company's logo with bloody elements which were supposed to symbolize the killing of orangutans and they sent hundreds of negative comments condemning the way the organization operates.

An important element of Greenpeace's campaign against Nestle was creating separate web pages in over twenty countries which were devoted to this campaign as they published on negative information and comments regarding the practices of Nestle.<sup>2</sup>

At this point it seems important to mention that, in addition to the campaign carried out in social media, supporters and Greenpeace activists organized demonstrations during annual Nestle shareholders meetings and in front of Nestle factories in Europe and subsidiaries in Beijing and Djakarta.

In summing up, all the initiatives carried out by Greenpeace within the confines of the campaign against Nestle seemed to be characterized by a concise vision of set objectives that were complex. What is more, the whole campaign was based mainly on spreading information through social media. As a result, Greenpeace effectively reached and activated hundreds of thousands of people who joined the protest. Thus, it can be said that Greenpeace undisputedly succeeded in publicizing the case in the Internet and at the same time in convincing people to seeing its point of view.

The important thing undoubtedly is that the success of the campaign was partially caused by inappropriate reactions of Nestle itself. The company made numerous mistakes as far as the principles of image crisis management are concerned. Definitely the first vital mistake was the lack of immediate reaction to publicized accusations. After the Greenpeace report and the YouTube film were made available in the Internet, Nestle failed to make any move for almost 48 hours. Such behavior is always disadvantageous for a company. It is essential to remember that for the first hours after negative information about the way an organization operates has been revealed, negative public reaction is usually substantial. At the same time disorientation and confusion reigns as people make an effort to gain some additional information either to confirm accusations or not (Smektała, 2000). In such an atmosphere speculations appear immediately and people start to create various scenarios explaining the causes and consequences of the scrutinized situation, which most often are very far from the truth. It is also worth remembering that such behavior is a natural human reaction which has its roots in psychological conditions. As a result, various untrue theories appear and spread. Without being verified, they are usually taken for granted as fact. Consequently, the company's image deteriorates dramatically. Therefore, it must be stated that the lack of an instant reaction from the side of the company under attack is a mistake resulting in serious consequences. An immediate message sent to

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<sup>2</sup> Polish version can be found at [www.greenpeace.pl/kitkat/](http://www.greenpeace.pl/kitkat/)



the public, explaining the situation and the company's standpoint, would dampen harmful speculation and calm negative emotions down (Altkorn, 2004; Mitroff, Pearson, 1998). To be able to do it, however, first of all it is crucial to identify the negative information about a company in prompt fashion. For this reason it is so important to take advantage of possibilities offered by Internet monitoring tools.

At the same time it is vital to remember that the very fact of identifying threats by using appropriate applications does not solve the image dilemma. An absolutely crucial step is a fast, well thought-out reaction to the indignation of the public. This is the main role of monitoring tools which enable firms to detect sentiment, time and place of comments regarding the company or its brands. What seems especially important is that these instruments should also serve the purpose of permanent monitoring the public's reaction to remedial measures taken by an organization having been afflicted with an image crisis. In analyzing the example of the Greenpeace campaign it must be stated that Nestle behaved inappropriately where this was concerned. Not only did the it procrastinate for almost two days instead of sending a message to explain the situation, but Nestle's first eventual reaction could be said to be not well thought-out and wrong. Ever since the publication of the Greenpeace report, the showing of the film and the creation of the critical web pages, there has been a fierce discussion about Nestle's controversial activities on the web. Official Nestle services on Facebook and Twitter portals were full of negative comments ([www.gadzinowski.pl](http://www.gadzinowski.pl), access: 05.02.2013), modified advertisement of the company's product was watched by almost one and a half million Internet users, and Nestle received over two hundred thousand e-mails. Greenpeace arguments were very convincing, thus it seems natural that as a consequence the vast majority of comments expressed strong criticism regarding Nestle operations.

The company reacted by publishing a statement on the official profile of Kit Kat requesting that only official logos of the company and the candy bar be displayed and that all comments were to be deleted. The motivation was to stop the spread of the modified logotype Kit Kat – Nestle Killer. What is more, the firm asked that the video on the YouTube portal to be deleted. At the same time it invoked the copyright law for the product and the brand. The admonishing and threatening tone of the statement conjured up increased public indignation and as a result it sparked off other critical comments. The company was blamed for trying to implement censorship. Moreover, administrators of Nestle's profile got involved in a quarrel with the service users and both sides wrote malicious comments ([www.prestauracja.pl](http://www.prestauracja.pl), access: 04.02.2013).



All the analyzed measures taken by Nestle must be judged to be both wrong and harmful. It should be concluded that the people responsible for creating and managing the image of Nestle and its products were not able to estimate properly the character and power of the Internet, including some etiquette and rules of communicating with the Internet society. The company did not implement permanent monitoring of social media in order to detect comments regarding the company and its products and it allowed negative opinions and indignation to increase. As a consequence, the image crisis became more and more serious. Unfortunately, the company's reaction reveals its lack of skills to initiate dialog with Internet users. It seems that if Nestle had benefited from the possibilities offered by tools of social media monitoring, the efficiency of image crisis management would have been considerably greater.

The above example of Nestle's image problems is not the only negative occurrence in this field which at the same time was connected directly with social media. One of the most serious situations was the case of the allegedly dangerous banana mousse. On August 5, 2011 a Pole living in Great Britain put a comment (in English) on Facebook's portal, warning people against banana mousse produced by Nestle as a piece of glass was said to have been found in one batch. After four days the first comment in the Polish language appeared. Gossip began to spread and a dramatic increase in information and comments appeared before the end of August. What is important is that up until then Nestle had not reacted in any visible way. The company had not noticed the first signals of upcoming problems and allowed an uncontrollable increase in negative information regarding its product. As a consequence, according to an independent analysis carried out using the Internet monitoring tools, information about a piece of glass in banana mousse was seen by 3,4 million Internet users ([www.gazetaprawna.pl](http://www.gazetaprawna.pl), access: 24.03.2013).

Although the information about glass in the mousse turned out to be not true, most probably it was the consequence of previous troubles with a similar Nestle product. It is true that a piece of glass was found in one Nestle product. However it was not mousse, but banana puree ([www.finance.wp.pl](http://www.finance.wp.pl), access: 20.03.2013). What is more, the problem concerned only one batch of the product which had been launched only in France ([www.wyborcza.biz](http://www.wyborcza.biz), access: 15.01.2013). Nestle withdrew the whole batch from selling points and on its web page it published official information in which it was explained thoroughly which product was in question. Appropriate information appeared also in Poland and the company ensured that Polish children were absolutely safe ([www.fit-up.pl](http://www.fit-up.pl), access: 19.02.2013).

Nestle made the mistake of not monitoring clients' comments and sentiment after the case of the banana puree had been explained. The whole problem was misrepresented, consciously or not, and the first untrue comments

concerning another product appeared. However, Nestle was not aware of the hazard because of the lack of proper monitoring instruments. In a very short period of time negative rumors led to a serious image crisis.

A bit of similar untrue information spread through social media initiated by a person living in Lublin, Poland. She put a comment on Facebook in which she claimed that in her baby mousse she found a rat. Internet users reacted quickly and in an instant a few hundred new comments were added, and within 24 hours the information was passed on to around five thousand people. Moreover, the whole case was covered by Internet media ([www.wykop.pl](http://www.wykop.pl), access: 11.03.2013). As a reaction to the claim, Nestle sent a sample of the product to be checked by independent public laboratories and the company published an announcement regarding the whole issue. The document explained that the tests confirmed that it was impossible to place any foreign body in a single package during the production process. At the same time it was assumed that the object found presumably was simply a lump of mousse, which had been created as a result of a contact with water during the preparation process of previous portions taken from the analyzed package ([www.nestle.pl](http://www.nestle.pl), access: 21.02.2013). It seems important to stress that, despite the company's correct reaction which dispelled all customers' doubts, the negative information spread in the net very fast and in fact it was only a matter of hours. This proves very firmly how much social media constitute a potential threat to a company's image.

### **3. Internet monitoring tools**

Currently in the marketplace increasingly more companies are appearing offering the possibility of using tools to monitor the Internet. Some systems are very complex and they allow thorough analysis of the Internet users' activities. It is worth taking a closer look at the features of these applications which determine their practical worth for organizations interested in implementing them to efficiently manage the company's image.

One of the essential parameters of an application is its range. It is important that this tool be able to seek and collect *all* results concerning the organization, product, brand or service. Only in this way is a company able to determine the real, concise character of a parameter and thus take rational, effective decisions in the field of image management. If a monitoring tool focuses only on a few of the most popular social portals, it will produce incomplete results. It is important to remember that social media consist of a lot of various platforms and services. Moreover, new forms of communication between the Internet users are still being created. For this reason the *whole* complex system of virtual communication needs to be monitored.

The moment an image crisis appears, meaning the moment the public receives some information about a company resulting in a negative reaction, a prompt reaction is especially important. Information must be published clarifying the situation and expressing company's point of view (Larkin, Register, 2005).

According to the principles of image crisis management in the case of an image crisis an organization should react within less than one hour (Zelek, 2003). To be able to do this, however, a company must receive information regarding developments of the situation and public sentiment almost immediately. For this reason it is so important to update monitoring results quite frequently, preferably the system could do this every few minutes. It is especially vital in the case of the Internet, where information spreads extremely fast and within minutes the situation may slip out of control of the people who are responsible for the company's image management.

Another important feature of the application is the possibility of storing information gathered in archives. In other words, to be able to gain fast access to basic data regarding the web page on which some information appeared and the data about the person who published the information in question. In this way it would be possible to establish parameters such as: number of users a day, monthly number of accesses to the page, number of people who have 'friend' status of the author of some information or a comment. As a result, a company is able to carry out a statistical analysis and draw rational, useful conclusions.

One of the crucial fields in which Internet monitoring tools could be used is in the analysis of so-called sentiment to a brand, product or company. Sentiment should be understood as an emotional attitude of a person who publishes some comments about a company or its product. Analysis of sentiment is automatic and enables defining the level of emotions both negative and positive and which are an inherent part of comments published in social portals. It is then that a company gains the possibility of quickly identifying the source of signals regarding the scale and tendencies in the perception of an organization. This instrument seems especially valuable as a prevention tool in crisis management. It allows immediate identification of the place where negative information appeared and as a result, a reaction is possible before the information spreads in an uncontrollable and perilous way or in other words – before the image crisis appears.

It is very important to remember, however, that it is extremely difficult to identify the sentiment precisely. The applications which are supposed to serve this purpose are equipped with very complicated algorithms, which nevertheless are not fully effective. The results of such monitoring can still only be treated as general information. Still, the possibilities of following

and detecting the level of emotions connected with some product, a brand or an organization on the net seem to be so valuable that even only general, approximate results constitute very precious information for a company.

An extremely important value of monitoring the Internet, including analysis of sentiment, is the possibility of gaining precious knowledge about the features of company's customers themselves. This aspect is called brand-monitoring. The objective of the applications in this field is to reach the places where the people who buy the product are active. Thus, a company gains information about both who these people are, what they like, how they are segmented according to territory and demography, and it learns what their preferences regarding behavior in the net are. A firm receives data concerning the places where customers are most active. This gives considerable insight into their life style. Thus, these applications enable companies to achieve the basic objectives in marketing research. From the point of view of managing the image of a company or a brand, brand-monitoring, similarly to sentiment analysis, can contribute to reducing the risk of an image crisis. In fact, both sorts of monitoring complement each other, and thanks to the synergy effect it is possible to identify potential danger even more effectively.

It is also worth mentioning the possibility of using Internet monitoring to follow discussions about particular people. Although politics and show business seem to be the most natural and obvious area for exploiting such a kind of an application, various organizations are showing a demand for such information. The image of a lot of companies is very much dependent on particular personalities who constitute the 'face' of a firm. In most cases they are the people who manage a company or who own them and sometimes valuable employees with unique knowledge and skills. These people are usually well-known and respected by the public, adding trustworthiness and credibility to a company as clients see their words as a guarantee of high quality. Therefore, it is so important to monitor public sentiment for these people in social media, which would allow a fast reaction in the cases a negative comments appears.

Applications in the field of so-called *social customer service* constitute another possibility for identifying comments put in social media. Currently more and more companies are realizing that social media can be used as one of very important channels of communication with a customer. This way of communication revolutionizes the idea of being in contact with a client. By reaching portals, blogs, forums on which a company's client is active, apart from getting to know his opinion on an organization or a product, it is possible to start a dialog, to initiate some interaction between the customer and a representative of a company. From an image management point of view, it allows an organization to monitor the way it is perceived on a continual basis and a form of prevention is being taken. This constitutes one of the key

areas of image crisis management. At the same time initiating planned, well thought-out dialog with a client improves considerably loyalty to a company and a brand. Taking into consideration today's realities in doing business, the fast and dynamic changes in a company's surroundings, and the constant struggle with strong competition, creating customer loyalty seems to be one of the most essential strategic objectives of any organization. This idea constitutes foundations for the concept of so-called *relation marketing*, which emphasizes the need of being in constant contact with a client throughout all phases of a product's life. This means that the customer is involved in designing a product. He is accompanied by the firm throughout the whole purchasing process and also after the product has been used and modified. (Peppers, Rogers 1997; Storbacka, Lehtinen, 2001). By sustaining customer relations in all stages connected with the purchasing of a product or service, it becomes possible to build loyalty and trust to a product and a company. From a client's point of view it is important that clients know that an organization notices them, treats them as individuals and tries to learn and discuss their needs. (Yeshin, 1998). Such individual treatment is the key to increased client satisfaction leading to a strengthened, positive image.

There are still more and more companies which realize the enormous potential of social media in the field of initiating and managing relations with a customer. As a result, they are taking active measures. Companies are employing people whose only responsibility is to find a client in the net and to initiate some dialog. Some organizations even create separate organizational units, kind of commanding centers, which focus on customer relations management in social media.

In scrutinizing the tools of Internet monitoring, it is also important to mention that there exists the possibility of measuring efficiency of a company's promotion activity. This function seems to be especially useful during promotional campaigns and when a firm is interested in estimating how many people received the promotional message and what reaction it sparked off. Applications allow monitoring discussions about a brand or a product and collected data serve the purpose of building graphs which illustrate the intensity of this discussion. With a company's gains in insight into changes in the number of ongoing discussions on all levels of social portals, there exists the possibility of comparing this activity with each measure taken within the confines of a promotional campaign and thus another form of market research.

Systems of the Internet monitoring also can be used in order to support the sale of a company's products. Such tools could make it possible to identify potential clients of some product or brand. Applications allow detecting some particular words, expressions, which have been used by people active in social media and which are perceived by an organization as important

hints of those people's interest in company's products. Thanks to such immediate identification, the company is able to reach the person in question, initiate dialog, present an offer, and – as a consequence – convince him to buy a product. What is important here is that it seems that such a kind of identification of a client might be especially attractive for smaller companies whose brands are not commonly known or recognizable. A customer is searched through the identification of *common* words which in some way suggest some interest in a particular product, not by the words which constitute the name of a company or a brand. For instance, the words 'trip', 'vacation', 'Turkey' suggest a potential client from a travel agency. Thus, there is no need to have a recognizable name of a company or a brand to be able to use this application effectively.

In analyzing applications for social media monitoring, it is also worth mentioning a few concrete systems available on the market. Definitely one of the most interesting systems is Radian6 ([www.radian6.com/](http://www.radian6.com/), access: 08.03.2013). It allows online monitoring of information appearing about the company, products or new topics for discussion. It identifies and defines topics, words and expressions in each kind of social channels, including forums, blogs, files sharing services. The system has an array of analytical tools and the results are generated as a concise visual presentation. At the same time there is the possibility to send data and graphs to other applications ([www.webershandwick.pl](http://www.webershandwick.pl), access: 10.03.2013).

Similar solutions are offered by a Scout Labs system, which is designed mostly for small and medium size organizations. The idea of the application is to focus more on the quality of data rather than quantity. Hence, the system offers, apart from standard applications which collect quantity data, complex techniques of identification of client's preferences. What is important is that Scout Labs is promoted as a tool which is useful especially for public relations experts and so it supports a company's image management to a vast degree. ([www.socialmediaexplorer.com](http://www.socialmediaexplorer.com), access: 03.04.2013).

Apart from the above-mentioned systems offered by foreign companies, services in the field of social media monitoring provided by Polish companies have begun to appear on the Polish web. ([www.sentymetr.pl](http://www.sentymetr.pl), access: 10.04.2013; [www.performancemedia.pl](http://www.performancemedia.pl), access: 10.04.2013). Definitely one of the most important advantages of these applications is the fact that they are adjusted to Polish realities, which means that they are able to identify words and expressions in Polish language in a more precise and complex way. Systems offered by foreign companies often collect numerous results in a foreign language, while at the same time omitting results in Polish language. Moreover, foreign applications often do not monitor local sources of public opinion, like Polish forums or web 2.0 services ([www.e-profit.tv](http://www.e-profit.tv), access:

23.03.2013). Taking this aspect into consideration, it can be expected that the level of interest in the offer of Polish firms will increase and, as a consequence, the offer itself will be even more complex and concise.

Summing up the analysis of applications currently available on the market, it ought to be pointed out that each system has some specific unique features and functions which make it different from the competition. At the same time every organization constitutes a separate, unique system, which is conditioned by specific factors, both internal and external. That is why it is very difficult to assess the efficiency of each social media monitoring application precisely, because every company ought to implement solutions which match its individual characteristics. Thus, for each organization the optimal choice might mean a different application.

#### **4. Conclusions**

Nowadays, in order to create and manage a company's or brand's image efficiently, organizations are forced to scrutinize people's activity and information appearing in the Internet, especially in social media. They become a powerful and potentially dangerous medium.

Vast, often global campaigns against companies become a common phenomenon. Free formula of social media, unlimited transfer of information put firms and their brands under big pressure from the public. On one hand, thanks to a concise strategy and a system of image management it is relatively easy to create a positive picture of a company. However, it is even easier to lose this image ([www.gadzinowski.pl](http://www.gadzinowski.pl), access: 13.03.2013). It may happen especially when there is lack of awareness of how the Internet community behaves and what principles of communication they obey.

It seems that the above-analyzed examples of Nestle's problems mostly resulted from the lack of implementation of appropriate signal detecting systems. Surely majority of those image crises could have been avoided, or at least their negative impact on the way the company was perceived could have been limited. It is essential to realize that most image crises develop gradually and before they turn into a crisis, which means before some negative information regarding a company or its products reaches the public, they give numerous warning signals. Therefore, it is so important to create a system of early identification, thanks to which a company gains a possibility of fast reaction, denying all gossips and submitting proper statements, before the harmful information spreads in the Internet in an uncontrollable way.

Currently appearing on the market are more and more companies offering services in the field of Internet monitoring. Such tools allow quite complex and effective identification of the Internet users' activities in social media,



including the behavior which is vital from an image management point of view. It is important for organizations to acknowledge these possibilities and, as a result, to increase their efficiency in the field of creating and controlling the way they are perceived by the public.

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# THE CONDITIONS OF WORKING IN A SUCCESSFUL VIRTUAL TEAM

**Barbara Czarnecka\***

## **Abstract**

*Virtual teams are becoming ubiquitous in contemporary organizations. Many managers stress their positive influence on organizational flexibility, cost saving, better allocation of resources, and increase of innovations. There are also many challenges coming from the geographic dispersion of team members and electronic, indirect communication between them. Managing this kind of team is much more complicated than the traditional one and requires specific knowledge. This article examines differences between traditional and virtual teams and what these differences mean for management.*

**Keywords:** *virtual team, communication in a virtual team, organizing a virtual team, effectiveness of a virtual team*

## **1. Introduction**

The remarkable development of communication technology in recent years has created a great opportunity for firms to grow faster and to act in a more effective and flexible manner. It allows organizations to reduce the time needed to accomplish tasks, enhance innovation, cut costs, broaden access to resources and markets. We can say that thanks to the Internet and mobile phones firms have “entered upon a virtual path”. Virtualization, which means the development of electronic communication, revolutionized patterns of work organization. Now, specialists from all over the world do not have to meet in one place to work together, instead they can use computer networks to cooperate, exchange ideas, share knowledge, and create new products. But even sophisticated electronic systems do not guarantee the success of an organization. It still depends greatly on interpersonal relations between employees (people/members). However, technology is an important contextual variable which influences organizational behaviours. The analysis of mutual connections and changes between technical and social systems of the organization is vital for managing effectiveness.

When virtual structures become more popular, the question arises: are traditional methods of management adequate for supervising employees in

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modified conditions? If not, what are the differences and how to stimulate efficacy in a changed working environment? These problems are especially interesting in relation to teamwork, because teams are an inherent part of each organization.

The aim of this article is to present the character of a virtual team in comparison to a traditional one, and to describe differences in managing them on the grounds of forgoing empirical knowledge.

## 2. The character of a virtual team

According to one definition: (Sikorski, 2001) “a team is a group of people who have to rely on cooperation and co-action if each member wants to achieve their objectives and success” (p. 59).

The specific traits of the team are (Sikorski, 2001; Katzenbach and Smith, 2001):

- Focus on the accomplishment of particular tasks – which means that, objectives are much more important than social relations between members,
- Individual and collective responsibility for outcomes – each person is responsible equally for the achievement of their own tasks and for group tasks,
- Free data flow between members – open communication,
- Coordination of actions and group decision-making – team members do not only report to each other, but they systematically accord what to do next,
- Complementary skills of members,
- Mutual help and cooperation,
- Limited role of the leader – he or she is responsible for creating conditions for cooperation, not for making decisions or giving orders. Team members should be partners.

Team work is desired by organizations because it increases productivity, improves communication in the organization and develops a cooperative organizational culture. Furthermore, it can encourage openness, enable better use of employees’ competencies, facilitate *learning in action* and thus augment engagement.

We can differentiate various types of teams depending on such factors as: main purpose, period of work, diversification of members’ functions and nationality, geographic localization of teammates. When it comes to the first factor – the purpose, we can specify three categories: a problem-resolution team – set up to solve a particular problem, a creative team – designed to come up with innovative solutions, a tactical team – created to implement solutions. The second criterion is the period of working and we can distinguish

standing and ad hoc teams (after: Franz, 2012). Using another criterion – the diversification of members, we have multifunctional teams (e.g. managers from different departments) and multinational teams. The last factor is the geographic localization of teammates, which distinguishes teams working in the same place (e.g. building or town), from teams whose members are situated in different, outlying places so they have to communicate indirectly by telephone or internet. The first team is called traditional because people interact and communicate face-to-face, using e-mails only as an additional support. The second is called dispersed, but if such team members communicate and cooperate only or mainly via the internet, we can call it virtual<sup>2</sup> (Berry, 2011).

Thus, the first and primary difference between a virtual and traditional firm is the predominant way of communication. Virtual teams use specific e-tools like: Skype, Yahoo Messenger, Microsoft Exchange, Novell GroupWise, Intranet, NetMeeting, WebEx, Collaborative Websites, FPT, Voice Over Internet Protocol, etc. The disparity in communication forms has a direct impact on the process of socialization of employees, not only as team members but also as members of a specific organization. It influences the interpretation of organizational reality (*sense making*), decision-making and in turn it shapes the process of building group identity and organizational culture.

The next important feature of a virtual team is the localization of members in many geographic places, e.g. in distinct regions of the same country or continent, or on disparate continents, and this often implies different time zones and cultures. Geographical dispersion causes asynchrony in communication. Hence, in contrast to traditional teams, virtual team members have a limited ability to continuously agree on a common position and joint planning of next steps, their work needs to be more structured and clearly divided. These characteristics may also limit the scope of mutual assistance, which is important in solving emerging problems.

Among other features that characterize a virtual team researchers mention: the nature of the interaction, the use of resources and the control and responsibility, their specific work environment, cultural background and educational facilities. A summary of these differences is shown in Table 1.

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<sup>2</sup> The name „a virtual team” may be unacceptable by some people because it suggests that members of such a group are unreal (no real people there). But this name is only a very convenient brachylogy and the definition clearly states that this is a group of people who use a computer network to communicate and cooperate to accomplish a specific task. By contrast, the term “a dispersed team” does not emphasize, in the author’s opinion, the character of e-interactions.

**Table 1.** The differences between traditional and virtual teams

<b>Criterion</b>	<b>Traditional Teams</b>	<b>Virtual Teams</b>
Localization	team members localized in one place	Team members localized in dispersed places
Communication	direct (face-to-face)	Communication based on IT technology
Nature of interactions	ability to share information related and not related to work	Exchange of information not related to work is reduced to a minimum
Use of resources	increased ability to share the resources available	Each member has the access only to similar technical infrastructure
Control and accountability	manager has power to influence members of the team (direct supervision, ability to use disciplinary measures)	Manager has restricted power to influence team members
Work environment	possible difficulties in accessing information and contacts with members of the company outside the group	There may be restrictions on the sharing of ideas and problems working in solitude
Cultural and educational background	usually similar „facilities” cultural and educational	Team members usually differ in terms of cultural and educational facilities.

Source: Author’s calculations based on: (Ebrahim, Ahmed, Taha, 2009; Berry, 2011).

Paradoxically, the conditions in which virtual teams operate, such as: large distance, lack of informal contacts, high diversity, uncertainty, lack of confidence, limited scope, etc.. are the opposite of the factors that affect the smooth operation of traditional teams. Therefore, two areas that are major challenges in managing this type of groups are: ensuring effective communication, ensuring such relationships between team members that enable collaboration, organization of team work, sharing knowledge, selection of team members and leadership.

### **3. Communication and the development of social relationships in virtual teams**

A central issue for each group is communication, which is the process during which members of society inform each other using language, gestures and symbols. The primary purpose of communication is to make sure that the thoughts, desires and knowledge of the message sender were known and understood by another person, so that it is possible to establish and maintain social bonds. The transmission of information means that people give common meanings to the concepts they are using, and to enable communication people

must agree on a definition of these concepts. It is also a process of a symbolic nature, which means that apart from verbal communication an important thing is non-verbal communication like: gestures, facial expressions, posture, vision, tone of voice, clothing or space. Some researchers believe that as many as 55% of communication is received by observing facial expressions, 38% by the tone of voice and only 7% by the word (Błaszczyk, 2005; Stoner, Freeman, Gilbert, 1998). What about communication via the Internet? *Does* electronic communication reduce the quality and clarity of information? Can it hamper receiving information? How does e-communication influence the process of the formation of social ties in the group and willingness to cooperate?

As stated earlier, electronic communication in distributed teams is often asynchronous because of the different time zones or flexible working hours of team members. Its advantage is the freedom to express ideas without abrupt interruption from recipients. *It also* weakens competition between speakers and the likelihood to dominate discussions by one of the members. It can also facilitate a more deliberate and calmer expression of opinion, which will have a positive impact on the number of potential conflicts. Despite appearances, the limitation of symbolic communication can be beneficial, because there is no room for ambiguity and misinterpretation of meanings, which is especially important in multicultural teams. Another advantage is a lower tendency to stereotyping team members and, what is typical for traditional groups, the struggle for power and influence, which may result in the formation of informal cliques. In a study conducted by Johnson and colleagues (2003), it was stated that electronic communication does not limit the freedom of expression to the same degree as face-to-face interactions, therefore, members of virtual teams are more honest in their opinions (after: Berry, 2011).

Among a number of positive aspects of e-communication there are also problems that can adversely affect the efficiency and innovation of work teams. The sole contact via the computer actually impedes the development of social ties, mainly by weakening the group cohesion. Certainly, communication like this stifles processes associated with the evolution of group norms such as trust, and additionally hinders the identification of members with the team (this is a group of people “without history, without shared experiences and often with “no future”). It is especially dangerous for teams working in the short term. The researchers found that in the initial period co-workers tend to have lower willingness to share information, which negatively affects the determination for the expected outcomes (there are disagreements and difficulties to agree on a common stance). However,

this situation changes when the period of cooperation is extended (Berry, 2011; Cummings, 2011).

Another identified barrier is the lack of physical proximity and its impact on creativity and the sharing of knowledge by team members. Many years of research have shown that random encounters on the corporate corridors, at the photocopying area, in a cafeteria or even in the toilet, are not just a waste of valuable time, but favor the spread of new ideas and encourage people to work through the development of informal contacts. If it disappears, the group may waste an opportunity to establish closer relationships and exchange ideas. Thus, to let the ideas spread easily, the following requirements should be met (Fayard, Weeks, 2011):

- The Properties of Proximity – understood as a space for joint attention, such as a place where employees meet to copy documents,
- The Importance of Privacy – that is the feeling that you can speak freely without the disruption and fear of being heard, but also the feeling that you are not forced into such a contact, which can be avoided by proper arrangement of office space.

The Power of Permission – this means that managers accept informal contacts and there are no contradiction between what is fostered by the office architecture and managers' requirements.

Undoubtedly, online communication does not give such possibilities, even more it could limit informal contacts by electronic monitoring and work recording. As a result of research and observation Fayard and Weeks (2011) came to the conclusion that managers can try to create such conditions also for virtual teams. In this case:

The Properties of Proximity – should mean greater access to team members in the selected virtual locations (e.g., Twitter, Facebook). This requires a greater initial activity of a few members who will initiate and develop contact. Also, of great importance is the ease and quick access to individuals, “no more than a mouse click away “.

The Importance of Privacy – the creation of ways in which you can freely move from group interaction to an individual conversation, as well as the opportunity to mark your availability status and freely decide when to undertake such informal communication. It is also a transparent company policy on regulations related to privacy of on-line exchanges.

The Power of Permission – consent for the informal contacts that can be achieved through video links started long before the virtual meeting and closed long after its completion. This way, properly animated by the leader, should encourage random contacts and conversations, not necessarily related to the project (Fayard, Weeks, 2011).



#### 4. Organization of virtual team

Virtual teams are focused on implementing a particular purpose, often at a predetermined time. In addition, having a limited possibility of “mutual break-in” and clarifying doubts, team members have to get at the beginning a clear set of operating rules that will allow them to go into action quickly. These rules relate to the following issues (Berry, 2011):

- Clear rules and expectations of the use of certain types of technology,
- A clear interpretation of what effective (satisfactory) work completion means,
- Reconciliation of general labor standards and requirements of team members (e.g., working hours),
- Planning deadlines of the subsequent tasks and the effects required of each team member,
- Principles of recording and reporting systems, including the creation of electronic archives and the security policy (the protection of information).

Work of virtual teams requires careful arrangements and good structuring, since it must be absolutely clear how the group works and what is expected of it. *The* process of a typical group formation includes: forming, storming, norm forming and performing activities, but in virtual teams the second step –storming is often ignored or reduced. This phase is important to create a climate of openness and encourage team members to express their views, agree on common standards, but it also promotes conflicts (Berry, 2011).

Observation of traditional teams indicates that they are most effective when there is trust between members, reciprocity (e.g., exchange of information, assistance), openness and commitment to achieve a common goal (e.g., devoting adequate time to work and team contacts). Virtual teams have a limited ability to gradually develop such standards, but does it mean that they can function without them? The answer is – no. Since there is no time for their development, they must be quickly “imported”. Members must apply them *a priori* from the very beginning of the joint action. Trust, in this case, is based on the partner’s goodwill and on the assumption of his credibility. Meyerson, Weick and Kramer (1996) call it *swift trust*. According to them *swift trust* is possible in temporal conditions because relationships between co-workers are based on their competence and as stated by Kirkland et al. (2002) ‘level of confidence based on professionalism compensates for lack of social interaction’. This approach is a matter of both cultural environment of team members, as well as individual characteristics. *It* also depends on the principles which are promoted by team leaders (after: Zakaria et al., 2004).

Other problems are caused by geographical distribution of co-workers. As Cummings stated “Just because a team is virtual, it doesn’t mean geography is

dead”. Differences in time zones, even with the date changes, bring disturbance in coordination of work hours. This makes it impossible to communicate at the right time and forces people to work at night, and can even cause work overload because of the need to maintain communication with other team members.

Another issue that he pointed out is the amount of time devoted to work with a specific team and on a particular task, since adding jobs to other duties or simultaneous participation in other teams reduces efficiency of the team member. *Lack of* direct observation of employees can lead to an incorrect evaluation and planning of a time necessary to work effectively. *When* defining responsibilities and the time that a person has to spend on co-operation (i.e. the time actually spent in front of the computer), managers must take into account the geographical distribution and the degree of workload (Cummings, 2011).

## **5. Requirements for employees and the leader of a virtual team**

Working in a virtual team apart from the relevant technical knowledge also requires a range of skills and personal attributes. In the first place, these include: knowledge and technical skills related to the use of e-tools, then personality traits such as openness, willingness to share knowledge, tolerance of uncertainty, the ability to cope with stress, the ability to accept different points of view, and in the case of global teams, cultural intelligence. A particularly important feature that distinguishes members of virtual teams from traditional ones is conscientiousness and self-discipline. The significance of conscientiousness results not only from the need to complete tasks on time, but also from the need to comply with the standards imposed by team cooperation, which as we know has to do with the need for high-structuring of virtual team work (Krumm, Terwiel, Hertel, 2013).

In the research report *The Challenges of Working in Virtual Teams. Virtual Teams Survey Report – 2010* respondents stress the validity of such competencies of team-mate as: the ability to share information (18%), proactive attitude and commitment to the work of the team (17%), collaboration (17%), organizational skills (14%), social skills (13%), the ability to give feedback (11%) (The Challenges of Working in Virtual Teams, 2010).

When it comes to the manager who is in charge of people working in a virtual environment, there is an increase in requirements like: coordination skills, participation development, conflict management. As mentioned earlier, the team manager is not a kind of a traditional leader, because his or her role is to create conditions for partnership rather than to give fixed solutions. Therefore, formal leaders should play the role of guardians of the standards which were set in the initialization stage of a team. In addition, managers should model behaviors consistent with the principles, through their demonstration (e.g. trust, exchange of information). Finally, formal leader have to explain the expectations

of the organization to team members, and in case of a conflict re-explain and communicate again the rules of cooperation. Although it is emphasized that e-communication limits the possibility to motivate and control virtual workers, managers can influence behaviors by using electronic monitoring and evaluating work (also evaluation by co-workers). However, leaders should be careful not to turn it into electronic surveillance that can be regarded by employees as excessive interference in the way they work (Berry, 2011).

## 6. Conclusions

An analysis of available literature indicates the existence of differences, sometimes significant, in the functioning of virtual teams. It relates to the manner of constructing social relationships in order to maintain the integrity of a team, the successful implementation of tasks, as well as fostering creativity, so this requires the change in the way of structuring, organizing and leading virtual teams. Attention is also drawn to the slightly different requirements for members of the team, from whom it is not collectivism, but rather self-discipline and self-reliance in solving encountered problems are expected. It is clear, therefore, that despite the increasing pressure on virtual teamwork, not everyone will be able to accept it and reap satisfaction. This also applies to managers because directing a distributed team of people is a complex task, which increases the level of stress and anxiety, and who need to get rid of these (typical?) managerial behavior that could be called “domineering”. Therefore, more research is needed on management in virtual settings, as well as research in the area of HR, concerning the selection of virtual employees, training, remuneration, career development and performance management.

Another interesting research topic that emerges on the occasion of virtual teams is their impact on organizational culture. How does online communication and distribution of workers create “the community of practice”?

To complete deliberations Table 2 presents a summary of the most important advantages and disadvantages of a virtual team.

**Table 2.** Advantages and disadvantages of virtual teams

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>• Reduced time to complete a task, for example by using different time zones to work on particular project 24 h</li> </ul>	<ul style="list-style-type: none"> <li>• Sometimes need to invest in expensive technologies to ensure the safety of information</li> </ul>
<ul style="list-style-type: none"> <li>• Reduced travel costs</li> </ul>	<ul style="list-style-type: none"> <li>• Limited social function</li> </ul>
<ul style="list-style-type: none"> <li>• Increased diversity of members, which has a positive effect on innovation</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of inadequate conceptualization of the problem due to a difficulty in agreeing on the effects and the extent of the work required</li> </ul>

• Flexible working hours (within certain limits)	• Increased risk of work overload resulting from poor estimates of time when the employee remains at the disposal of the employer
• Greater flexibility in the organization, the ability to work on projects in different locations	• Delays in transmission of information due to time differences
• Improved productivity due to increased focus on completing the task	• Difficulties in managing a virtual team
• Improved access to labor resources located in different parts of the world	• The need to formalize cooperation and exchange of information

When deciding on the organization of work in a virtual form, managers need to take into account the aspects mentioned above, as well as the specificity of the existing organizational culture to ensure that team members receive appropriate training and support.

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# THE IMPACT OF MANAGEMENT INFORMATION SYSTEMS ON DECISION MAKING PROCESSES FOR SMALL AND MEDIUM ENTERPRISES

*Agnieszka Szarek-Łoś\**

## **Abstract**

*This article focuses on preliminary stage research on how Management Information Systems (MIS) constitute a basis for decision making processes in the Small and Medium Enterprise (SME) sector in order to achieve corporate advantage. This paper contains academic research,, theoretical background and brief characteristics of the current state of SME sector in Poland. Moreover the author presents market offers of MIS for SME from key players available in the Polish market. The paper presents the main objectives of the research and hypothesis as well as the research methodology.*

**Keywords:** *management information systems, MIS, information systems, IS, small and medium enterprises, SME, modern technology*

## **1. Introduction**

This paper contains the research concept on how Management Information Systems (MIS) impact on decision making process for Small and Medium Enterprises (SME) in order to achieve corporate advantage. The paper aims at providing a brief introduction into the research topic and presents a theoretical framework as well as focusing on the current state of the Small and Medium Enterprises sector in Poland. Moreover, the paper characterizes the current market offer of MIS for this sector. The article contains the main research objectives and hypothesis as well as the methodology that will be used during the future stages.

## **2. The role of information technology in modern management**

In the last decade it has become widely known and accepted that the use of computers and new technologies provide the primary means for all types of business. Information Technology has become a critical factor in business development.

One thing characteristic, as opposed to former years, is the fact that there has been a noticeable expansion of new techniques for information generation

while the collection and sharing of information is still evolving. Information is the main source of knowledge and knowledge depends on the flow of information in society. The development of modern technologies, the desire for more information, the fast pace of life and the quality of life have led to information chaos. Yet, it is important to be able to live and operate in such chaos (Tadeusiewicz, 2003).

In the second half of the twentieth century it could be seen that a new social era called the Information Society was evolving. One of the major traits of that formation was the rapid development of Information Technology and Telecommunications. In fact, it can be said that the world was entering a phase where the most valuable asset would be information. Technological improvements were being pushed thereby enabling information acquisition, transfer and analysis (Nowak, 2003).

Information is defined as data that has been organized and is understandable for human beings. Data is understood as raw facts representing an event before it has been organized and arranged into an understandable form (Laudon and Laudon, 2012). The role of information is emerging. The most important factor that influence information are: globalization, world market development, local economic factors integration and technology development.

The economies of the most developed countries rely on the continually increasing mutual dependence between information and knowledge. Nowadays it is commonly known that knowledge management is the motor for proper economic and social development (Grudziewski and Hejduk, 2010).

Thus, data, information and knowledge constitute the Information Society era. Up to now the approved definition of an Information Society has not been confirmed. Therefore, the author would like to refer to the following definitions, which illustrate the most practical meanings of an Information Society.

In 1994 during the I congress of Polish knowledge the following definition of Information Society was identified: “*an Information Society is a fully computerized society, being able to use information systems and telecommunication services in order share information remotely*” (Nowak, 1994, pp.1).

The European Integration Committee provided its definition of an Information Society: “*An Information Society, as a new type of society that has been evolving in countries where substantial growth of information technology has occurred*”. Moreover, it is expected that an Information Society should meet the following requirements:

- Telecommunication technology should cover all citizens,
- Information resources should be available to the public,
- Society should head toward future development (Nowak, 1994, pp5).

### 3. Theoretical background of Management Information Systems

It has been confirmed that the genesis of the Management Information System (MIS) definition is the Information System (IS). The basis of the IS definition can be found in the 70's of the twentieth century. This IS terminology, has been diversified over the years, as currently it touches two independent fields: Management and Information Technology. However, the subject of interest still remains the same. For this reason it is important to clearly state the definitions in order to have a better understanding of the field.

Stabryła (1996) defines Management Information System *“as a system which on one side creates information resources and the its needs, while on the other a communication subsystem for an organization”* (Stabryła, 1996, pp.172). While Kisielnicki and Sroka (2003) provide the most practical definition of MIS: *“Management Information System is the nervous system of an organization that links together all elements of a management system”*(Kisielnicki and Sroka, 2003, pp. 19).

According to Laudon and Ladon (2012) an Information System includes computer equipment and the necessary programing for running an organization with the aim of achieving certain goals. Technically SI may be defined as a set of interrelated components that collect (retrieve), process, store and distribute information to support decision making process in an organization. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers to analyze problems, visualize complex subjects, and create new products” (Laudon and Laudon, 2012, pp.15)

According to Ozz (2009) an Information System *“consist of all the components that work together to process data and produce information”* (Ozz, 2009, pp.13)

The major components of an Information System include:

- data, which is understood as input needed in order to produce information,
- hardware, which is a computer and its peripheral needed to store data and communication equipment,
- software, a set of instruction telling the hardware how data should be processed, how information should be stored and displayed,
- telecommunications, translated as hardware and software enabling fast transmission,
- people, information system professionals and users,
- procedures, all rules around information system usage, information storage, display, data processing (Ozz, 2009, pp.15).

It is important to define integrated Information Systems, those are known as Enterprise Resource Systems (ERP). The main characteristic of ERP is that it provides information that is used by multiple enterprise components.



In Table 1 the author would like to show major business functions that are supported by ERP systems:

**Table 1.** Major business functions supported by ERP systems

Function	Purpose
Manufacturing and production	Production planning, management and delivery ( orders optimization), managing manufacturing and logistics
Sales and Marketing	Selling organization products and services, Customer Relation Management
Finance and Accounting	Managing organization's financial assets, (planning, control, business analysis, cash-flow, earnings, spending, payments)
Human Resources	Managing employee records, managing labor force, trainings

Source: author's calculation and adapted from Laudon and Laudon (2012), *Management Information Systems – Making Digital First* pp.19 Pretience Hall 2012.

Mazur (2000) states that MIS constitutes an integrated part of the enterprise. The enterprise development is driven by management methods, investments, corporate advantage achievements, infrastructure development and modern technology growth.

#### **4. The Small and Medium Enterprises sector as a research concept – main characteristics**

##### **4.1 The main characteristics of the SME sector in Poland**

The Small and Medium Enterprises sector constitutes a primary role in the basis for economy and social-economic politics for many countries. Moreover, the sector development is seen as a base of proper functions for market economies (Nogalski, Karpach and Wójcik-Karpacz, 2004).

The specific character of managing this sector is complex; therefore in terms of existing dependencies the subjective categories were identified.

Existing SME sector classification relies on two major criteria:

- Qualitative criteria (not measurable, describe specific structure and management manners of enterprises),
- Quantitative criteria (measurable by specific parameters, enables enterprise assignment to particular criteria class).

Bednarczyk (2004) advises that according to quantitative criteria, enterprises can be grouped by: number of employees, time the company has been operating in the market, the balance sheet sum, property wealth and net annual income (Bednarczyk, 2004).



Following the global development trend, enterprises representing SME in Poland need to focus on increasing effectiveness in order to achieve a competitive advantage, to be more attractive and reach set goals and objectives.

In advantageous economic conditions, macro-economic effects take place which affect the implementation and development of modern technology. Thus, new products with better quality are constantly being launched, demand barriers are decreasing and new raw materials are being used in manufacturing processes (Bendyka and Kisielnicki, 2012).

During the 4 years of recession Poland has become the leader of development of OECD (*Organization for Economic Co-Operation and Development*) countries. Polish entrepreneurs have been able to adapt their operations to the crisis external environment, be flexible for external threats, and determine an efficient strategy in order to adjust to hard global conditions. Moreover, the relatively weak level of polish zloty, a relatively low level of exports and the fact that the domestic market is quite spacious has affected positively the growth of SME (Tarnawa and Zadura-Lichota, 2012).

Tarnawa and Zadura-Lichota established the following conditions affecting the present situation of SME:

- financial stability in Poland,
- lower percentage rates for loans,
- European Union Membership, which has significantly increased the number of public investments (Tarnawa and Zadura-Lichota, 2012).

#### **4.2 Management Information Systems Currently Available for Small and Medium Enterprises in Poland**

The selection of current Information Systems available for SME is highly diverse. System providers offer general ERP modules or focus on strictly tailored solutions for particular needs presented by individual entrepreneurs.

After reviewing current market offerings the author has presented the most competitive proposals in Table 2.

**Table 2.** Information systems market for SME (May 2013)

<b>Provider name and specification</b>	<b>Product name</b>
Comarch (trade and distribution, retails, manufacturing, services)	Comarch ERP Altum, Comarch ERP XL, Comarch ERP Retail, Comarch ERP XL,
IISS (dedicated solutions, outsourcing, Business Intelligence)	Desk Center Management Suite
Rekord Systemy Informatyczne (production, logistics, trade, finance, HR& administration, business analysis)	Production (TPP, SPP, RP, PP), logistics (ZW, SKJ, RM, ZA), Trade (ZO, MF, ZD, ES), Finance (FK, KA, PE, ST, SN), HR (eHR, PL, KD, PE, RCP), Business Analysis (LD, AT, PI).

Streamsoft (production, trade, services, separate offer for micro and small enterprises, separate offer for small and large enterprises)	Streamsoft PCBiznes, Streamsoft Pro, Streamsoft Prestiž
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## 5. The concept of empirical research on MIS in SME

Research's objectives and hypothesis have been set out and this paper will provide details of future research plans including research objectives and hypothesis.

The main objective of the research is *to establish the research concept enabling verification if and how Management Information Systems impact the decision making process in Small and Medium Enterprises sector in order to achieve a corporate advantage.*

Following the main objective, the main hypothesis is:

*MIS does not provide enough support in the decision making process.*

In order to conduct the research, the author has identified partial objectives and hypothesis, enabling more detailed investigations for purpose of the study. Below partial objectives and hypothesis are listed:

Partial objectives:

- To analyze the sector information needs,
- To identify details how MIS are used within the companies,
- To classify internal and external factors that impact on MIS practice,
- To identify education needs within the sector,
- To categorize which systems are commonly used by entrepreneurs in the sector,
- To create a database with results,
- To identify how global trends in the practical use of MIS are followed by entrepreneurs.

Partial hypothesis:

- Lack of information impacts the decision making process,
- Entrepreneurs use standard systems more often than tailored systems.
- Service providers can implement MIS faster than manufacturers,
- Entrepreneurs take part in free trainings only,
- As companies grow, they use more complicated systems solutions.

## 6. Methodology

It has been established that the research will be of a theoretical and analytical character. In order to fulfill the established objectives by hypothesis verification, it is necessary to perform qualitative and quantitative research in the specific area based on the origin and secondary sources of the empirical research.

There are plans to conduct the following research:

- Extensive literature research,
- Establishment of the methodology of how MIS impact the decision making process for SME in order to reach a competitive advantage,
- Established methodology verification,
- Conclusion.

The primary stage of the research is to analyze literature, putting emphasize on foreign works; sources from academics, conferences materials, publications, books, theme books, periodicals and Internet resources. The statistical data will be sourced from Polish National Statistical Office, Eurostat, other resources and own research. The primary stage will include mostly the literary background and a synthesis of existing research achievements in existing literature.

The second stage of the research is the methodology set up on how MIS affect SME in the decision making process in order to achieve a corporate advantage. The scope of the research is planned to encompass the District of Lesser Poland. Empirical research is planned to be conducted on the following groups:

- the general community: all SME enterprises from the District of Lesser Poland,
- a sample of randomly selected enterprises,
- entrepreneurs employing more than 10 employees,
- over the area of the District of Lesser Poland.

For the second stage a sample will be selected. Zeliaś (2002) defines two methods of sample selection: purposeful and random. In the purposeful selection method the decision about sample selection is made by the author based on substantial knowledge, while the random method enables the use of mathematical statistics for interference.

The following methods will be used for data collection:

- questionnaires,
- direct interviews,
- results of categorized method,
- descriptive statistics.

According to Zieliński (2011) the collected information should be elaborated based on the following stages:

- to accumulate collected data,
- to verify collected data in order to avoid repetition,
- to apply suitable statistical methods in order to describe the statistical population.

The third stage will be an elaboration about the selected method. Methods of descriptive and mathematical statistics interference will be used.

The following, stage four, is the drawing of conclusions.

## 7. Conclusion

The paper constitutes the initial framework for the author's future research. It briefly summarizes the practical use of Information Technology in modern business, provides the theoretical background of the study, focuses on the introduction to MIS in SME sector in Poland and shows current market offerings for the sector. The article provides also the main objectives set by the author as well as the hypothesis and the selected methodology.

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# THE IMPORTANCE OF ORGANIZATIONAL CULTURE IN THE FUNCTIONING OF THE POLISH STATE FIRE SERVICE

**Mariusz Wyrostek\***

## **Abstract**

*The County Headquarters, as an organizational unit of the State Fire Service, similarly to other entities, operates in a turbulent environment. One of the special features that distinguish it from other nonprofit institutions is its prevailing culture. Organizational culture seems to be a determinant of the successful operation of the State Fire Service, which involves the realization its social purposes.*

**Keywords:** *organizational culture, fire service*

## **1. Introduction**

At different levels in the organization of social life, a large area is covered by organizations with purposes other than economic. These institutions are of interest, due to the fact that they need to operate in environments similarly turbulent to those, profit-making ones. In order to properly fulfill their goals, these organizations must utilize their full potential. Their organizational culture is an important part of this. One of the most interesting non-profit organizations, perhaps the most widely known and most trusted by the society in Poland, is the State Fire Service (Państwowa Straż Pożarna, PSP). This study is devoted to the issue of organizational culture and its role in the functioning of the PSP.<sup>2</sup>

Among a number of features that differentiate entities in the world around us, one of the most important at the level of organization is culture. An adjustment in the sphere of culture and environmental challenges becomes a very strong asset of an institution. Conversely, dysfunctional patterns of functioning very often impede the functioning of an organization, not infrequently contributing to its total disappearance. This phenomenon, elusive on the one hand, while on the other hand seeming to have a considerable impact

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2 The starting point for the development of this paper was to analyze the literature and relevant normative acts. The study area was one of the District Headquarters of the PSP. The key to the research performed was temporary joining the organization, which allowed for a series of participant observations, conversations, interviews and surveys (to determine the type of culture), and analysis of the available documentation.

on the practice of management, is worth taking a closer look. One of the most prominent scholars of organizational culture – Edgar Schein – described it as a pattern of basic assumptions developed by a group while learning how to cope with the problems of internal integration and external adaptation. These assumptions must be effective enough to be considered as valid ways of perceiving, thinking and feeling, that allow new members to learn them as valid (Schein, 1985, p. 6), and even desirable patterns of thinking and acting.

Literature possesses very rich different definitions and approaches to the topic of organizational culture. Discrepancies occur at the very level of terminology, and the methods of its perception<sup>3</sup>, interpretation<sup>4</sup>, elements and manifestations<sup>5</sup>, as well as ways and possibilities of researching it.<sup>6</sup> Given all of the above elements related to the subject, one must not forget about one of the most important issues. From the point of view of theory, and especially the practical operation of the organization, it is not these issues, but simply the existence of organizational culture that seems to be a priority. These certainly important issues, however, should not obscure or distort the perception of organizational culture as one of the most important factors affecting both human resource management in organizations, and the effective management of the entire organization, which in turn determines its operation.

## 2. Cultural conditions

Organizational culture has many functions. It affects both the organization itself, and – more or less indirectly – the environment. However, one should not forget that it also is influenced by various factors, which determine both its original shape, affect it during its undisturbed existence, and even enforce changes within it. The most general specification of the determinants of the culture being presented points to internal and external factors, where the internal stimuli would be those which arise within the organization itself, and the external ones are derived from the wider environment and its culture.

Among the external factors, certainly not without reason, the most often cited one is the national culture of a given country.<sup>7</sup> The economic situation, applicable legal regulations, and under these, the market environment of corporate activities also have an external character in relation to organizational culture. The State Fire Service like any organization operates in specific

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3 See also (Stańczyk, 2008, p. 12-13).

4 See also (Sikorski, 2006, p. 2-3).

5 See also (Hofstede, 2007, p. 20; Stoner, Freeman, Gilbert, 2001, p. 189; Steinman & Schreyögg, 2001, p. 471; Nogalski & Foltyn, 1998, p. 108-110).

6 See also (Gableta, 2006, p. 162; Zbiegień-Maciąg, 2002, p. 43).

7 Due to the limited volume of this paper, a closer analysis of this factor shall be omitted. In general, the issue is discussed by various authors, including: (Glinka, 2007, p. 77; Robbins, 2004, p. 453-454; Sułkowski, 2002, p. 143-144; Szałkowski & Bukowska, 2005, p. 81).



social and market conditions, which is certainly not irrelevant to its culture. The influence of external factors is twofold as they determine a number of manifestations and cultural standards; therefore, one can talk about their immediate impact. On the other hand, by forming the individual characteristics of an organization's culture they determine it indirectly.

Without a doubt, the most important external aspect shaping the culture in the PSP seems to be its regulations. The basic legislative act which deals with the State Fire Service is the Act of August 24, 1991. It specifies, in general, the most important issues related to the organization and functioning of the Service, which are optionally defined by more specific regulations of ministerial orders of the Minister of Interior and Administration. The said regulation declares the appointment of PSP, its core tasks and organization, as well as mentions the tasks of the District Commander, as well as its regulations and financing of its county headquarters. It generally defines rescue operations and the rights of firefighters during these activities. Finally, what seems to be essential for organizational culture, the Act deals with a range of issues related to the Service within its structure, by more or less generalized terms: the subjects, the oath, the relationship between the service and preparations for service, periodic evaluations, transfers, dismissals and suspensions of firefighters, performing tasks outside the country and the qualifications necessary to perform such duty; civil service corps and rank as well as the issue of awarding rank, the rights and duties of firefighters, honors, responsibilities and salaries, as well as uniforms (Act on the PSP, Dz.U.2009.12.68). The aforementioned regulations specify, for example: the framework and organization of the province and district (municipal) command (Ordinance of the Minister of Interior and Administration, Dz.U.2006.143.1037); service positions, maximum rank assigned to them, and additional eligibility requirements for specified positions (Ordinance of the Minister of Interior and Administration, Dz.U.2009.54.448); rendering service by firefighters (Ordinance of the MIA, Dz.U.2005.266.2246) is governed by specific organizational unit rules (Ordinance of the MIA, Dz.U.2000.93.1035), and determine positions in the organizational units of the PSP, where the recruited employees are treated as civil servants (Regulation of the Council of Ministers, Dz.U.1995.130.631), as well as clarify many issues concerning the analyzed subject.

Also the economic situation of the state is of great importance for organizational culture, or the overall economic situation, which seems to be a more important factor, due to globalization. While favorable conditions allow for flowering of various forms of organizational cultures, economic crises are becoming a real test of survival for many organizations. Turning to a more comprehensive treatment of the environment, according one of the authors it could be concluded that the less dynamic this treatment is, the more

necessary it is to invest in the development of a strong culture, which in turn translates into benefits for the institution. This does not mean, however, that in a turbulent environment one should resign from adjusting the culture to its requirements, as that is what enables quick decision-making and taking action. In fact, the more a culture is suited to the environment, the fewer difficulties employees will have to face in meeting requirements (Aniszewska, 2007, p. 42-44). Such explanations seem to confirm the effect the market environment has on the organizational culture and its importance.

Simultaneously with external factors that affect PSP's organizational culture, there are internal factors that can be divided into three subgroups: the type of organization, its features, and characteristics of human resources. The elements collectively referred to as "type of organization" seem to be in this case the nature of the business and industry and not simply of the ownership, and rather the nature of the way the major organizational units and technology used are financed. The analyzed institution falls into the category of nonprofit. The categories of developing economic profit are not among its characteristics. The essence of the State Fire Service includes very broadly defined activities related to the prevention of risk and, in the event of a crisis, executing rescue operations. Preventive activities are manifested in a number of activities aimed at eliminating or reducing risk to a minimum. They are based on monitoring and the enforcement of safety regulations regarding both people and the environment, as well as the continuous monitoring of the situation in this regard. Operating activities focus mainly on maintaining combat readiness. This is achieved through widely understood training, among which exercises occupy a special place. Rescue operations take place primarily during natural and other types of disasters, accidents, and other situations posing a threat to human life, health or property in which fires are a specific group.

The running costs of the State Fire Service are for the most part covered by state budget subsidies. Some of these costs may be borne by the municipality, district or provincial government and organizers of mass events (Act on the PSP, Dz.U.2009.12.68).

In order to properly carry out its tasks, each organization uses a specific technology, which, in the case of the State Fire Service, is determined by its specificity. It is an area that has a significant impact on the shape of the culture of the institution, as, to a large extent, it determines the possibility and quality of its tasks. In the analyzed case, it consists mainly of fire and rescue vehicles, as well as firefighting equipment and technologies used to coordinate the operations of the organization as a whole.

Organizational structure also provides a framework for culture, determining the internal business environment, which largely dictates the possible ways of acting and applied procedures (Stańczyk, 2008, p 24). The

structure of the presented organization is defined in the document “Rules of the organization,” and its shape determines the level of hierarchization and formalization in the institution, that are both determinants of its culture. Also participation, defined as the acquisition by the executive staff of at least some of the functions, tasks and powers belonging to the managers (Piwowarczyk, 2006, p. 82 and 83), is a very important contribution to the culture of the organization.

Another important issue, referring to the previous one, is the personnel policy. The most common are two of its models: the sieve and human resources. The first contributes to the development of male cultures, and it is where it predominantly occurs: the stress is on the effects of implementation of tasks, competition and individualism. However, it is not conducive to a good working atmosphere and contributes to high turnovers. The second one supports cultures of community, agreement and collectivity. It ensures a good atmosphere and results at a stable, high level (Gielnicka & Aniszewska, 2007, p. 66-68). The Fire Service, using specific human resources, maintains a policy directed at the on the development of human capital. The HR policy implementation is mainly reflected in the hiring and firing of employees, shifting them within the organization, and skills improvement. The personnel policy is based on an overall plan ranking for all target positions that must be filled in order to ensure the optimal functioning of the organization. All kinds of manifestations of workforce administration are related to improving their qualifications, and thus their competences. They arise from the needs of the institution.

The above, external and internal, factors do not seem to be irrelevant to the culture of PSP. The focus of activity and the applicable law essentially determine the general shape of the institution, establish its tasks, as well as impose a framework of standards and their implementation. This, in turn, translates into the type of organization, conditioning its characteristics and the characteristics of its work potential. All these details are important from the point of view of organizational culture. Their effects, whether total or more individualized, more or less directly determine the organizational culture of the State Fire Service.

### **3. Elements of organizational culture in PSP**

Located away from the core of culture, its outermost level, are artifacts. It sees that, as remnants of the core of culture, as the result of culturally conditioned activities scattered across its surface. Artifacts are artificial creations of the organization, visible, audible and tangible, being a consequence of the organization’s norms and values. Not every artifact of organizational culture,

however, is a symbol thereof. A given artifact becomes a symbol only if its members associate a specific meaning to it and the symbol gets to be used to communicate different meanings to others. An artifact is a symbol, when it is used by people to create meaning (Galata, 2007, p. 168-170). It should also be noted that whether given symbols are actually a manifestation of organizational culture is determined by the attitude of employees towards them. If employees do not consciously accept certain symbols, but only use them, complying with formal orders, these symbols are not manifestations of culture. When employees accept certain symbols consciously and use them, these symbols become actual elements of organizational culture (Sikorski, 2006, p. 11). This understanding of symbols is still a matter for further consideration. In the case of the Fire Service, one can talk about a number of artifacts, which in a substantial part are symbols of its culture. The formation and maintenance of their life are, on the one hand, determined by many aforementioned factors, both external and internal, and the other hand, related to the continuing need for employees to organize their work so that it is the most convenient and gives them a sense of satisfaction. Generally, these cultural manifestations can be classified into three groups, as linguistic, physical and behavioral symbols.

In the first group, there shall be the particularly visible symbols of language, style of communication, heroes and myths, or stories. While in any unit of the PSP, one cannot help but notice the specific language spoken by its employees. On the one hand, the language is very simple, but characterized by a number of acronyms and abbreviations, which changes it into jargon often incomprehensible to the layman. The shortenings relate to many aspects of the PSP. They are used both to identify the organizational units and the equipment used. In addition to these abbreviations, also distinctive name, referring to the structures formed by firefighters equipped with emergency equipment are in use. The most basic team of two firefighters equipped with personal protective equipment is called a *rota* (troop). *Zastęp* (team) is a subunit equipped with an emergency vehicle, which usually consists of two troops, a driver and a commander. A *sekcja* (section) is a subunit of two teams (including a commander), a *pluton* (platoon) consists of three or four teams (two sections, including a commander), a *kompania* (company) is three platoons or four sections and a commander, while a *battalion* (battalion) is a unit consisting of three to five companies and a commander.

In addition to the characteristic language, which the firefighters use in everyday life, what should be mentioned is the specific style and the way of communication, which operates in the conduct of rescue operations (and exercises). Communication allows the essential coordination of the fighting is done using special communication devices. In order to operate smoothly, it is dominated by various shortenings (also mentioned above) and the use of code

names. However, in the course of rescue operations, firefighters communicate with using non-verbal communication – certain gestures – apart from the shortenings. This is especially true when the work is done in the SCBAs, which prevent or significantly reduce the possibility of verbal communication.

Linguistic symbols, indicative of the organizational culture in the State Fire Service, are stories circulating among its employees. These stories concern different types of nonstandard or difficult operations. Anecdotes about the behavior of individuals, as well as a certain kind of myth, are met as well. One such myth explains a certain, now obsolete trait characterizing firemen of the past, namely, mustache.

Another group of cultural artifacts is physical symbols, which include: buildings, uniforms, badges, titles, seals and documents, as well as banners.

A very important part of the physical symbols, in the case of the institution in question, is the uniform. Here, the following variants are distinguished: the representative and duty attire, barracks clothing and Command and staff personnel uniforms, and personal protective equipment.

The next group of physical symbols is titles, i.e., status symbols. They are associated with the symbols constituted by the uniform. This is because the distinctions are worn on the uniform. In addition to titles, status symbols worn on uniforms are fire service college signs. Uniforms, distinctions, and the identification marks are legally reserved for firefighters (Act on the PSP, Dz.U.2009.12.68, Article 61.2). At the same time, in accordance with the law, compliance with the rules and discipline of clothing is the responsibility of the manager of the organizational unit (MIA Ordinance, Dz.U.2006.4.25, § 12). These conditions, together with a detailed statement of designs of these elements, cause the appearance of doubt as to the authenticity of their symbolic as manifestations of organizational culture. However, knowing the attitude of the PSP employees towards these symbols, these doubts are dispelled. Each firefighter has a lot of respect for all those physical artifacts. Looking at the uniforms, it is clear that the wear and tear of the individual elements as a result of normal use is inevitable, especially in the case of personal protective equipment. However, each firefighter, with great care, preserves all the details of the uniform, which contributes to the neatness of their appearance. After each operation, both hardware and clothing need to be cleaned, and sometimes repaired. These activities are performed on the fly, as needed (and often even ahead of them) and, of course, according to the available time and resources. Also, all the signs are placed on the uniform with great care, which further highlights the respect of officers towards these symbols.

An important symbol is the Merit badge for performance of duty in the field of Fire Protection (*Zasłużony dla ochrony przeciwpożarowej*). It is awarded either for exceptional dedication and courage in directing rescue operations, or

for the many years of dedicated service, or for activeness in terms of promoting the prevention of fires. The badge is in the shape of an equilateral cross. The arms of the cross are red. Between them is a shield with an oak wreath. A silver plated eagle with firefighting attributes: a helmet, two grapnels, two axes, and two water nozzles, is superimposed over the cross. On the reverse, an inscription is found: "TO SAVE LIVES AND PROTECT PROPERTY". The badge is suspended on a ribbon by means of a ring with a stylized laurel wreath. To the badge, a card confirming its award is attached. Detailed terms and conditions relating to the granting of the said badge are laid down in the relevant MIA Ordinance (Dz.U.2008.207.1305). This badge is of great value to firefighters, and a person awarded it is honored with the recognition and respect of his peers. In addition, there's always a heroic story connected with any such badge. One of the most important symbols of the PSP, and also an expression of its culture, is the banner. A banner is given to the organizational unit as a special award for service to the good of the Republic of Poland in the protection of life, health and property of citizens. The banner is made of red fabric (the front) and blue (the back side), trimmed around with a gold ribbon, and with a gold fringe on three sides. On the front side, there is an isosceles, white cross in the middle, in the middle of which there is the Polish national emblem placed on a circular disk. On this side, above the emblem, there is also an inscription "IN THE SERVICE", and below the emblem: "OF MY HOMELAND" is found. On the back side, an image of St. Florian surrounded by an inscription with the name of the organizational PSP unit is placed. The banner is crowned with a head, with a firefighter's helmet and two axes from which rises a flame of fire, embossed on both sides. The banner plays a role in various celebrations, national, professional, and religious.

The third group chief external manifestations of culture are behavioral symbols. Many of the behavioral artifacts are defined in a document called *Ceremoniał Pożarniczy*.<sup>8</sup> However, the most interesting are those voluntarily maintained by firefighters and nurtured with great commitment. Among the behavioral artifacts that symbolize the organizational culture of the PSP and worthy of attention are ceremonies and rituals associated with: joining the service and leaving it, the oath, Fireman's Day celebrations, and changing positions in the Service, as well as the organization of conferences.

The next level of organizational culture is formed by the system of values that are expressed by means of standards. With a number of different definitions of value, one can conclude that these are certain beliefs or ideas about what is important and desirable in the behavior of people, both at the individual and a group level. A very important feature of value is the fact that it represents a desired state, irrespective of the facts, they say that it should be,

<sup>8</sup> Ordinance of the Chief of the PSP of 27 June 2008 (Ceremoniał Pożarniczy, 2008).

as opposed to what actually is. Sometimes these are referred to as the moral or ethical code because they affect the choice of appropriate course of action from a variety of behaviors in a given situation. The existing set of values in an organization directly determines the applicable standards. Values are expressed and instantiated by the norms. Values determine what is considered important in the organization, and standards – which behaviors are expected in this context (Stańczyk, 2008, p. 30). Among the standards in force within the Service, some general rules can be mentioned that are applicable to all firefighters, and more detailed ones applying to specific officers. Due to the nature of the organization, a substantial majority of the existing standards is a formal written policy<sup>9</sup> of organizational rules and regulations of work and service.

Each newly recruited employee, before starting work, accepts the regulations and agrees to respect them. This is confirmed by a written statement attached to personal records. Direct supervision of compliance with the standards contained in the rules of the exercise is formally maintained by the heads of organizational units. It should be noted, however, that both the standards contained in these regulations, and those not fully formalized are highly esteemed and respected by the staff. This is evidenced by the fact that discipline issues emerge only occasionally. These cases, rarely seen, are meticulously analyzed and recorded in their event. Compliance with the standards and principles stems from the understanding and acceptance of them by the Firefighters. Their formulation stems not only from the very regulations, but in the main part is dictated by years of experience and concern for the smooth functioning of the Service and the safety of its members. The standards result from the system of values of the Fire Service, as well as the values of the individuals who form it and perform their duties to protect life, health and property of both whole communities and other individuals. Especially noteworthy are the safety standards regarding firefighters themselves that replace audacity with sense, according to the value “*a good firefighter is a live firefighter!*” This value, in the service of the good of others, even at the risk of one’s own health and life, is of the highest importance.

The deeper layers of organizational culture are created by underlying assumptions. A basic cultural assumption is a philosophy that determines the worldview throughout the organization. It is a rule on matters essential to

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<sup>9</sup> This assertion seems to contradict the sometimes alleged unwritten nature of cultural norms. By far, however, it is not so, and these claims are not mutually exclusive. Indeed, too formal treatment of standards, manifested their strict formulation and imposition, leads to bureaucracy and rigidity in an organization, which is negative, and as such questionable, as far as those standards are actually components constituting organizational culture, and not simply formal rules of operation. However, it should be kept in mind that in many organizations, which are characterized by strong cultures, and therefore those in which standards are real, live components of culture, there are different types of documents that contain many of these standards. This involves the different wording of the mission, or strategy of the organization, or the ethical codes contained mainly in two documents:



human beings. They define the attitude of individuals and groups towards life and the world, and consequently, the whole organization (Sikorski, 2006, p 8). It is an almost entirely invisible element, and usually also an unconscious one. This makes it virtually impossible to completely accurately and comprehensively identify them and determine them. However, drawing on key questions identified in literature,<sup>10</sup> and using collected materials and information, as well as drawing on a number of observations, an attempt will be made to determine them.

In terms of time, the organization seems to be focused on the future. This does not mean, however, that the present or the past does not matter. The past and tradition is respected, and the current situation and performed work come with great commitment. However, all these activities are pursued in the light of some more or less distant targets. This is reflected both in the administrative work, the management, and in a number of planning and forecasting activities, as well as in the active service of regular firefighters in their constant effort to maintain physical fitness and increase their skill level in order to better perform their tasks. The work is continuous; it is a sequence of regular events but also irregular events such as emergency fire and rescue operations.

In considering the approach to human nature, it is difficult not to be tempted to declare that the Service tacitly accepts the premise that everyone is inherently good and, as such, must be granted the necessary assistance. This is evident even in situations where the said assumption becomes clearly inconsistent with reality. Then people tend to move away from the evaluation of people, with a focus on solid execution of the task instead, which is reflected in the statement: *This is our duty*. Work, very specific to the profession of a firefighter, is rather considered as a necessary evil, but performed with great passion, commitment and dedication.

The nature of human activity, in the case of the members of the Service, is marked by both activity and harmony. It is essential that the rescue operation activities are predictable, although they are always accompanied by different conditions. The aim is to reduce uncertainty by means of certain human activities, customized to the configuration of environmental factors. This is due to the fact that in a difficult or awkward situation, each firefighter must be confident in the actions and behavior of their comrades.

The nature of human relationships is rather dominated by collectivism, which does not release them from a constant, personal self-development and attention to the high level of their competence. Despite various conflict situations that are an integral part of everyone's life, and which also appear in the presented institution, cooperation is far more important than competition.

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<sup>10</sup> See also (Galata, 2007, s. 166; Stańczyk, 2008, P. 34).



The most respected source of power remain merit and competence. In its exercise, however, although conditioned by the hierarchical organizational structure, as far as it is possible, can deviate from the autocratic style. It should be noted, however, that the issues of liability, its dilution between a group of people is avoided, and it is always clear who is responsible for what.

The issues relating to the attitude towards unity to diversity ratio it can be stated that internally heterogeneous groups are considered as more efficient than homogeneous ones. Examples include the grouping of people with different personalities into teams so that they complement each other. However, the individuals in the group are expected to fit in rather than experiment. Creativity is valued as much as having a real effect in the form of better performance.

Identification and arrangements regarding various issues related to the culture of the State Fire Service allow one to consider it as functioning in a real, particular environment, a system. The system contains a set of formal rules, as well as unwritten standards, manifested by many symbols, which are derived from basic principles of the employee community, which allows both harmonious cooperation between them, and an important context for directing the organization.

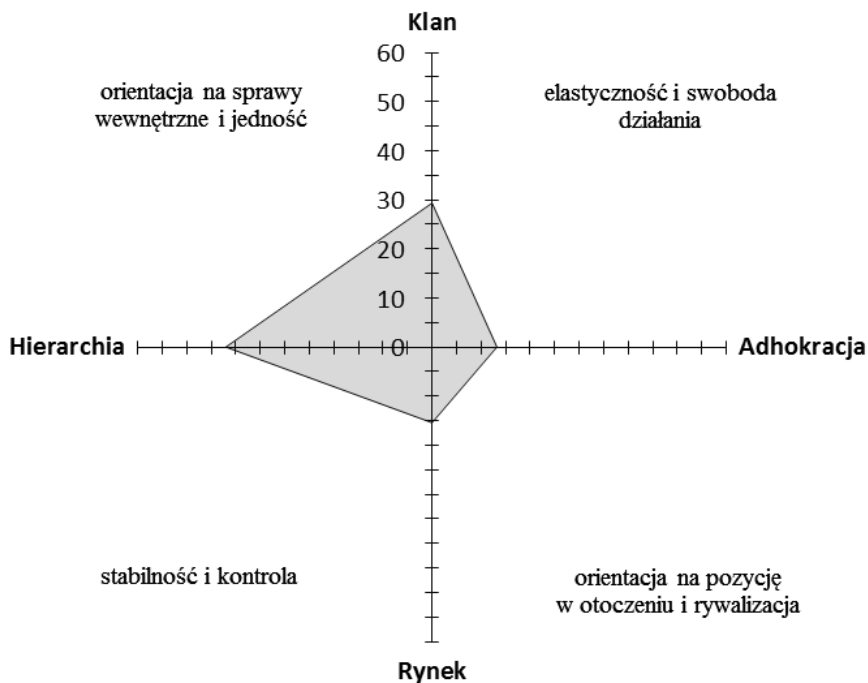
#### **4. The type of organizational culture in PSP**

Another important issue when pointing out the conditions and identifying the elements of the organizational culture of State Fire Service shall be an attempt to determine its type. Both earlier observations, as well as research results, may prove helpful.

PSP is a public sector service institution, which to a large extent determines its characteristics. In addition, it operates in a particular environment where the single most important factor seems to be the legal system. It can be assumed that the provisions of the law, both external and forced by the rules of procedure, to a large extent determine the type of culture in the analyzed organization. Such assumptions are further enforced by observations of other cultural expressions, which can largely be formally standardized. However, in order not to rely only on the assumptions, in determining the type of culture one should follow the results of studies that were conducted for this purpose. This will allow the specification which culture profile dominates in the Service, based on the typology proposed by K. Cameron and R. Quinn (2003), which details the following types of culture: clan, adhocracy, market and hierarchy.

As a result of the information collected through the survey, an overall organizational culture profile of the PSP has been drawn, which is presented in Figure 1. As shown in the figure indicated, the most strongly accented

type of culture is hierarchy. The results, therefore, confirm the assumptions made. The Service is dominated by hierarchical functioning depending on the position, and regarding activities – procedures dominate. Firefighters in leadership positions, in order to ensure the efficiency and effectiveness of the institution, should be especially good coordinators and organizers. Importance is attached to working without interference, where observing a set of rules and standards is seen as helpful. An important issue is also the predictability of full employment and staffing.



**Explanation of terms:** klan-clan, hierarchia-hierarchy, adhokracja- adhocracy, rynek-market, orientacja na sprawy wewnętrzne i jedność- focus on internal affairs and unity, elastyczność i swoboda działania- flexibility and freedom of action, stabilność i kontrola-stability and control, orientacja na pozycję w otoczeniu i rywalizacja-a sense of position in terms of the environment and competition

**Figure 1.** PSP organizational culture profile

Source: Own study. Survey results, based on the tools proposed by Cameron & Quinn (2003).

This does not mean, however, that the institution in question is focused only on compliance with formal rules and hierarchical relationship. As shown in the figure, clan culture is very strongly emphasized as well. This is confirmed by the organizational reality, where the managers, in addition to coordinating and organizing work, often play the role of counselors or

teachers who are concerned about the development of their subordinates. Cooperation between firefighters is not just a formal record of the rules, but a practically applied way of performing tasks. Among the employees, also attention is drawn to high loyalty and respect for history and tradition. Smaller focus is on the market and adhocracy culture, as it is reflected in the daily life of the State Fire Service. It is difficult in this case to talk about a competitive attitude, whether throughout the organization or of individual employees, as these characteristics are far from being a part of this institution. However, the presence of market culture can be explained by both the ambitions of employees focused on carrying out their tasks better, as well as the overall attention to the high quality of work and reputation of the Service. At the same time, together with the high creativity of the firefighters which often determines the success of their work, the Service as an organization is not a particularly dynamic one, nor does it seem to be striving to become a leader in its field, which explains its low accenting of adhocracy culture.

The strongest influence in the organization is by the system of norms and the subsequent formal structure, which create a culture of hierarchy. Nevertheless, it can be noted that wherever specific legislation does not reach, the State Fire Service personnel organize themselves according the guidelines specific to the clan culture. At the same time, in the organizational culture of the institution, small but fairly positive influence of features specific to the market culture, and adhocracy, can be seen.

## **5. Conclusions**

The success of any organization, regardless of how it shall be understood, in the main part is determined by its proper functioning. Despite the multitude of studies and finished models of its effective management, it is difficult to identify those that would fit all organizations. This is because each of them is different, and it could even be argued that no two are the same. This situation favors the development of soft management areas, among which organizational culture occupies the chief position, as it seems to be the best proof of the individuality of each institution. The discussed organizational culture is a specific way of thinking and acting by the members of the organization, constituent in its existence and determined by the wide configuration of factors that make up its uniqueness. Due to the fact that organizational culture is difficult to clearly and comprehensively define, the essence of this phenomenon is usually expressed by a number of features which characterize it. The culture of the PSP is made up of certain elements, which remain at the different levels of visibility and awareness. The most external manifestations are the artifacts that, because of the meanings attributed to them, create cultural

symbols classified into three groups as: physical, linguistic and behavioral. The next level, less visible, and sometimes even subconscious, is the standards and values. The values, as beliefs that indicate a desirable state of affairs, are original to the standards, which are the expression thereof, more specifically designing the nature of behaviors that are considered appropriate. At the deepest level there are the basic assumptions, or a philosophy, which usually subconsciously defines the organization's worldview. Both individual factors and the attitude of the employees to different cultural symbols determine the type of culture, which clearly outlines a culture of hierarchy, supported by clan culture. Such a profile of organizational culture seems to have a positive impact on the achievement of very specific tasks which the Fire Service needs to handle. Similarly, all forms and elements of that culture, even those not entirely explicit, which constitute the bonds connecting individuals achieving common goals, play an important role both for the management and the overall functioning of the organization.

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**II.**  
**MODERN TOOLS**  
**FOR BUSINESS AND NON-PROFIT**  
**ORGANIZATIONS MANAGEMENT**





# RESULTS OF OBSERVATIONS OF MANAGERS BASED ON THE SYSTEM OF ORGANIZATIONAL TERMS

**Olaf Flak\***

## **Abstract**

*This paper contains the latest results of observations based on the system of organizational terms and tools in transistorshead.com. The website consists of two prototypes of managerial tools – for setting goals and for describing tasks. The theoretical foundation for the tools is the system of organizational terms described in previous works of the author. Data collected by the tools lead to a recognition of patterns of users (managers) by a graph-based theory. In the paper there are introductory conclusions from using the method and tools in research.*

**Keywords:** *observation, system of organizational terms, graph theory, management tool*

## **1. Introduction**

The main scientific aim of the paper is to introduce the latest observation results of managers carried out based on the system of organizational terms and online versions of management tools. The tools simultaneously played a research function implemented in the transistorshead.com platform.

The particular goals of the paper are:

- to describe the concept and the course of observations,
- to present a theoretical background of results analysis,
- to depict a mechanism of management tools in transistorshead.com,
- to present the results of observations derived from the fact theory,
- to discuss scientific fields of further research and practical results implementation.

This paper consists of many footnotes to the previous author's publications due to size restrictions. Knowledge of these sources will enable the reader to better understand the author's train of thought relating to observations themselves and results.

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## 2. The concept and course of observation

Observation is one of four main research methods in social science. This fact is reflected in management science. Observation is usually used to gather information such as surveys, interviews and experiments. Observation is suitable for information turned into empiric data pertaining to the world around us. However, observation seems to be used in management science quite rarely.

Nevertheless, S. Stachak claimed that observation plays an essential role in social science. The reason for that is that observation “is used to build relevant knowledge” (Stachak 1997, p. 141). There is a necessity to indicate that the observation carried out was not intuitional research and it was not based on the author’s experience. According to the rules of observation this method was planned in such a way so that the results could describe a part of an organizational world. For this purpose observation was projected in a scientific way and had features such as being planned, systematic, selective and rigorous (Stachak 1997, p. 141).

The period of observation was planned for April 8<sup>th</sup> until June 4<sup>th</sup>, 2013. The group of students to be observed were second year students specializing in managements studies at the School of Economics in Katowice in their second semester. Observations were done thanks to Dr. Adrian Pyszka, PhD. The students were assigned the task of preparing a project on management innovation as part of an Organization and Management Techniques course.

The task for students was to work in teams on a project connected with management innovation. The assumption for this work was that management innovations should consist of a management tool together with a description of a technique how to use the tool. This was the content of the project which was to be prepared with two management tools: a goaler and a tasker. The goaler was designed for establishing precise states of the future and the tasker played a role in describing activities which should be taken so that goals could be obtained. The goaler and a tasker were implemented at transistorshead.com.

The observations were done systematically because every movement and change in goals and tasks was recorded by a monitoring system built as a data base. Therefore, it was possible to discover how long phases of establishing goals and describing tasks lasted and what the succession of these activities was. Intervals between managers’ actions were determined by managers’ decisions concerning the use of the tools.

The selectiveness of the observations consisted of two aspects of managing. The first issue was establishing goals and the issue was to describe tasks. However, the main content was comprised of a change in goals and

tasks within the timeline. Subsequent sections of this paper present some theoretical foundations.

The rigorousness of the observations means that there were only two fields of data which were collected during the period of observation. The first area was to focus on a timeline and the second area consisted of a group of measured quantities. They described primal organizational terms.

This paper contains only part of the results for managerial activities in the timeline. A semantic analysis of goals and tasks will be the subject of further publications by this author.

### **3. Theoretical background of the results of observations**

The theoretical foundation for conducting the observations derived from the previous phases, both conceptual (Flak 2008, pp. 13-21) and operational (Flak 2010, pp. 11-21), is the system of organizational terms (Flak 2007, pp. 64-74). The main part of the system of organizational terms are those indicating facts which may occur in the organization while it exists. These terms have been named as organizational terms (Flak 2008, p. 19). They create a complex of terms which could be understood as an entity. This means that the entity as a whole is in parts and there is at least one relation between the parts of the entity (Krzyżanowski 1985, p. 146).

The terms, which have been named in natural human languages, describe relating facts. There is a need to quote Poincare who said that “a science is always built of facts in comparison to a house which is made of stones; however the pile of stones is not a house as well as the pile of facts does not create a science” (Ciesielski, Pogoda 2008, p. 82). The system of organizational terms is a concept which combines facts in an organizational environment.

The philosophy of L. Wittgenstein and his states of entities were the foundation for the theory of facts presented in the system of organizational terms. L. Wittgenstein claimed that “all the world consists of facts as the only beings” (Brink, Rewitzky 2002, p. 544). Following generations of this theory claimed that “facts appear in the states of entities” (Prechtl 2007, p. 122), which can be understood as meaning that facts and their features can be described by the state in which they currently exist.

Features of facts, which are named by terms in the system of organizational terms, are selected in dimensions. The features are called measured quantities. It is worth mentioning that it is not only a case of quantitative features of facts but also typical objects in management such as resources (which were called things by Zieleniewski (Zieleniewski 1965, p. 44)) and processes (Grajewski 2007, p. 55). Features of facts are groups of many parameters which are called measured quantities. They are either quantitative or qualitative.

In the concept of the system of organizational terms there are two different kinds of organizational terms. The first ones are called “primal”, the second ones’ “secondary”. Primal organizational terms are combined with facts which are things (or resources in the management vocabulary). Secondary organizational terms represent facts which are events. The events might be understood as processes in management science (Flak 2008, p. 18).

Facts may appear in the organizational environment in some combinations. The combinations create relations of both types: “creates” and “starts”. It means that a certain fact derives from another fact which has occurred in the past. The “creates” relation is unintentional. For example, it means that a fact called “planning” (an event) causes another fact called “a plan” (a thing). The same relation appears in any combination of facts “an event – a thing”. This is represented in the management languages by a pair of words “a process – a resource”. Taking into consideration the relation called “starts” is an intentional issue, this implies that an effect always depends on doers ( a manager or members of his team). For example, a fact or “an idea” (a thing) in somebody’s head does not mean that the inventor would start to build a team to put the idea into practice. This result depends on the doer, who is usually a manager (Flak, being published).

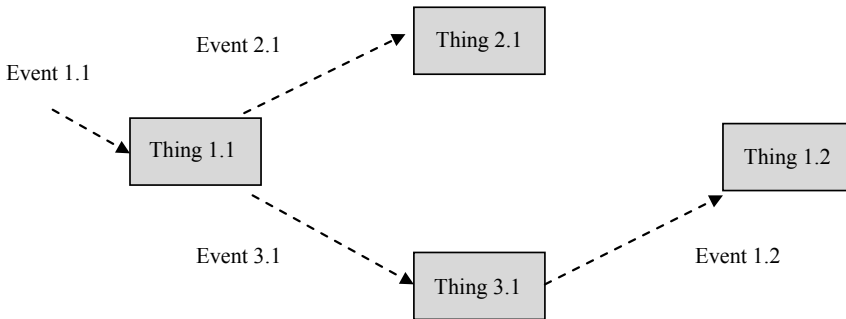
It’s possible to agree that a “thing” type fact represents a resource in management science and “an event” type fact is equal to the process (Flak 2008, p. 18). However, there is an essential assumption that in the system of organizational terms there is no division of different “event” type facts such as moments, happenings and processes. In order to make the theory simple all such facts are called, “events”.

Having created the system of organizational terms, let us capture facts precisely so that it might be possible to look for causal relations between facts. The way of looking for such relations is totally different to common ways used in management science (Flak 2010, pp. 11-21). In science there are usually methods based on opinions and declarations of organization members and conclusions are taken not from measured facts but opinions about them (Flak 2012, p. 13).

In order to collect information about facts which could be turned into data used for reasoning, there is a strong need to use different research tools. Their foundation can be named as a trap for facts which occur in the organizational world. Nowadays, it is quite easy to do that by projecting online management tools with a function of recording users’ activities. Such tools have been created and their short specification is presented in the next section of the paper.

#### 4. The mechanism of management tools in transistorhead.com

The research and management tools in the transistorhead.com were projected to measure features of facts which are things in several moments of time. They record changes in the states of entities. Taking into consideration what was mentioned in the previous sections there is necessity to underline that, precisely speaking, the tools record information (structured as data) about primal organizational terms in successive moments of time. The schedule of recording in the way described above is presented in figure 1. The facts which are recorded, are marked with a grey background. The event n.m is a secondary organizational term and the thing i.j is a primal organizational term. N and i mean the following number of the event or the thing. M and j mean the following version of the event or the thing.



**Figure 1.** Facts recorded by transistorhead.com

Source: (Flak 2013, s. 192).

It is essential to recall that in the ontology of the organizational world mentioned above and based on the system of organizational terms there are two types of relations between facts: “creates” and “starts”. The “creates” relation is an intrinsic property of the relation between one primal organizational term and one secondary organizational term. This can be presented by a combination “an event – a thing”. In the vocabulary of management science there exists such a pair named “a process – a resource”. Nevertheless, if they were to research more deeply, there would be a strong need to use semantic analysis of the state of entity change.

On the other hand the „starts” relations are intentional. It means they are caused by a manager or other members of the organization. These relations, named with abbreviation “S”, are presented in the next section of the paper. They are able to be discovered by tools in the transistorhead.com which record primary organizational terms (Flak 2013, pp. 187-197).

Prototypes of two tools for managing and doing the research were designed by the author of the paper during a scholarship at the University of Siegen. The author managed a project dedicated to Pattern Recognition Techniques for Management Science funded by the Scholarship for Scientists and Academic Employees in Germany (DAAD). Its implementation and validation were conducted by the olafflak.com company. This company is the owner of the tools.

In transistorshead.com there were two such tools implemented: a goaler (to set goals) and a tasker (to describe tasks which are needed to obtain the goals). At the same time the management tools are also research tools to capture facts such as goals (things) and tasks (things). To understand the reasons, see the figure 1. The tools record activities of managers in the timeline. This is indispensable to prepare data for pattern recognition of managers' behaviors.

There is a possibility of gaining knowledge about the tools in transistorshead.com by visiting <http://transistorshead.com> with login: kowalski, password: kowalski (this is an exemplary user). If there is a need to check how the tools work by setting goals and describing tasks, visit <http://transistorshead.com> with login: nowak, password: nowak (this user is to test the tools).

## **5. Results of observations derived from the fact theory**

The ontology designed in the system of organizational terms let us present a pair of primal and secondary organizational terms as nodes in graphs. The "starts" relations might be treated as edges in the graph [Flak, being published]. According to such an approach, graphs show us the appearance of organizational terms in the timeline. These organizational terms represent facts!

At this stage of the research it is very difficult to reckon a dominating shape of graphs. However, there is an assumption the graphs are directed and contain multiplied edges and loops (Wilson 2012, p. 13).

Basing on the graph theory, it is possible to make the premise that if there is much data about facts which occurred (represented by primary organizational terms) and their measured quantities in the timeline, there is a possibility of doing pattern recognition of managers' behavior. It is possible to use typical methods for recognizing physical objects or sounds (Theodoridis, Koutroumbas 2009, p. 261).

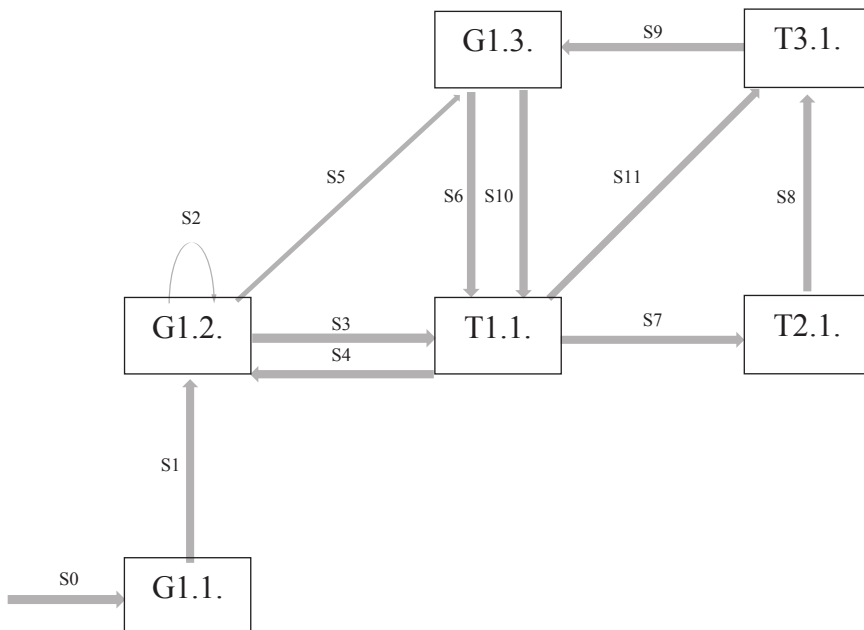
Having established a period of time  $\Delta T$  and having measured "thing" type facts (primal organizational terms), we could know the state of entities in successive moments of time. Then there is the possibility of showing how a manager acted in graph form (Flak, being published).

This technique of reasoning allowed us to be able to describe an individual graph for one man during his work on a certain project. If the projects are

repeatable it is possible to count parameters of similarities between graphs which mean similarities between activities taken by a manager in different projects. The extended version is an analysis and a comparison of activities of different managers. According to suggestions, in the future it would be possible to replace a human manager with a machine which could manage a team instead of a man.

Returning to the observations which were carried out, activities of 8 managers of small projects were recorded. The projects were the setting of goals and describing tasks. In this section 3 examples of managers' activities under observation are presented. The graphs of their activities are shown in figure 2, 3, 4. In tables 1, 2, 3 there are periods of time when the tools were being used by managers. It is essential to know that in this paper there is only an analysis of the appearance of the activities in a timeline and no semantic analysis.

In the figures 2, 3, 4 the green color means "starts" relations which were activated by the "add" function in the tools (add new {goal; task}). Blue arrows mean "starts" relations revealed by the "view" function in the tools (view {goal; task}). Red arrows are "starts" relations launched by the "edit" function in the tools (edit {goal; task}). The last color – orange – was used to indicate "starts" relations launched by the "delete" function in the tools (delete {goal; task}).



**Figure 2.** Graph of the first manager

Source: transistorshead.com.

**Table 1.** Periods of activities of the first manager

Starts (S)	tool	begining of Creates	end of Creates
0	goaler	2013-05-10 14:47	2013-05-10 14:55
1	goaler	2013-05-10 14:56	2013-05-10 15:03
2	goaler	2013-05-10 15:03	
3	tasker	2013-05-10 15:04	
4	goaler	2013-05-13 20:32	2013-05-13 20:44
5	goaler	2013-05-13 20:44	2013-05-13 20:47
6	tasker	2013-05-13 20:47	2013-05-13 20:50
7	tasker	2013-05-13 20:50	2013-05-13 20:51
8	tasker	2013-05-13 20:51	2013-05-13 20:52
9	goaler	2013-05-14 11:37	
10	tasker	2013-05-14 11:37	
11	tasker	2013-05-14 14:16	

So that the reader could understand the sequence of events which is presented in figure 2 and in table 1, it is necessary to describe them more widely. Manager 1 (called M) decided to create a new goal (G.1.1.) at 2:47 p.m. 2013-05-10. It took 8 minutes (until 2:55 p.m.). The S0 relation appeared and afterwards „creates” relations appeared within the node G1.1. One minute later the manager launched the S1 relation which meant editing the goal created a while ago. The manager shaped it into the goal G1.2. (this is the same goal but in another version). At 3:03 p.m. the M started the S2 relation. This was also “editing” the goal G1.2. However he did not save any changes to the database (finally the goal was not changed). That is why the goal stayed in the same version G1.2.

There is place for a short explanation. Firstly, it is possible to ask how long the “starts” relation lasts. There is the premise that its period is coming up to 0. So that this is an endlessly short moment of time. Secondly, there is the question of how long the “creates” relation lasts within a mode. This relation connects a primal and a secondary organization term. Its moments of starts and ends have been presented in table 1. Thirdly, it is necessary to explain, why in some relations shown in table 1 there are no moments of time in the „creates end” column. The reason is so the tool could be closed either by the “Save & Close” button or by the close button in the web browser. When the manager used the close button in the web browser, the monitoring system of transistorshead.com did not record this action. This mistake during monitoring activities of users was discovered after the observation and this is the case of prototypes. That is why it is not possible to point the exact time of the end of editing the goal G1.2.



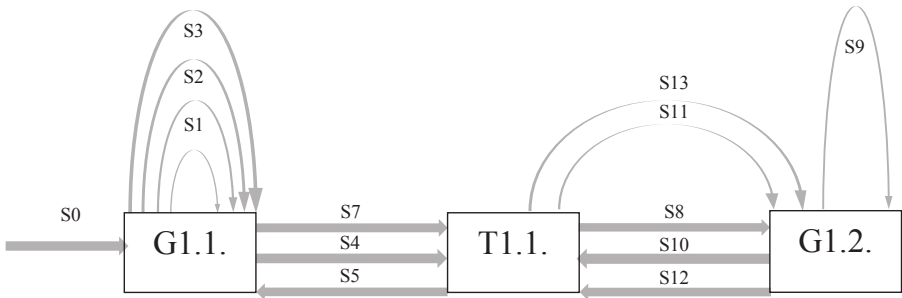
When we follow subsequent actions of the manager, we can discover that at 3:04 p.m. 2013-05-10 he started creating a task called T1.1. However, he left the “tasker” browser without saving this point of time in the data base. This means he did not create the task.

The manager came back to the transistorshead.com at 8:32 p.m. 2013-05-13 and he launched the S4 relation by viewing the goal G1.2. which had been set before. The manager worked over the task about 12 minutes and at 8:44 p.m. he finished viewing. Then he started the S5 relation by editing G.1.2. and changing it into G1.3. It took 5 minutes.

Then he started the S6 relation which meant creating a task called T1.1.. He finished it at 8:50 p.m. Afterwards he implemented the S6 relation consisting of creating the task T1.1. and finishing this process at 8.50 p.m. Then the S7 relation appeared and suddenly the task 2.1 appeared. It means that the manager at 8.50 p.m. started describing the task 2.1. This action was finished at 8:51 p.m. Then the S8 relation appeared and the node called T3.1. On May 13, 2013 the manager finished his work at 8:52 p.m.

The next day at 11:37 a.m. the manager started the S9 relation which was viewing the goal G1.3. Then he started the S10 relation by viewing the task T1.1. The monitoring system did not record the end of this process. The last relation, called S11, occurred the same day at 2:16 p.m. and its aim was to view the task T3.1.

Another example of manager’s activities is shown in the figure 3 and in the table 2.



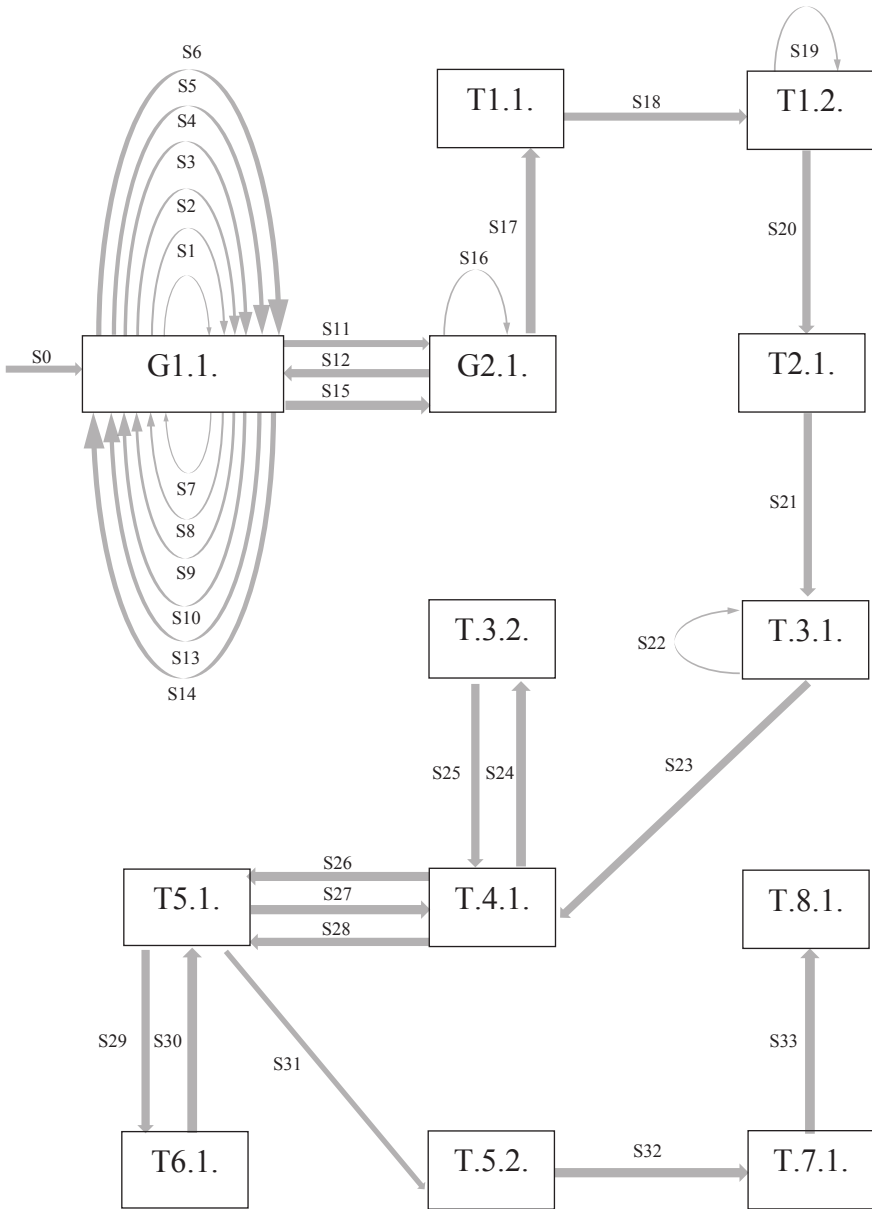
**Figure 3.** Graph of the second manager  
Source: transistorshead.com.

**Table 2.** Periods of activities of the second manager

<b>Starts (S)</b>	<b>tool</b>	<b>begining of Creates</b>	<b>end of Creates</b>
0	goaler	2013-04-30 20:37	
1	goaler	2013-04-30 20:46	
2	goaler	2013-04-30 20:46	
3	goaler	2013-04-30 20:49	
4	tasker	2013-04-30 20:51	
5	goaler	2013-04-30 20:54	2013-04-30 21:22
6	goaler	2013-04-30 21:22	
7	tasker	2013-04-30 21:23	2013-04-30 21:32
8	goaler	2013-04-30 21:32	2013-04-30 21:33
9	goaler	2013-04-30 21:33	
10	tasker	2013-04-30 21:33	
11	goaler	2013-05-21 18:02	
12	tasker	2013-05-21 18:03	
13	goaler	2013-05-26 17:47	

As it is shown in figure 3, the second manager did something else compared to the first manager. In the graph there are 13 relations of the type, “starts”. However, all of them concern only two primal organizational terms: one, goal (in two versions G1.1. and G1.2.) and one, task (T1.1.).

In figure 4 another example of managers’ behavior is presented in the field of setting goals and describing tasks. This third manager created many more facts (primary organizational terms) than others. The graph consists of 33 relations of the type, “starts”. Periods for the relations are placed in table 3.



**Figure 4.** Graph of the third manager

Source: transistorshead.com.

**Table 3.** Periods of activities of the third manager

<b>Starts (S)</b>	<b>tool</b>	<b>begining of Creates</b>	<b>end of Creates</b>
0	goaler	2013-05-02 12:03	
1	goaler	2013-05-12 21:53	2013-05-12 22:17
2	goaler	2013-05-12 22:18	
3	goaler	2013-05-12 22:18	
4	goaler	2013-05-12 22:18	
5	goaler	2013-05-12 22:18	
6	goaler	2013-05-12 22:18	2013-05-12 22:19
7	goaler	2013-05-12 22:19	
8	goaler	2013-05-12 22:19	
9	goaler	2013-05-12 22:19	2013-05-12 22:19
10	goaler	2013-05-12 22:19	
11	goaler	2013-05-12 22:19	2013-05-12 22:19
12	goaler	2013-05-12 22:21	2013-05-12 22:21
13	goaler	2013-05-12 22:21	
14	goaler	2013-05-12 22:21	
15	goaler	2013-05-12 22:21	
16	goaler	2013-05-12 22:22	
17	tasker	2013-05-12 22:22	2013-05-12 22:23
18	tasker	2013-05-12 22:23	2013-05-12 22:27
19	tasker	2013-05-12 22:27	
20	tasker	2013-05-12 22:27	2013-05-12 22:33
21	tasker	2013-05-12 22:34	2013-05-12 22:35
22	tasker	2013-05-12 22:35	2013-05-12 22:35
23	tasker	2013-05-12 22:35	
24	tasker	2013-05-12 22:37	
25	tasker	2013-05-12 22:37	2013-05-12 22:38
26	tasker	2013-05-12 22:39	
27	tasker	2013-05-12 22:40	2013-05-12 22:40
28	tasker	2013-05-12 22:40	
29	tasker	2013-05-12 22:40	2013-05-12 22:42
30	tasker	2013-05-12 22:42	2013-05-12 22:43
31	tasker	2013-05-12 22:43	2013-05-12 22:43
32	tasker	2013-05-12 22:43	2013-05-12 22:44
33	tasker	2013-05-12 22:44	2013-05-12 22:44

## 6. Conclusions

As the figures 2, 3, 4 imply the same project in the designed observations were differently managed by different managers. The number of primary organizational terms and their sequence is completely different. Every manager might have had his own managing style which could be presented as a graph.

This paper contains only these three examples of using the graph theory as a mathematical tool to represent data gathered by transistorshead.com. The theoretical foundation was the system of organizational terms. Having enough information about managers' activities, it seems possible to create individual graphs and compare one to another. The next step would be a trail of automation for some operational management in the team. Another result could be creating functions between organizational terms (Flak 2010, pp. 16-18). Such steps will be taken by the author in future research and publications.

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# UNCONVENTIONAL METHODS OF MARKETING COMMUNICATIONS

**Anna Scheibe\***

## **Abstract**

*In the era of an information revolution customers come in contact with huge numbers of marketing messages in their everyday lives. This leads to so called, information noise, which may result in many messages going unnoticed. Thus marketing managers are forced to search for more effectively ways of getting customers' attention and are more willingly to use unconventional promotional methods based on using original forms or places in an effort to create the element of surprise and make their message more eye-catching for the targeted audience. This kind of move tends to evoke strong emotions, motivating readers to pass the message on. Creating such a buzz around brand name would also enhance the campaign's effect. Unfortunately, this form of communication also brings with it some negative effects due to controversial or taboo topics connected with sensitive social issues. An analysis of the advertising methods used by the owners of the most powerful Polish brands shows that there is some evidence of the use of such methods in Poland. Nevertheless unconventional advertising methods are not a commonly used practice.*

**Keywords:** *unconventional promotion, ambient marketing, guerilla marketing, outdoor, Polish brands.*

## **1. Introduction**

In this time of globalization and the information revolution clients face huge amounts of information in their everyday life. According to statistics the American customer sees from 3000 to even 5000 promotional messages a day (Story 2007). Although the data comes from the American market, it is highly probable that the statistics would be only slightly lower also for Poland. Radio and TV stations, press, Internet services, face-to-face or phone conversations with sellers or friends, post, or e-mails are only few examples of sources of information for the customer. Their variety can cause information noise, which makes noticing and concentrating on each message separately impossible. As a result, some messages may be forgotten, neglected or unnoticed by the

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audience. Customers are hereby forced to filter incoming information and concentrate only on the most important or the most interesting ones.

Producers wanting to attract the attention of potential or actual customers to their message must search for attractive and unusual ways of making contact. If their message differs from conventional promotion methods in its controversial or unusual form, it becomes more eye-catching for the audience. Producers try, therefore, to surprise readers with original forms of messages or by posting their messages in unusual places. Organizing promotion efforts makes missing the message less probable and facilitates its memorization. On the other hand, the need for constant surprise, often related to controversial subjects producing extreme emotional reactions can lead to brand image destruction. This might be the reason why not all the companies decide to use such methods, but prefer conventional ways of promoting their brands.

Hence, the issues arise concerning, whether the customer's surprise is perceived as an indispensable element for this type of promotional activity, whether the promotion should be unconventional in order for the customer to remember the message or whether it really is an effective method of promotion; or even concerning the idea of imposing this method of contact with customers on all companies.

The purpose of the article is to address, among these issues, the issue of whether owners of the most powerful Polish brands prefer to use unconventional methods of promotion, or with the threat of destroying the brand image, they prefer a more conservative approach to promotion. The article also makes an attempt to answer the question whether some unconventional marketing promotion practices used with success in the European Union and the United States can also be used on the Polish market.

## **2. Changes in the character of promotional activities**

The traditional promotion-mix set of tools consists of five basic elements: advertising, sales promotion, personal selling, public relations, and direct marketing. The speedy development of new communication techniques has created new communication possibilities and thus new promotional methods using tools not included in the set. The new elements included in the promotion-mix are event and experience marketing, word-of-mouth, and interactive marketing (Kotler, Keller, 2012, p. 512). All the new elements are based on multilevel, horizontal communications taking place not only between company and its customers (one-to-many or one-to-one communication) but mainly between the customers themselves (many-to-many). The purpose is to create more direct contact with the clients, providing them with unique feelings and emotions in relation to the brand or the company.



Interactive marketing is based on internet services and applications on the web used to attract surfers to a particular brand. Interactive marketing is, therefore, a combination of all the activity and programs in the internet whose purpose is to engage customers in interaction with the goal of improving brand image or raising the level of sales. Forms of communication in such marketing activity are web pages, banners, SEO, emailing and mobile marketing. A good example is JibJab, an American Internet Media Company, creating original e-cards, and a place where a customer can place his own picture and send a funny movie to his friends. This application, offered to users for free, has made the company word famous (<http://www.jibjab.com>).

Event marketing is based on the assumption that emotions related to the message or the brand are the main factor the memorization process and brand image creation. A message that does not evoke any emotions will be neglected and forgotten by the customer. Emotions stimulate persuasion, information processing and customer opinion of the brand (Edell, Burke, 1987; Holbrook, Batra, 1987; Ruth 2001). They also significantly influence the decision taken by customers (Shapiro, Spence 2002) as learning by experience appears to be more attractive for the customer (Hoch 2002). The key to effective promotion is therefore bringing forth an emotional reaction in the customer.

A good example of this kind of approach is an Axe commercial where during the Woman Running Races in Denmark, a man wearing an Axe T-shirt and having used the Axe antiperspirant was running in front of 6,000 woman participating in the race, and they actually seemed to be chasing him.

The significance of the flow of unofficial information was noticed by marketing specialists many year ago and by the XXI century, due to the information revolution, this phenomenon began to develop on a scale never before seen. The quick development of communication techniques, making the exchange of information fast, easy and cheap, increased the role of such type of communication and convinced marketing specialists that such promotions could prove to be a more effective way of promotion than one-to-one methods. Word-of-mouth is based on the assumption that people trust someone belonging to the same community and with similar tastes. Research shows that unofficial one-to-one communication is a more effective way of influencing customers' decisions than traditional promotion methods (Godes, Mayzlin, 2004). It helps the company to attract new customers as well as to create customers' loyalty (Trusov, Bucklin, Pauwels 2009). This special role has been taken up by brand enthusiasts – customers really attached to the brand, and wanting to actively participate in brand promotion and the spreading of information. Due to their involvement, a promotional message gets transferred on to others with little effort by the company.

All the additional promotion-mix elements concentrate on creating a buzz around a brand, a company or a product. Their purpose is to create a positive attitude in customers, making them more willing to share their opinions, feelings and thoughts about a product with others. By evoking such positive feelings and reaction, the company starts a chain reaction where customers promote the brand themselves.

The plurality of marketing communication instruments together with the changes caused by the information revolution, increased the role of integration of marketing efforts. The variety of promotion tools can increase the effectiveness of promotion efforts, under the condition that all the actions create a consistent entirety (Quessenberry, Coolsen, Wilkerson 2012). The true challenge for marketing personnel is to integrate the use of all the tools; a task which can be especially hard in the situation where they can have no control over the way and form the message is spread. The problem here also is what to do to make people talk or feel strong positive emotions towards a brand.

### **3. Forms and success premises of unconventional promotional methods**

Effectiveness of advertising in the traditional media (television, or radio) is declining simultaneously with companies' expenditures on advertising. This fact is visible especially now, in times of an economic slowdown, and concerns mainly press advertising (Szewczyk, 2013). The main exception to the rule is Internet advertising, which with the possibility to use interactive marketing techniques, is expected to grow by 7,5% in the 2013 (Baranowska-Skimina, 2013). It is already ranked third among higher advertising expenditures – after TV and press advertising (MPG Media Market Scan, za: Skocz 2011).

Due to the decreasing effectiveness of traditional advertising, companies seems to be more willing to look for alternative ways of marketing promotions concentrated on higher customer engagement in marketing activities (Carter, 2008). This has lead to the creation of the Network Coproduction Model based on the assumption that not only the company should be responsible for creating and sending the messages concerning the brand (Kozinets, de Valck, Wojnicki, Wilner 2010). The key to the success of such promotion methods is to create interest and induce customers to promote the brand among themselves. Producers use different methods in such word-of-mouth advertising. Sometimes it is done through typical promotion efforts such as TV advertising, but it is also possible that a company uses some unconventional promotion methods. In the article the emphasis will be placed on unconventional methods used to reach set promotion effectiveness.

The problem seems to be as unconventional as the character of the methods themselves as it is hard to define precisely what kind of promotion

should be called, “unconventional”. The problem is related first of all with difficulties with systemizing all unconventional forms of promotions. They can take astonishing forms, not falling into any officially existing category of division. The next problem is related strictly with the definition of the term “unconventional”. According to the Thesaurus, “unconventional” means very different, odd. But different from what, or who, and what kind of activities should be considered as odd? Although these are questions to consider in terms of the effectiveness of promotion efforts, there seems to be no precise answer to the question in literature.

Similar to this problem are the ideas of ambient and guerilla communications. The main idea of these two is quite similar– to use unconventional methods of communication with customer. The former is defined as ‘a complex form of corporate communication that uses elements of the environment, including nearly every available physical surface, to convey messages that elicit customer engagement’ (Gambetti, 2010). Ambient is also defined as alternative media, different from TV, press, radio or internet. These are all unconventional actions taken with the use of classic as well as other communication channels (Hatalaska, 2002) . Despite the fact that the definitions are quite similar, there is a huge disproportion in categorizing the tools of ambient marketing. Some authors suggest that they use 3 types of media: classic print media, the artifacts-based media, motion-based interactive media (Tab. 1).

**Table 1.** Types of ambient communication media

<b>Type of action</b>	<b>Media</b>
Classic print media	In unexpected form, using public space <ul style="list-style-type: none"> <li>• new high-tech billboards,</li> <li>• classic street furniture (bus-stop, sign poles),</li> <li>• new street furniture (stickering, multisensory bus shelters, unusual surfaces,</li> <li>• such as escalators, travelators, gas pumps,</li> <li>• classic transit advertising (sides, backs and interiors of buses, trams,etc),</li> <li>• new transit advertising (décor dynamics, brand buses, and brand trucks),</li> <li>• promotional street art (as graffiti ),</li> <li>• <u>naming rights</u> advertising surfaces.</li> </ul>
The artifacts based media	<ul style="list-style-type: none"> <li>• objects positioned in unusual, out-of-place contexts and used as advertising tools,</li> <li>• plastic cups, hand bags, furnishings, footwear, bottles, pens, magnets, key rings, bicycles, cars, balloons, etc,</li> </ul>

Motion-based interactive media	<p>stimulating consumers' active participation, often starts on the internet as social sharing viral content on web social networks (YouTube, Facebook). They involve people in a single location or in a limited number of squares and busy thoroughfares.</p> <ul style="list-style-type: none"> <li>• <i>event-products</i> that can be unique, and spectacular, interactive posters (e.g., touchscreen panels, or take-away posters),</li> <li>• <i>people-animated panels</i> –performed with active participation of people,</li> <li>• <i>event-actions</i>- unconventional promotional initiatives that involve people and employ urban.</li> </ul>
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Source: on the basis of R.C. Gambetti (2010).

Other concepts of ambient marketing, despite defining them as an “unconventional” form of marketing, are the use of print media, transit advertising, public space advertising and mobile media. In this context ambient is defined as a part of ‘out-of-home’ advertising, aimed at making customers think, and helping to distinguish the message from the competitors (Radziszewska-Manikowska, Radzińska, Walczak, 2012). The disproportion shows that such a communication concept is still a developing phenomenon and, because of its unconventionality, still poses some definitional and categorizational problems.

Guerilla marketing was created by J.C. Levinson in 1984 (Levinson, 1984). The concept is based on performing communication activities at low cost but with maximum effects. It was created for small and medium enterprises, which do not manage huge budgets. Guerilla marketing uses small, short-term and astonishing actions based on imagination and creativity of the authors. This kind of activities is based on three elements: surprise, low costs and diffusion (Hutter, Hoffmann 2011). The purpose is to create a buzz with no excessive increase in promotion costs. The message should lead to an increase in customers’ engagement, by making them actively participate or being witness to the event. It should be convincing and support the brand image.

Unconventional promotion methods should not, therefore, be limited to only these two concepts, which in fact are related mainly to the use of public spaces. Unconventional communication methods can be used in each of the promotion –mix elements. They can be related to sales promotions – for example a surprising gift offered to the customer at the time of purchase (Canan, Pinar, Celal, Sinan 2010) as well as with direct marketing – by the use of unconventional content of a message sent directly to the customer. Unconventional communication methods should, thus, be understood as a feature that is given to different marketing promotion actions. It encompasses all kinds of communications that bring the element of surprise to the customer,

and that break the unofficial rules of promotion in a sector. As mentioned previously, unconventional methods concentrate on creating a buzz around a brand by evoking customer emotions. They are very often the first element in marketing.

Despite bringing a lot of the above mentioned advantages, unconventional methods of promotion can also bring some negative results. First, unconventional actions break the rules typical for a sector. Organizing a promotion of this manner can be risky because the final result – the way it is perceived by audience – can be extremely different than anticipated. Due to the fact that unconventional promotions methods are related mainly with public spaces, they can be perceived as an act of vandalism as they change the look of certain public locations, especially when they happen without the acceptance of the owner (like stickering). One example here would be a promotion in Poznan called, ‘Thin, white line’. The action was to promote three pubs: Meskal, Dragon and Meskalina. The idea was to draw a white line combining the three pubs on the pavement in the city of Poznan. This was perceived by some people as an act of vandalism, even though there were many positive artistic elements to it (Cienka Biała Linia).

Another aspect is related with public perception. Such an unusual action may be perceived not just as something negative and unsuitable evoking extremely negative emotions or something leading to brand image delusion, but as something original. Gambetti suggests that in order to make such actions effective the company should concentrate on three fields (Gambetti, 2010):

- customer-related factors – the communication should highlight the value creation process, importance of consumption and its hedonistic aspect. The message not align to the expectations and beliefs of the target audience will evoke fear, anger or sadness (Hyman, Tansey, 1990),
- media-related factors – the company should follow the technologic and social changes, and rethink its media-mix as well as the economic weighting of the various media,
- company related factor – which refers to basing the brand image creation on an integrated mix of old and new media.

Despite meeting this requirement, a problem can also arise concerning disproportion between various target audience’s perception such as between teenagers and other groups such as seniors. The assessment of such an action depends on the level of tolerance, openness to ‘the new’, and a willingness to accept such unconventional ways of communication.

An important problem is also related with creativity and originality, elements necessary for such actions to work. All the activities have to be unconventional and unusual. The renewed message will not be as attractive for the customer as the first one and will not be met with such enthusiasm.

What is more, repeating the same method will cause the loss of its impact on the target audience (Darke, Ritchie 2007) as there continues to exist the necessity of continuously finding new methods of promotion.

The measure of effectiveness of such unconventional actions also poses some problems to managers related mainly to:

- unconventionality of such activities that makes this kind of action easy to qualify into any known categories,
- the need of promotion integration which makes it difficult to divide the benefits coming from each of the promotion tools. Nevertheless, it can be assumed that the spreading of these messages constitutes a sign of effectiveness in reaching the target,
- the multiplicity of purposes of such campaigns,
- uniqueness – something requiring special effectiveness measures created especially for the need of the particular campaign (Radziszewska-Manikowska, Radzińska, Walczak, 2012).

#### **4. The use of unconventional advertising methods by Polish brands**

Unconventional promotion methods are commonly used in the USA and West European countries. Due to the information revolution, the flame of the most successful marketing actions quickly spread around the world and their descriptions or photos can be found on different marketing-related unofficial web pages, e.g. Axe effect guerilla marketing campaign (plodnyumysl, 2010) or in social networks concentrating rather on street and internet campaigns – like Street Nike campaign, and Cadbury chocolate on wykop.pl (Smith, 2011), a fact that proves how easily the spreading of such information on the internet occurs. Campaigns can be photographed easily outside and the picture send to other internet users. Event and experience marketing actions whose purpose is to create emotion, are more difficult to spread around due to the fact that, even if recorded and placed on the net, they may be perceived just like any other movie evoking no special reaction. The campaign of the Swedish Army called, ‘Who cares’, encourages people to think of others by sacrificing their own time to replace a man sitting closed in a small box in the center of Stockholm. Although the event can be seen on YouTube (Swedish Armed Forces: Who Cares?), it is just another movie placed on the webpage, and gives the customer no possibility to actively participate in the action.

Some examples of unconventional promotional actions can be noticed also in Poland. One of the most famous was the campaign of Heyah, carried out when the brand was marketed. The characteristic red hand appeared in public spaces (the roof of newsstands and on pavements), leading people to

discuss the idea and meaning. A brand that is also famous for its unconventional promotional methods in Poland is the Ikea brand, which organized many events and outdoor campaigns using public space. For example, a tram furnished with Ikea furniture was driving around Poznan with the opening of a tramway line leading to an Ikea shop on Franowo. Passengers could travel in comfortable conditions, sitting on sofas with cushions, at the tables covered with colorful tablecloths, and windows with curtains from Ikea (*Tramwaj Ikea wozi za darmo na Franowo*). Another example is the Ikea bus stop designed by Ikea. Other example is the Oreo poster placed at the bus stop, that allows people to take a picture of themselves looking like they were wearing a white t-shirt (due to the mirrow effect), or Desperados – special music boxes, placed at bus stops, letting people to ‘join the party’ by plugin in their own headphones and listening to the music.

Observation of Polish brand promotion methods as well as the analysis of literature encourage us to formulate the hypothesis that unconventional advertising methods are methods of promotion commonly used by the most powerful Polish brands. The changes in the character of communication, and the decreasing effectiveness of promotion efforts is also forcing Polish companies to use more unique and buzz-creating methods of advertising. The hypothesis seem to support the fact that unconventional promotion methods (such as ambient) can be successfully used in all sectors and markets (Radziszewska-Manikowska, Radzińska, Walczak, 2012).

The subject of research was the method of promotion used by the most powerful Polish brand names with special interest to unconventional advertising campaigns. In the research the author concentrates only on one aspect of unconventional promotion methods – unconventional advertising. All the other unconventional aspects used in relation to other promotion-mix element (e.g. direct marketing, public relations, or event and experience marketing) will not be examined. The research therefore concentrates on unconventional aspects of advertising campaigns carried out by the owners of the most powerful brands.

Fifteen most powerful Polish brands were chosen for the research. Although in this time of globalization it can be problematic to answer the question of what kind of brand should be considered to be ‘Polish’, in the articles it was stated that Polish brands are those created in Poland regardless of who owns the brand. Thus, Polish brands taken over by the foreign capital are still treated as Polish.

A powerful brand is defined as one evoking such strong associations in the customers’ mind, that they create a differentiation effect on customers’ responses to the companies’ efforts (Keller, 1993). The method of brand power evaluation is questionable, but this issue has not been addressed in



this article. Based on assumptions, fifteen of the strongest Polish brands were chosen – ranked according to the most powerful (not the most valuable) Polish brands ‘Polska Marka’ 2011. The list therefore consists of 15 brands: Wedel, Winiary, Pudliszki, Lubella, TVN, Sokolow, Tymbark, Allegro, Hortex, Apart, Koral, Biedronka, Zywiec Zdroj, TVN, Bacoma (*Ranking Siły Marki*, 2011). The fact that they were placed on the list confirms the abilities of their managers to use marketing tools (promotion here included) in a successful way. Promotional campaigns were examined in order to find any aspects of unconventional methods of advertising. The research were based on the assumption that such unconventional methods of promotion would not remain unnoticed by the audience, and would create a buzz. In the research only secondary data were used. The studies were based on an analysis of literature as well as official data from company (internal publications, web pages, official fun pages). Another source of information were the most common social media in Poland – Facebook and YouTube. In this case the research was based on search results of a brand name and reaction analysis (measured by number of comments, “like it”, character of comment, and numbers of people mentioning the campaign). The problematic issue in the analysis was to create a method of analyzing such data because the information presented on the web takes several forms (from ‘liking it’, through sharing, to presenting comments and opinion). The problem of such a data analysis has not been clearly resolved by marketing practitioners, who are continuously searching for new, more effective methods in the field.

The majority of analyzed brands – eleven out of 15 – were related with FMCG, one with jewelry, two with media and the last one was an internet company. Having analyzed the advertising methods of those brands a high level of integration of promotion methods can be noticed. The companies integrated the forms of messages sent through different media – TV, radio, press, outdoor and internet in order to create a consistent image of the brand. All the brands were using all kinds of traditional advertising media, passing quite conventional messages in creating brand image. The companies were set on creating a community of users by encouraging them in different ways to get involve in communities or support one brand. A good example of this approach are campaigns by brands such as Winiary, Pudliszki, Lubella or Wedel.

The analyzed companies did not commonly use unconventional methods of advertising. Among the leaders in the field was Allegro, which was involved in many unconventional advertising actions when promoting the Allegro brand as well as its Foundation ‘All for the planet’. They concentrate on event marketing, for example, at events like the Woodstock festival. Although marketing of events is not the subject of the research it is worth noting because



many original advertising forms were used on the occasion; huge stages, balloons, posters, cars and so on. Allegro promoted the brand even with the use of a huge zeppelin balloon flying above main Polish cities. It also got involved in the advertising campaign 'AlleRogal' promoting traditional bagels of St Martin – a regional product produced only in Poznan. The campaign was based on posters placed on bus stops in Cracow and Warsaw, giving off the smell of a bagel.

Another example of a brand using surprising methods of advertising was the case of Zywiec Zdroj. The brand in the campaigns uses all kinds of media including outdoor advertising, which represents the most unconventional method of advertising from all the activities of the company. A good example of such unconventional activities is the 3-D billboard placed on the building in Warsaw, presenting a group of friends sitting at the table, eating salad and drinking Zywiec Zdroj, which, as opposed to the rest of the billboard, are in 3-D. Another example can be the scrolling billboard presenting puzzles with one stable element: a piece with the notice 'Zywiec Zdroj suits the dinner'.

## TVN

The communications network, TVN, also used unconventional methods to promote one of its programs, 'You can dance'. Close to the bus stop where a poster was placed, a huge sticker was stuck to the pavement showing the audience the steps of a dance. RMF FM presented something similar to Allegro, but less controversial, using different events and presenting the company logo on cars, stands or balloons. One of the analyzed brands organized a city game in which the participants were to find the Wedel Easter Egg. This action was a typical example of event marketing which although falling into the category of unconventional methods, is not related with advertising.

In general, an analysis of advertising methods used by Polish brands suggests that advertising campaigns rather concentrate on the use of traditional, and less risky methods of promotion. Very controversial actions (evoking shock, fear or anger, making people think about serious issues) are not used by the most powerful brands. Unconventional promotional methods, although rarely used, tend to support the brands image and create positive feelings. In some cases a controversial modification of the original advertising could be found on YouTube, but it was not placed by the official company's channel. For that reason it is hard to verify its originality. This is a common case of viral marketing, where the element of success is not to relate the actions of the brand owner. In this case it is impossible to state the originality of the message and taking under consideration its character it is really hardly probable that it was done the company.

## 5. Conclusions

The research shows that using unconventional promotion methods is not a common practice for most powerful Polish brands, as it constitutes only a small piece of their advertising activities. Only a few examples of such actions can be stated in the research. Further research in the field should concentrate on establishing the reasoning behind the use of such practices. The most probable explanation at this stage of research on the basis of analyzed literature and the conducted research is:

- a fear of brand image delusion, as only the most powerful brands were used for the research.
- Polish society may not be ready for such unconventional methods resulting from a shorter advertising history than American and West-European societies,
- unconventional promotional methods are suitable for small and medium companies with less powerful brands,
- the lack of creativity for unconventional promotion campaigns.

Without any question, the motives inhibiting companies from using such methods should be analyzed.

The research also showed a wide disproportion in definitions of unconventional promotion methods. Despite the fact that it is not a new phenomenon there is still a lot a discussion among scientist and practitioners on the definition and the set of tools that should be qualified as unconventional. The increasing role of such practices in promotion can encourage further analysis of the problem.

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# MARKETING COMMUNICATIONS IN A VIRTUAL ENVIRONMENT – OPPORTUNITIES AND CHALLENGES FOR COMPANIES IN THE TOURISM SECTOR

**Dagmara Plata-Alf\***

## **Abstract**

*The development of communication-information technology has led to the transfer of the communication process to a virtual environment influencing while at the same time providing an opportunity and a challenge for the development of marketing strategies. This article presents a literary overview aimed at clarifying key concepts and processes related to transformations in internet marketing, and systematizing definitions functioning in that field of science. As a part of the analysis, the article includes a case study of an internet marketing communication tool, and one of the major virtual tourist agents, Booking.com.*

**Keywords:** *marketing communications, internet marketing, internet tools in marketing communications, information technology, virtual environment, Booking.com*

## **1. Introduction**

The development of technology has led to far-reaching changes in communication processes. The beginning of the 21st century, proclaimed as the era of globalization and knowledge society (Kolny, Kucia and Stolecka, 2011, p. 9) has become a time of challenges for the enterprises on the market. Consumer sense, enhanced by the access to the large amount of information (Janos-Krzyszto and Mróz 2006, p. 18) available on-line, has affected the character of communication processes including the purchasing process. This in turn has resulted in new forms of marketing communication adapted to the occurring changes. New technologies have provided real-time interaction with consumers enabling customization of products and services to the consumers' needs. The new era of interaction with consumers is developing at a pace never experienced before and the shift of traditional marketing operations towards the virtual environment is becoming useful for achieving projected increased

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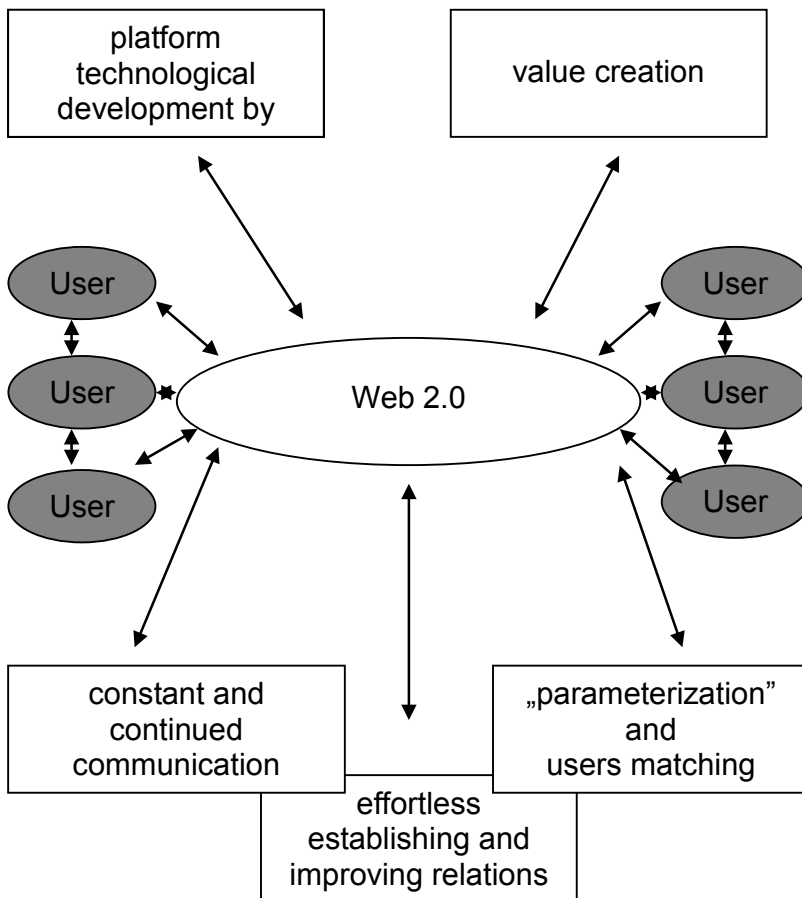
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sales targets, establishing closer relations with customers, and improving efficiency and the economy. The content generated by the users is a source of knowledge of value to today's businesses and a challenge at least to protect their image. One example of an internet based tourism system – the so-called virtual travel agent, Booking.com -, as presented in this article, draws attention to the consecutive changes in purchasing behavior and decisions that today's consumers are taking.

## **2. The virtual environment – its importance and how it affects marketing communication processes**

The appearance of the virtual environment was the function of dynamic development of information technologies in the modern world. According to Mazurek (2012) it is defined as a “multi-dimensional system of computer networks, applications, computers, as well as information and data it stores, which through its features and options available to its users, determines a number of changes in socio-economic life, including the operation of enterprises” (p. 60). The essential component of the virtual environment are networks of interconnected computing units – computers, especially the Internet that organizes the virtual environment (Mazurek, 2012, p. 61). The active use of the virtual environment by enterprises and their customers determines its character and increasing importance. The Internet, as one of the most important and useful channels of marketing communication, provides an opportunity for new forms of relations with current and potential consumers. The Internet allows mainly for the creation of innovative forms of feedback communication involving a wide range of consumers. Communication in a virtual environment is a factor that determines the status of an enterprise, whereas up-to-date and factual information as well as quick responses are vital to the process of building effective relations between organizations. Another significant aspect is also the interactivity understood as, “the extent to which the users can participate in shaping the form and content of the virtual environment in real time” (Steuer, 1992, p. 84). Interactivity can be also analyzed in the context when communication through interactive media takes place and these media intermediate between the users exchanging information, and can involve the media that form a new environment where the users are allowed to publish their messages (Wiktor, 2001, p. 37). The above-mentioned element of interactivity with respect to the virtual environment enables the establishment of a new type of communication – a “two-way”, symmetrical one (Mazurek, 2012, p. 68)- inside which the traditional system of assignation of roles of the sender, recipient and their identification disappears as they undergo dynamic changes. According to this model, the messages flow from

multiple recipients to multiple senders, which allows for live conversation. A specific type of symmetric communication model is a community one, under which apart from the lack of traditionally assigned roles of senders and recipients of a message, the responsibility for communication is on the users themselves. They are able to communicate with each other, defined as a multiple-to-multiple model (Kotler, Kartajaya and Setiawan, 2010, p. 19), and form virtual communities (Mazurek, 2012, p. 69). The virtual environment affects marketing in multiple aspects by determining the changes in communication (Mazurek, 2012, p. 112). In turn, the occurring changes have an affect on virtual communities, which seem stronger than those in the real world while contributing to the establishment of relations between users with weak or no ties whatsoever. The on-line communication facilitates open the way for discussion, thus, encouraging sincerity among those involved in the process of interaction (Castells, 2007, p. 388). This great involvement of Internet users has led to the formation of the environment that largely accents the importance of non-formal communication in the relations between customers and enterprises known in modern terminology as Web 2.0 (Mazurek, 2012, p. 97). According to this conception, users are simply the creators of content and community platforms representing a new communication channel, whose scheme is presented in the Fig. 1: A description of communication in the Web 2.0 environment.



**Figure 1.** A description of communication in the Web 2.0 environment

Source: Authors' study based on Mazurek (2012).

The Internet is a source of numerous opportunities for enterprises that, if utilized appropriately, can lead to increased public interest, exchanges of ideas, interaction with consumers, innovative promotion of a range of a firm's products, as well as unrestricted testing of state-of-the-art solutions. Of particular interest should be the fact that internet relations have involved more and more non-formal communication, the most common forms being: blogs, discussion forums, on-line instant messengers and social media (Doligalski, 2009, p.9).



### 3. Marketing communication on the Internet

Management of marketing in a virtual environment characterized by the advanced level of information technologies and state-of-the-art tools to facilitate communication, is forcing modern-day enterprises to be flexible in their approach and to constantly seek innovative solutions. As businesses dealings over the Internet have become common, new challenges are appearing in relation to the building of marketing strategies. As businesses became clearly visible on the Internet, they were forced to pre-analyze the purpose of entering the virtual world and ponder seriously over the selection and use of available internet tools with respect to the specific needs of their consumers (Budzanowska-Drzewiecka and Lipinska, 2012, p.12).

Budzanowska-Drzewiecka and Lipińska (2012, after: Pilarczyk, 2010) claimed the goal of marketing communications is to coordinate promotion activities and other marketing operations aimed at establishing a relationship with the customer. They serve as an important tool for building long-term competitive advantage and creating value. According to Budzanowska-Drzewiecka and Lipińska (2012) the purposeful use of such factors as: “establishing and supporting relations with the customers, improving the interactive character of relations, acquiring thorough knowledge of the working staff, customers, business partners and competition, as well as personalizing of the transferred information” ,(p. 12) is the basis for enhancing the efficiency of modern marketing operations. The accurate use of communication channels and their appropriate selection creates an opportunity for an adequate promotion of businesses (Kotler, 2005, p. 851) and range of their services or portfolios of products.

Service companies in tourism are active in the processes of on-line communication with customers and use internet marketing tools in order to build their marketing strategies. The most common marketing tools used by accommodation facilities are given in Table 1.

**Table 1.** Selected internet marketing communications tools in tourism

<b>Internet marketing communications tools</b>	<b>Description</b>	<b>Example</b>
Company's website	A website that shows the range of services of the business in a virtual environment	<a href="http://www.warszawacourtyard.pl">www.warszawacourtyard.pl</a>
Search engine	A tool that makes it easier to find information on the Internet on the basis of key words provided	<a href="http://www.google.pl">www.google.pl</a>

Virtual agent	A tool that facilitates search not only on the basis of key words but also user's preferences and needs	www.booking.com
Content aggregator	A website or tool used to process, segregate and interpret the information on the Internet	www.tripadvisor.com
Community platform	A website that facilitates establishing and maintaining of relations between the Internet users	www.facebook.com

Particularly interesting is the role of the virtual agent mentioned in the Table 1, which is to provide both thematically expected content and tailor the offer to the needs and preferences of individual users by, for example, aggregation of content of the opinions submitted by other customers.

#### **4. Practical use of internet tools in marketing communications with Booking.com as a case study**

The Internet changes the manner of communication between the businesses and their consumers allowing entry into a market of alternative organizations aimed at recommending the values provided by businesses (Mazurek, 2012, p. 171), as well as segregation and aggregation of data in order to facilitate their reception by potential consumers. In the relations in question the consumers became the potential representatives promoting or depreciating the brands. Internet users create and generate content (Doligalski, 2009), and on-line services (virtual agencies), i.e. Booking.com, are a reaction to the risk of inadequate or excessive amounts of information on the Internet (Soava and Raduteanu, 2012). Therefore, it has become clearly visible that information as the factor used in decision-making resulting from the dynamic development of information-communications technologies has greater significance (Czekaj, 2000, p. 13). It is becoming further visible that the enterprises, out of their own initiative, are beginning to pay particular attention to the content published on the on-line services covering the relations between the customer and the business (Mazurek, 2012, p.177).

The desire to share the experiences and opinions on using services of accommodation facilities has led to the establishment of one of the most recognized reservation portals: Booking.com, which operates not only as a sales channel, but also creates and disseminates the information serving as a tool that offers great opportunity, but also poses a threat to building innovative marketing strategies for accommodation facilities. Each day, Booking.com processes about 475,000 reservations. The Booking.com portal itself and its applications that offer accommodation at different facilities, from small, independent guesthouses to luxury five-star hotels, have been attracting

visitors from all over the world, including those who travel for business and on holiday. The website and its applications are available in 41 languages and enlist more than 299,230 facilities in 181 countries. Their mission, quoting the portal itself (Booking.com, 2013), is to “provide an at-hand opportunity for all the travelers to discover, reserve and visit most interesting places in the world.” In the fulfillment of this goal, they endeavor to provide a user-friendly on-line system with large databases of information while ensuring the optimum prices.

Users of Booking.com are able to purchase products and as part of the sales process, following their stay in a facility, express their opinion in both quantitative and qualitative categories. This in turn allows the system to produce a general rating of a facility and classify it into one of five categories (excellent, fabulous, very good, good, average). Each facility that has received at least 10 ratings is assigned a total point value (on a scale of 1 to 10), which is the combination of six ratings; the value to price ratio, staff, services, cleanness, comfort and location. Each facility is presented and the user can read full reviews with the “pluses” and “minuses” listed in addition to the total point rating. One sample accommodation facility displayed at Booking.com related to Countyard by Marriott Warsaw Airport received a users’ rating of ‘Fantastic’ (8.8), determined on the basis of ratings of 976 users who used its services and made a reservation through Booking.com. In addition to a display of ratings, we should pay particular attention to how the offer and details concerning an accommodation facility are presented by Booking.com in accordance with data provided by its owners. The recommended strategy, which applies to the display of photos as well, is aimed at optimization of content, which should be user-friendly and potentially contribute to greater profits from reservations.

## Courtyard by Marriott Warsaw Airport ★★★★★

ul. Żwirki i Wigury 1, Włochy, 00-906 Warsaw ([Show map](#)) [Share](#)

Jump to: [Available rooms](#) [Facilities](#) [Policies](#) [Important information](#)

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Right opposite Warsaw Chopin Airport, non-smoking Courtyard by Marriott Warsaw Airport offers amenities available 24 hours a day, including a fitness club. Warsaw city centre is a 15-minute drive away and can easily be reached by a fast train (SKM).

Cosy and air-conditioned rooms of Courtyard by Marriott Warsaw Airport come with laptop-size safe, soundproofed windows and a large flat-screen TV with satellite channels. Tea and coffee making facilities are provided, as well as ironing facilities.

Free internet connection is provided throughout the hotel. Front desk staff is available 24 hours a day and can arrange for laundry and dry cleaning services. Private parking is available on site, as well as a shop, The Market, open all hours.

The hotel's Brasserie Restaurant overlooks the 2-storey lobby atrium and serves light Polish and international dishes. The modern Lobby Bar and the Cyber Café with Wi-Fi are also at guests' disposal and there they can follow screens showing flight departures and arrivals.

Warsaw's Old Town and the Royal Castle are 30 minutes from the hotel.

*Hotel Rooms: 236, Hotel Chain: Courtyard by Marriott.*

### Figure 2. Display of accommodation object 'Countyard by Marriott Warsaw Airport' at Booking.com

Source: Booking.com website.

The community of travelers using the internet system's, Booking.com, services and making reservations through the system include those who did not publish any opinion as well as those who have chosen to get involved and rate each facility they stayed in (Scott and Orlikowski, 2010, pp. 1-6). The analysis of facilities recommended by Booking.com in the area of Warsaw presented in the Table 2 points to the specificity of ratings provided by consumers and their opinions concerning services of the compared facilities. Of particular interest is the diverse range in opinions of guests visible in terms of number of people ranking in comparison to one of the opinion-making travel portals, TripAdvisor.com.<sup>2</sup> This

<sup>2</sup> TripAdvisor® is the largest world-wide travel system that allows you to plan your holiday. TripAdvisor provides opinions based on own experiences of its users, and services to aid the planning of your travel with integrated tools for reserving your accommodations.

is due to the complex algorithm in displaying the facilities being advertised in the so-called first ten accommodation facilities at Booking.com, and determined also by “inter alia”, the value of generated fee for the agency, timely payments and availability offered as well as maintaining price parity. The comparative analysis of consumers’ ratings submitted at Booking.com and TripAdvisor.com provided in Table 2 illustrates that a large majority of consumers of accommodation services provide their rating on the original internet portal, where they made a reservation (Booking.com in this case), translating into more objective ratings. In connection with the above, of great significance is the ethical aspect related to the authenticity and credibility of the opinions expressed by consumers on TripAdvisor.com, where a user can publish his review not having to document the actual purchase of the service. Additionally, especially interesting is the fact that there is no correspondence between the quality of service provided by the accommodation facilities understood as high rating of consumers, and the position in the ranking of Booking.com. This relation illustrates significant restrictions and challenges faced by enterprises who want to build the position of their brand and promote their range of services on this website. Each facility listed in the ranking of Booking.com has a special symbol of recommendation (illustrated as a palm with the thumb pointing up). All of the analyzed facilities have received reviews over the short term including more positive reviews indicating an enjoyable experience. These reviews also recommended either directly or indirectly choosing this or that accommodation a for a second stay or suggested it to friends while at the same time indicating precisely which aspects of the accommodation facility could be improved in terms of service and the offer itself (Plata – Alf, 2013).

**Table 2.** Comparison of preferred hotels on Booking.com

<b>Preferred hotels Warsaw 2013</b>	<b>Categorization of hotels</b>	<b>Overall customer rating</b>	<b>Number of customers reviews</b>	<b>Listing and rating on TripAdvisor.com</b>
Countyard by Marriott Warsaw Airport	****	Fabulous (8,8)	976	Listing: 16 Rating: 4 Number of customer reviews: 235
Hotel Airport Okęcie	****	Very good (8,5)	589	Listing: 29 Rating: 4 Number of customer reviews: 91
Radisson Blu Sobieski	****	Very good (8,4)	1083	Listing: 17 Rating: 4 Number of customer reviews: 479

Warsaw Marriott Hotel	*****	Fabulous (8,9)	2726	Listing: 15 Rating: 4,5 Number of customer reviews: 726
Hotel Gromada Dom Chłopa	***	Good (7,6)	1391	Listing: 47 Rating: 3,5 Number of customer reviews: 125
JM Apart Hotel		Fabulous (8,6)	722	Listing: 33 Rating: 4 Number of customer reviews: 14
Hotel Metropol	***	Very good (8,1)	1779	Listing: 36 Rating: 3,5 Number of customer reviews: 289
Platinum Residence		Very good (8,5)	1444	Listing: 13 (no rating in category of Hotels – mark in category of Specialty lodging in Warsaw) Rating: 4 Number of customer reviews: 149
Hotel Pulawska Residence	***	Very good (8,4)	610	Listing: 41 Rating: 4 Number of customer reviews: 19
Hotel Gromada Airport	***	Good (7,4)	1176	Listing: 60 Rating: 3 Number of customer reviews: 76

## 5. Conclusions

The real-time exchange of information and free discussion allowed by state-of-the-art internet tools facilitate the process of communication between businesses and their customers, encouraging the latter to provide feedback on the service they have been provided (Hsu, Chen and Ting, 2012, p.4). The use of internet portals like Booking.com in the process of purchases aids the efficient completion of the sale process (Hyunmi, JoongHo and Youngseok, 2013, pp. 99-126) by providing simplified and the most useful data (Mazurek, 2009, p. 81). It also contributes to minimalizing the potential risks and give the customer a better opportunity to be provided with the expected and adequately developed services (Doligalski, 2009, p. 541).

Reviews in literature as well as the analysis of a selected marketing communications channel for enterprises in tourism (hotels) point out big opportunities for adequate positioning of the brand and achievement of expected sales results, and the largely limited influence of enterprises on the generated content and information concerning their businesses.

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# BARRIERS TO THE EARLY RECOGNITION OF CHANGES IN AN ORGANIZATION'S ENVIRONMENT

**Janusz Bąk\***

## **Abstract**

*Operating in a turbulent environment requires seeking and perfecting tools for information support of the strategic management process. The key activity in this area is to recognize and interpret weak signals and undertake adequate actions which will lead to the strengthening of the strategic position. However, in this process a number of barriers appear, which arise from the dysfunction of the organizational system and thus limiting its ability for early recognition of changes in the environment. In the following article, the author attempts to identify barriers arising in the organizational system on an individual, group and organizational level and their conditionings, as well as to indicate the framework directions of actions enabling improved effectiveness in the functioning of the system.*

**Keywords:** *weak signal, early recognition, early warning, organizational barriers*

## **1. Introduction**

Being of completely different character than only several years ago, the contemporary environment implies a high level of uncertainty for decision-making processes. The key skill to maintain balance (constituted by the adopted strategy) between an organization and the environment is an ability to react quickly to changes, and this basically depends on the ability of proper perception and understanding of the environment, not only in the dimension of the current events but first of all in the dimension of the anticipative projection of its states in the future. Within this scope, organizations can significantly improve their activities owing to support ensured to them by the early recognition systems which provide information desirable in strategic management.

The key measure of the effectiveness of such a system is its ability to recognize and interpret weak signals and, on the basis of the obtained

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information and built knowledge, to undertake adequate actions which will lead to the strengthening of the strategic position. However, in the processes implemented within the system a number of barriers appear, which arise from the dysfunction of the organizational system limiting its ability of early recognition of changes in the environment.

## **2. The origin, the essence and the notion of the early recognition of changes in the environment**

Early recognition has military roots and its contemporary shape was influenced by the development of the cybernetic approach and the invention of radar which has become a metaphor of the systems identifying the symptoms of changes in the environment. More distinctly, the concept appeared in 1970s, simultaneously in numerous field, among others in geology, technique, but most strongly in three areas: military systems, medicine and economics. The success of applications on the non-business grounds brought about an attempt to translate the solutions worked out there to the business grounds, which was a response to the search for instruments enabling coping with the turbulence of the environment (Dworzecki 1985). Historically, the concept of the early recognition system was preceded by the concept of the early warning system, focusing only on an organization's activities towards the identification of risks in precisely defined areas. The early recognition notion itself was introduced to the reference sources on management in the 1980s with the indication that according to the strategic management principles, the observation of an organization's environment cannot concentrate only on the search for threats and on warning but should also recognize emerging chances (Kamasa 1992).

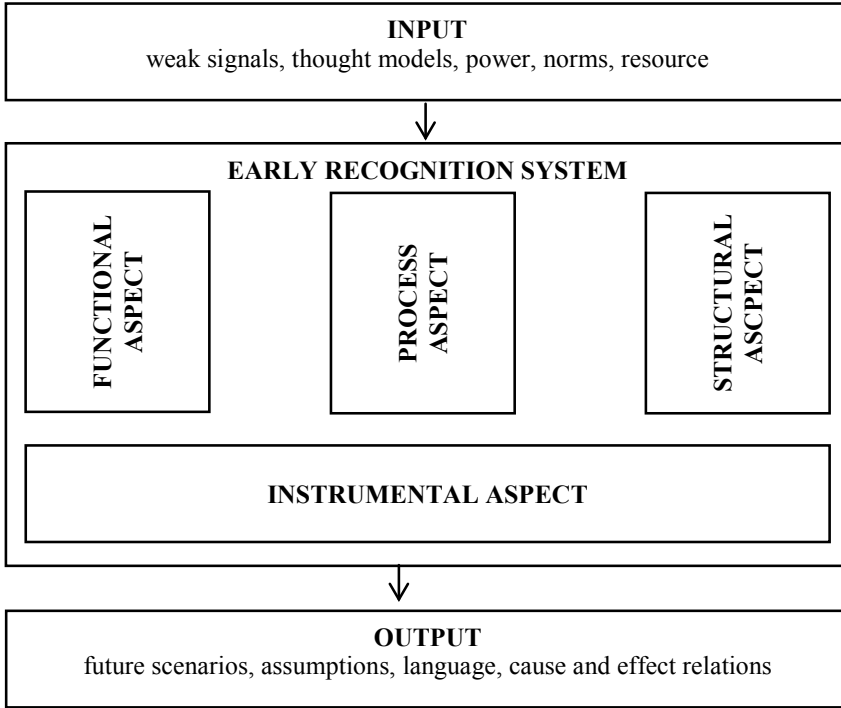
The early recognition system on strategic management grounds has its sources in the works by Ansoff (Ansoff 1985), his weak signals theory (Ansoff 1975) and his strategic issue management concept (Ansoff 1990). They gave rise to the development of the concept because in accordance with their assumptions, strategic surprise is signaled by weak signals that the traditional planning and control process, generally aimed at the extrapolation of the past, cannot detect anything. Metaphorically, the early recognition system can be compared to a radar which watchfully observes the environment to identify approaching objects. It points them out, even if there is still no certainty as to their kind, so as they can be monitored in order for recognition as accurately and as early as possible. Generally, the essence of early recognition of changes in the environment can be presented in the following way: (1) the occurrence of early information about a future problem, enabling its early recognition, (2) an analysis and assessment of the weak signal recognized in advance, (3) (positive/negative) interpretation of the significance of future events for the

implementation of the organization's strategy, (4) the transmission of a warning (negative interpretation – a threat) or encouragement (positive interpretation – an opportunity), (5) taking a decision related to the implementation of the solutions using knowledge resulting from the early recognition (Biliński 1990).

Therefore, the early recognition system (ERS) can be defined as a special information system whose goal is the anticipation of changes in an organization's environment, the reduction of uncertainty related to them and to inform top management about them early enough to make it possible to undertake appropriate actions in order to avoid strategic surprises. The specific character of the system consists of guiding information processes towards the perception and interpretation of weak signals being the symptoms of future changes in the environment, expressed with potential opportunities and threats. The early recognition system is a subsystem of the strategic management system in the area of environmental studies, informatively supporting the implementation of the strategic controlling function (strategic planning and control) via the provision of strategic information reducing the uncertainty of decision-making situations. As an information system, ERS acquires information, processes it, and once it is interpreted, passes it on to decision-makers, informing them about potential threats and opportunities carried by weak signals, foreseen long-term changes in the environment and their influence on the organization. By providing information about the future characteristics of the environment, it initiates redefinition of the strategy, leading to the better adjustment of the environment and the organization, safeguarding its long-term functioning and contributing to the improvement of the effectiveness of management.

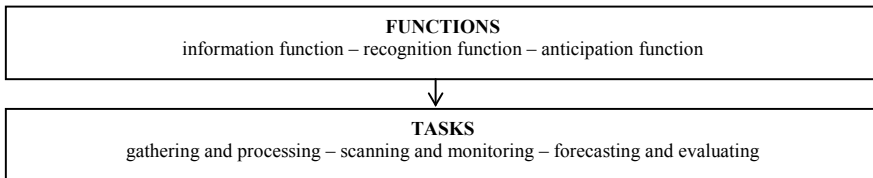
### **3. The structure of the system of early recognition of changes in the environment**

In accordance with the system methodology (Sienkiewicz 1988; Gharajedaghi 1999), four aspects of ERS should be assumed important and which require a separate description (Figure 1).



**Figure 1.** Aspects of the early recognition system

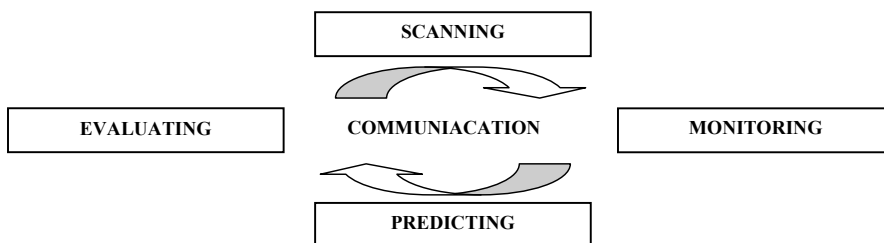
In the area of statics, it is a structural aspect (orders the system, defining its components and relations among them), and in the area of dynamics, these are the following aspects: the functional one (defines the results of the system activity, indicating goals, functions and the implemented tasks), the process ones (defines the sequence of the activities leading to the fulfillment of its functions), the instrumental ones (identifies the key tools supporting the activities)



**Figure 2.** Functional aspect of the early recognition system

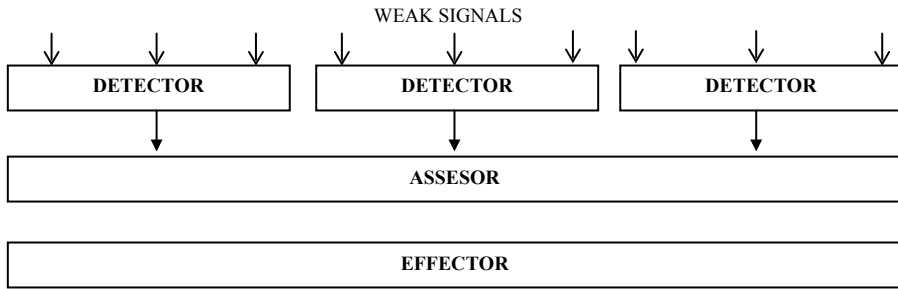
The basic aim of ERS is to systematically provide top management with information concerning anticipated changes which may enable taking more rational decisions in the strategic management process. This aim is implemented by the identification of long-term changes in the environment and an analysis of their influence on the organization early enough to secure time necessary to take adequate decisions. Apart from the basic aim, an additional aim should be related to the internationalization of culture supporting and stimulating the involvement of the entities in the information processes connected with obtaining and analyzing weak signals (Figure 2).

The aims defined above are fulfilled via functions which focus on three areas: perception of weak signals (diagnostic function), interpretation of weak signals (prognostic function), circulation of information and communicating future opportunities and threats (informative function).



**Figure 3.** Process aspect of the early recognition system

Within ERS, we can distinguish two phases constituting its process character: the first one related to the perception of weak signals and the other one related to interpretation. They can be divided into five categories of activities. In the perceptive phase (obtaining information) it is scanning in search for weak signals and monitoring its evolution, and in the interpretation phase (processing) it is predicting potential opportunities and threats, as well as the assessment of their implications. The entirety is coupled with communication which creates an interactive system processing information inside and obtaining and passing information outside. The isolation of activities has an entirely analytical character, and scanning, monitoring, forecasting, assessing and communicating mutually intertwine and influence each other. It reveals the dynamics of this process which is evolving in the same way as the conditions of the environment are changing, implicating the sensitivity to a change and its early signs. This newly-produced knowledge generates new information needs, which leads to feedback (Figure 3).



**Figure 4.** Structural aspect of the early recognition system

The structural aspect (Figure 4) concerns elements and relations which occur between them within the system and the way of relating and ordering them. The ERS components are: the detector which searches for and gathers weak signals, initially processes and passes the information considered relevant; the assessor which checks the information obtained from the detector, processes it and lists so that it could be used to inform about potential opportunities/threats: the effector informs about potential opportunities/threats and initiates activities which are necessary to be implemented; communication networks constitute information relationships among key elements due to the effectiveness of the whole system functioning, because they are responsible for the transmission of information.

All the activities implemented within ERS require the use of tools supporting information processes. Their two basic categories are: information technology and analytical methods. Information technology is supposed to ensure the effective access to information which is valuable from the point of view of the system objectives, as well as to improve communication servicing the interpretation and spread of information. Analytical methods support the processes of systemizing, analyzing and interpreting information and they are methods from the strategic analysis area (such as: scenario methods, Delphi method, war games, puzzle method) (Rohrbeck 2011, pp.146-14).

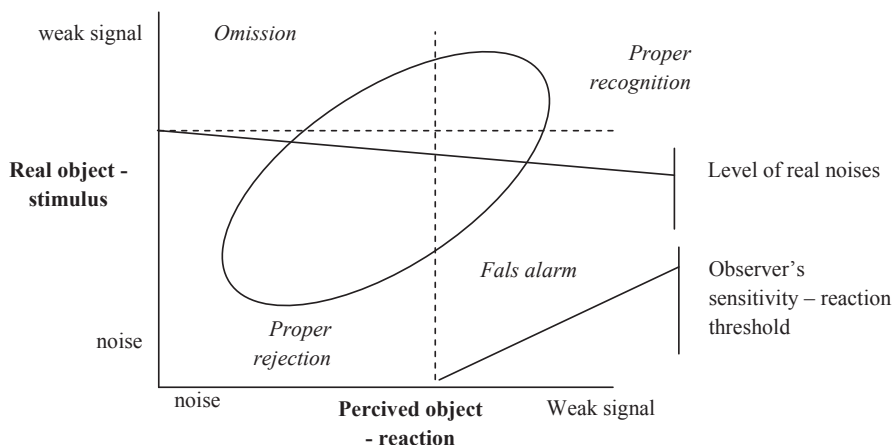
#### **4. Conditionings of the early recognition system functioning**

An important insight into mistakes made in the weak signals perception and interpretation is provided by the signal detection theory (Maruszewski 2001, pp. 85-88) which deals with the relations between the criteria used to the interpretation of signals and sensitivity to them, concentrating on the inner picture which appears in the observer's mind in relation with the perceived object (Stillman, Jackson 2005). The issue is insignificant in the case of

strong signals which are “easy” to interpret, but it is extremely important in the context of weak signals where their unambiguous assessment is impeded due to the vagueness of the message and high level of noise. The reception of signals is insufficient because their interpretation in classifying the signal is necessary. This may lead to errors related to the rejection of a weak signal or the reception of a noise. The attributes of weak signals (anticipativeness, qualitative character, ambiguity, fragmentariness) cause that the probability of making the same mistakes rises significantly (Knowles, Grove, Keck 1994).

What is the key to early recognition, is the proper identification of weak signals to generate knowledge about a change. At the same time, it is necessary to strive at minimizing the amount of both false alarms (which bring about necessary mobilization of means) and strategic surprise (which exposes the organization to the omission of important opportunities and threats). By perceiving and interpreting a weak signal we can:

- correctly assess an object (not) being a weak signal: *proper recognition* illustrates a right detection of actually occurring weak signals, and *proper rejection* represents a situation in which the signal was rejected and was a noise,
- incorrectly assess an object (not) being a weak signal: *a false alarm* is a situation in which the actual noise was treated as a weak signal, and *an omission* is an incorrectly reading of the signal, namely treating it as a noise (McGrew, Bilotta 2000) (Figure 5).



**Figure 5.** Weak signal detection model

Source: own elaboration with use of: (Lampel, Shapira 2001).

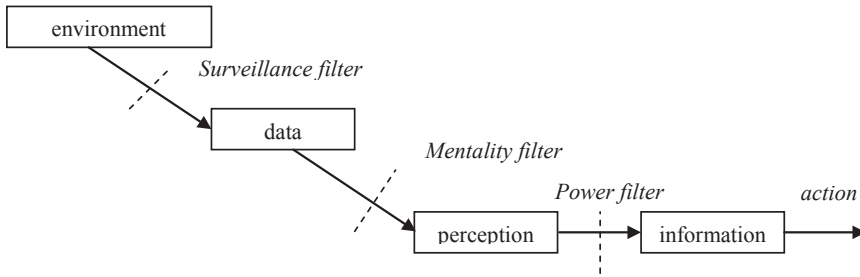
The correlation of levels: the observer's sensitivity (reaction threshold) and noises (weakness of signals), determine the "thickness" of an ellipsoid describing the relations which, in an extreme situation when they correlate completely, becomes a straight line (only the right answers occur). It is possible only at the detection of strong signals, and in case of weak signals the correlation level ("thickness" of the ellipsoid) depends on their weakness (Lampel, Shapira, 2001)

In the assessment of weak signals the observer may make mistakes of 1st and 2nd type. The first ones occur if the signal was treated as a noise. It is a more serious mistake because in consequence of it a possibility to use an important opportunity is lost or the organization is exposed to significant threats and has to cope with a crisis. The mistake of the second kind occurs when a noise is treated as a weak signal and it is a less unfavourable decision. When such a mistake is made on the level of an individual, there is always a chance to verify it within the framework of interpersonal interpretation on the group level. The rightness of recognition, thus the proportion of correct detections and false alarms is influenced by three characteristics:

- the relation of the signal strength to the noise strength – the correctness of detection increases with the signal strength, therefore three categories of actions are possible: taking the risk of making a mistake of second type, waiting for an increase in the signal strength, obtaining a bigger number of information enabling more correct assessment,
- the payoff matrix – defines factors influencing the consistence in taking a specific decision; it is necessary to create motivation to perceive weak signals and ensure positive feedback in the situation of proper detection, and safety in the situation of evoking a false alarm,
- expectations – depend on the frequency of the occurrence of a given type signals related to the observers' confidence, the atmosphere of active search increases chances for detection, and the situation of "stupor" impairs alertness (Maruszewski 2001, pp. 87-88).

The problem of the flow of weak signals in the organization and barriers they encounter before, having been received, they are changed into management activities is the deepening of the above approach focusing on the individual level. The research in this area was initiated by Ansoff who claimed that before any action is taken, information must "break through" the "filters" of strategic information. Ansoff (Ansoff, McDonnell 1990, pp 58-66) defines three barriers they must overcome: surveillance, mentality and power filters (Figure 6).





**Figure 6.** Filters of strategic information

Source: (Ansoff, McDonnell 1990, p. 66).

*The surveillance filter* defines the “micro world” of the observer and the system of its significance. Potentially, only those signals which are emitted by objects present in the observation field can be received. What is vital to open this filter is the diversification of entities observing the environment, giving them freedom, and a low degree of focus on specific areas.

*The mental filter* is connected with the necessity to reduce the immensity of information reaching us. It is based on the previous experience and if the information is not compatible with the existing interpretation patterns, the inclination to reject it grows. Realizing the existing interpretation patterns may enable greater flexibility and their evolution alongside the incoming information.

*The power filter* limits the use of new information because it strives to maintain the existing structures of power by blocking the information which can lead to their change. Ensuring safety of the entities observing the environment, increasing the level of formalization of the information and knowledge externalization opens this filter, limiting possibilities of an attack on the ones identifying weak signals.

Bearing in mind the above considerations, we can indicate three groups of barriers weak signals encounter before they are changed into adequate management actions: weak signals are not recognized (an individual), weak signals are not interpreted as relevant (a group), decision makers do not take necessary and adequate actions (an organization).

Individuals, as carriers of the ability to perceive the environment, are responsible for the search and the reception of weak signals, and these are their perception abilities which constitute the first barrier. When processing information in the conditions of uncertainty of the environment, they are based on mechanisms which are supposed to improve cognition, but at the same time they lead to bias in observing the environment and receiving the signals

coming from it. A number of detailed behaviours which block the reception of weak signals have been identified. These are, among others, perceptual set, selective attention, diminishing the significance of future opportunities/threats. Generally, problems at this stage are related either to the lack of access to the environment in which weak signals appear, or the rejection of weak signals. In the first case, it results from restrictions of perception and concentrating only on a fragment of the environment, and in the other case, from the inconsistency of the possessed interpretation patterns with the received data. What can help in overcoming this barrier is first of all realizing weaknesses and subconscious mechanisms, as well as broader search for information and more objective selection and assessment of them.

On the group level, where the constitution of the shared meanings which become the basis for undertaking actions takes place, group processes and their dynamics are of primary importance. They are the reason for which the already obtained information is not adequately interpreted and thus it does not constitute a signal informing about a change in the environment. It is mainly about group processes which lead to actions maintaining the integrity of the group, unification of thinking, or the conviction about the “indestructibility” of the group. In consequence, it leads, among others, to behaviours defined in the reference sources as group thinking, group polarization, increased inclination to risk. The processes are related to a tendency to maintain the existing interpretation patterns, that is the ways of perceiving the environment. Information which may disturb the existing *status quo* is rejected as the one which may threaten the aforementioned group integrity and safety. Copying with those problems basically means the identification of intra-group, inter-group and inter-organizational interactions, supported by the climate for open discussions guaranteeing safety for the ones who express their opinions questioning the existing assumptions concerning the shape and the direction of the evolution of the environment.

An organization effectively uses the early recognition potential only when it receives weak signals, interprets them as relevant and uses them to modify its actions. The last barrier on the organizational level is the decision paralysis which is first of all connected with two areas: structure and culture. Even most valuable knowledge about the direction of a change in the environment becomes worthless if there are no formal communication channels and ways of action enabling its use. On the other hand, if there is no information culture internationalizing the desirable behaviours with reference to information, the whole early recognition process has no chance to bring effects (Table 1).

**Table 1.** Barriers to early recognition of changes in the environment

<b>Organizational level</b>	Individual	Group	Organization
<b>Stage of the process</b>	Perception	Interpretation	Action
<b>Information flow filter</b>	Surveillance	Mentality	Power
<b>Barrier</b>	Weak signals have not been recognized as a sign of a future change	Weak signals have not been interpreted as relevant for the organization	Weak signals were not used since no adequate actions were undertaken
<b>Conditionings of the lack of effectiveness</b>	Perceptual set Sources of information Scope, frequency and flexibility of observations Interest in peripheries Involvement Approach to risk Noises	Interpretational patterns Interactions in the group and with the environment Quantitative perspective Intensity of interpretation Methods of analysis	Culture Information Level of formalization Scenarios Decision-making processes Information technology
<b>Potential limiting actions</b>	Cognitive openness Differentiating sources Increasing the frequency and scope of information Going beyond the area of the present scope Exploration of peripheries Involving everybody in the organization Risk management	Differentiating interpretational patterns Questioning the assumptions Permanence of interpretation Using integrating methods Increasing the frequency of interactions within the group and outside the group	Developing information culture Integration of scattered information System formalization Strategic management oriented at using opportunities
	Involvement and development of the best employees Building internal and external networks Information, knowledge, learning management Using information techniques in communication		

## 5. Conclusions

An identification of barriers blocking early recognition of changes in the environment on the individual, group and organization level is a starting point for further research aiming at their verification and studying their meaning. Moreover, it constitutes a contribution towards building suggestions for specific organizational solutions (structures, programmes, tools) supporting the process of eliminating the barriers and improving the effectiveness of the ERS functioning. Only the awareness of the existence of such barriers and the knowledge on the solutions possible to be applied can enable to get

anticipatory information and on this basis undertake an adequate action which will aim at the strengthening of the organization's strategic position.

Without elimination, or at least limitation of the influence of these barriers on the early recognition processes, the system will not achieve the desirable effectiveness and will not informatively supply the strategic management process.

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# EFFECTIVE TIME MANAGEMENT

**Agnieszka Wieprzycka\***

*Do you love life? Then do not squander time, for that's the stuff life is made of.*

Benjamin Franklin

## **Abstract**

*This paper presents the importance of time management, focusing on individuals. In subsequent parts of the paper, some of the most common obstacles of time management and ways of overcoming them are characterized. In the final part of the paper the emphasis is put on procrastination. Summing up, some of the author's reflections are presented in this paper.*

**Keywords:** *time management, procrastination*

## **1. Introduction**

Time is a precious resource we cannot buy or store; it is irreversible and irreplaceable. Therefore, it should be valued by both individuals and organizations. However, we too often waste it by filling it with some unimportant activities instead of using it to accomplish our priorities. We also too often procrastinate in our tasks, not doing what we are supposed to. The result of this is that the quality of our work suffers. The aim of this paper is to present the most common obstacles to effective personal time management as well as some ways of overcoming them, paying special attention to procrastination.

## **2. The importance of effective time management**

Every day each of us has the same amount of time. It's what we do with it that makes a difference – our use of time affects our achievement and comfort level. Therefore, it's good to have a clear vision of what we want, of our priorities, keeping in prospective that it also influences other people in both private (family, acquaintances) and organizational (co-workers, clients) circles.

“Time management is the consistent and goals-oriented application in practice of proved work techniques in such a way to ensure both self-

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management and management of the environment without intrusion, as well as the reasonable and optimal use of time we gain” (Czaja, 2011, p. 256)

Effective time management can be understood as spending time wisely on activities that move us closer to our goals as well as the process of assessing and planning how to use our time to accomplish them. Conscious and effective leveraging of time means using it to pursue our most important goals. The very first step in effective time management is to clarify our priorities. At the same time, time management is also about discipline in performing successive tasks and control over whether we waste our time or not and whether we implement our plan. (Raffoni, 2007, 5-14).

Effective use of time is a skill which can be learned. It requires concentrating on the right issues and acting in an effective manner. Hence, making the right choices is more important than simply doing a task efficiently. (Lakein, 1989, p. 11). For this purpose, it is good to have a vision of what you want to achieve as it adds meaning to life, motivates, guides actions and allows you to overcome discouragement where there are obstacles and problems.

All of us have a certain amount of time, but we often forget that our time is limited. Therefore, we should learn to use it wisely – not to waste it and not allow others to waste our time. However, if you do not know where your time is disappearing, it will be difficult to make any changes in order to save (or rather better use) this time. According to Lakeina (1989: 12), there is no such thing as a lack of time. We all have enough time to do what we really want to do. If we think that we are too busy, think about the fact that there are people who are able to do a lot more than we do in their “free” time – they don’t have any more time than others, but they are able to manage it better.

Effective employees are able to maintain a balance between work and personal life (“work-life balance”). This is a crucial skill – especially when you are working long hours. It is not easy and requires continuous effort. Balancing responsibilities properly provides:

- energy – the more energized you are, the more productive you can be. If you are burnt out you do things more slowly,
- accuracy – when you are rested, refreshed and energized, you think more clearly and make better choices quicker. You do not waste time redoing your work and correcting mistakes,
- innovation – very often the best ideas come when you step away from your work and look at the problem from a distance. A change in environment or activities often stimulates innovation enabling you to solve problems more easily,
- patience – a satisfying life outside the work makes it easier to tolerate frustrations at work. When you work long hours, you are too quick to lose perspective and make big problems from little ones,

- motivation – maintaining a work-life balance enhances the quality of your life which gives you a feeling of fulfillment and a sense of purpose in life. (Morgenstern, 2004a, pp. 21-22).

As Bieniok writes (2010, p. 21): “Time management is the conscious transformation of hopeless idleness, and useless or excessively rigorous and exhausting labor into well-organized and efficiently planned work ensuring personal success and contentment.”

Good time management is about creating days that are meaningful and rewarding to us and the feeling of satisfaction in each and every one of our tasks. (Morgenstern, 2004b, p. 14)

### 3. Difficulties in personal time management

When people manage their time poorly, they often jump to the conclusion that they are internally flawed and they are simply incompetent or they may even believe that being out of control is just how life is supposed to be in the modern world. However, both perceptions are inaccurate as it is usually a combination of forces that creates time management problems. There are three categories of obstacles that cause this problem:

- Technical obstacles – we may simply lack particular skills or techniques,
- External obstacles – sometimes environmental factors interfere with our ability to manage our time,
- Psychological obstacles – sometimes internal forces and fears cause a problem with time management; by recognizing certain self-sabotaging habits, we can begin to break free of their control.

So, we should ask ourselves: “Is my problem technical, external or psychological”? If we have trouble with delegating, the problem could be technical if we don’t know how to do it, external if there is no one we can delegate this to, or psychological if we feel guilty asking someone else to do this for us.

If the problem is multifaceted, it’s good to tackle the technical obstacles first and then the external obstacles, once we overcome the problem pragmatically, and psychological resistance usually melts away. (Morgenstern, 2004b, pp. 16-17)

#### **Technological obstacles:**

- One of the common causes of not being able to tackle certain things is not enough time being allocated to doing it (forgetting to include them in your schedule) or tackling them at the wrong time of day and not taking into consideration natural life cycles (some people are “night owls” while others are “early birds”). So, if something

is really important to you, then you should set aside time in your schedule at the proper time of day (considering each individual's level of energy and concentration),

- Another obstacle in effective time management is the lack of appropriate time required to perform certain activities – as a rule, people tend to underestimate time needed,
- Lack of vision for the future as priorities can also be a huge impediment to effective time management. Having a vision of your future (your main goals in life, what is important to us and what you want to achieve) allows for the easier eliminating, shortening, or delegating of tasks that do not serve our priorities,
- Many people think that it is necessary to do everything yourself, and that asking for help is a sign of weakness. However, this is a false assumption, because keep in mind that everyone is different and possesses different talents and skills, and some tasks are simply better done by others,
- Another obstacle may simply be the excessive complexity of the task. Even if we go about doing what's important to us, the way we go about the task may be too complicated. In addition, the task may be intimidating, overwhelming in its vastness and difficulty and thus lead to procrastination. Therefore, if we want to succeed, we must simplify the task by dividing the larger project into smaller tasks,
- Another of the obstacles is poor memory and lack of scheduling. We are living in a very fast world, often flooding us with too much information and multiple stimuli. So even with the best intentions, it is hard to remember all of our duties and obligations. Therefore, a good solution is to make (and stick to) a schedule,
- Another impedance is a disorganized working space – chaos in the workplace results in a significant loss of energy and time associated with searching for different things,
- Yet another barrier to effective time management is the lack of planning. The more „busy” we are, the more we should take a step back to look at your priorities and plan exactly what we want to achieve. If you take the time to plan, it'll save in your performance, since it is often possible to find a „short cut” to provide for the obstacles and avoid them or minimize their impact on our goals,
- Another error in effective time management is an unrealistic workload, or in other words, taking on more responsibilities and tasks to be performed than is realistically possible. Sometimes it is related to a technical error through an underestimation of the time needed to perform certain tasks. Sometimes it's the psychological tendency of a person to take on more tasks than he is able to do, while other times it is due to external factors when it's just simply life, „overloading” us with different tasks and roles at the same time. Whatever the reason,



this obstacle can be treated as a technical problem and one should focus on surviving this period – reviewing responsibilities and seeing what you can delegate. You have to be tolerant of each other and, if necessary, the standards of performance for certain tasks can be reduced in order to „stay afloat”. (Morgenstern, 2004b, pp. 18-24).

### **External obstacles**

There are situations in which we are faced with significant time management challenges beyond our control, having a profound impact on our time management ability. By recognizing external realities we can hit the problem and adapt to it, instead of wasting time and energy worrying. Sometimes we simply don't have enough energy to tackle the problem. Constant lack of sleep deprives us of energy as well as the ability to focus on and do difficult analytical tasks. We can also be slowed down by depression or other health problems that we can even be unaware of (e.g. thyroid problem). If we suspect a health problem, we should be proactive- make an appointment to see a doctor and simply take care of ourselves: sleep well and long enough to restore our energy resources, eat well, and move enough – these are basic adjustments. No matter how simplistic and trivial these pieces of advice sound, we should implement them to increase our energy level to enable us to deal with important issues – both personal and organizational. (Morgenstern, 2004b, pp. 18-24)

### **Psychological obstacles**

Within this group, we shall mention procrastination which consists in postponing the task we should work on and doing something else instead. However, we should not equate procrastination with laziness because very often procrastinators, while putting off some tasks, are performing others – often difficult, important and needed but not necessary at the moment.

We can point out the following symptoms of the procrastination problem along with some ways of dealing with it:

- perfectionism – we should understand that our time is at least equally important as the perfect realization of a project. Therefore, we should have a look at our activities distantly, realize our propensity and fight with it,
- overplanning – this symptom can indicate that we feel overloaded; teamwork or simply asking somebody for help can be a remedy for this,
- putting off the work to the last moment – such working style can be productive for individuals. However, if we are working in a team such behavior can frustrate others and decrease the quality of our work; therefore we should stick to the schedule,

- escaping into self-comforting tasks – we can avoid working on more difficult and important tasks because we don't know how to tackle them; in this case, we should ask for help more experienced persons, and think out the skills needed to do this particular job,
- ordinary disinclination to do something – we can try to delegate a task to a willing person. However, if it is impossible, we should name the date of starting the task and stick to the plan; in this case, it is good to appoint a reward for accomplishing the task. (Raffoni, 2007, p. 79).

#### **4. Overcoming obstacles of personal time management**

##### **Time awareness**

The first step in time management is to develop a consciousness of time by paying attention to it. Time consciousness means that we know how we use our time. Very often we do things in a particular way because we've been taught to do so. We don't know the reason behind it but we are used to do it that way. However, we should remember that there is always room for improvement as new techniques and devices appear enabling us to better manage our time. Therefore, we should allocate some time for trying them out to make a better use of our time, because, according to Parkinson's law, work expands to fill the time available for its completion.

##### **Automation of activities and developing work systems**

Every job has certain aspects that are repetitive. No matter how complex or varied the job is there are always things which we regularly do. They may not be exactly the same but similar enough and it is recommended to develop a system and follow it (modifying it as needed) as any automation of tasks saves our time. Otherwise we will be forced to reinvent the way of doing things. This system, however, should be simple. If it is complicated people seek opportunities to avoid it and it is going to be useless. So, by developing a system, we should use the KISS principle – Keep It Simple Stupid! (Cash, 2013, pp. 4-10)

##### **Prioritizing**

To manage our time effectively we must set priorities; we have to decide for ourselves what is important to us and we should concentrate on these things. If we know what motivates us the rest is the matter of the right techniques. We must learn how to distinguish between important and unimportant, eliminating the latter and focusing on the former. To start changes we should know what is important to us. There is no one right answer to that question, as what is

important to one person, can be worthless to another. Therefore, we should decide by ourselves, not let others do it for us. (Cash, 2013, pp. 2-3). One of the tools helping to prioritize is called Eisenhower's matrix.

**Table 1.** Eisenhower's Matrix (Priority Matrix)

Tasks	Urgent	Not Urgent
Important	I	II
Unimportant	III	IV

Source: L.J. Seiwert: Zarządzanie czasem. Bądź panem własnego czasu, Agencja Wydawnicza „Placet”, Warszawa 2001, p. 138; S.R. Covey: 7 nawyków skutecznego działania, Dom Wydawniczy Rebis, Poznań 2007, p. 152.

All tasks are evaluated using the criteria of urgency and importance and put in congruent quadrants. Accordingly, tasks in the first quadrant are important and urgent, in the second quadrant – important but not urgent, in the third quadrant – unimportant but urgent and finally in the fourth quadrant they are both unimportant and not urgent. Therefore, the quadrant I tasks should be done at once, which is quite reasonable, but we should have in mind to pay special attention to the tasks from the quadrant II, as they are the most important for our future and tackling with them consequently help us diminish the tasks from the quadrant I and break free from the pressure of the moment, stressful atmosphere adversely affecting both our judgment and health. (Covey, 2007, pp. 150-157)

We can also use the so called 80/20 rule or Pareto rule which says that 80% of results can be attributed to 20% of activity. Therefore, we should concentrate on these activities which create the greatest added value. (Covey, 2007, p. 157)

The ABC technique can also be used to categorize tasks in three groups and rank them according to their importance: A-tasks/goals are perceived as being the most important, B-tasks/goals as of middle importance and C-tasks/goals as quite unimportant and therefore they should be delegated. (Seiwert, 2001, pp. 133,134)

### **Delegation**

According to David Fontana (1993, pp. 85-91), basic ways of improving our use of time are: making sure that we spend time in line with our priorities and main responsibilities, and not performing the tasks which can be done by

others. If only we have such an opportunity, we should delegate tasks which are (using the nomenclature from Eisenhower's matrix) in the third and fourth quadrants of priority matrix (the urgent but unimportant and neither urgent nor important tasks respectively). The effective delegation is about devolving mantle and legitimation to others along with making them responsible for the results.

### **Delimiting boundaries – being assertive**

During work we can encounter many distractions. Therefore, to work effectively we should delimit boundaries and be able to say 'no' to others. We can do it in different ways: to tune out from the chaotic and noisy working environment, to refuse to tackle others' problems (unless we decide to do that), to switch off the phone within intensive work hours, not to use communicators, or yet other ways of rationing access to ourselves. All these tools are to help us to avoid unnecessary work interruptions as well as overloading with tasks. So, we should learn to make better choices concerning using our time, making decisions and refusing. (Lakein, 1989, pp. 84-88)

### **4.1. Coping with procrastination**

First of all we should try to think positively as negative thinking is the main driving force behind procrastination. When thinking negatively we are more likely to be stuck and clueless as we are unconsciously telling ourselves that it is impossible to finish and our mind can be pretty convincing and instead of making an attempt we may withdraw ourselves and dismiss the idea of work altogether. (Fontana, 1993, pp. 14,15)

It is important to understand that procrastination is a habit – it's something that is learned and conditioned within us. According to some authors (Fontana, 1993, pp. 71, 72) the only remedy to the procrastination is to master discipline which is also a learnable skill, and as so requires practice.

Yet, sometimes it is wise to follow the classic advice given to procrastinators: "Just do it!"

## **5. Conclusions**

Time management is a conscious attempt of allocation and control of limited time resources. Its philosophy is to concentrate on setting priorities and then acting appropriately. Nevertheless, we should not confuse effectiveness (doing the right things – according to our goals) with efficiency (doing things right). However, we should remember that effective time management does not mean that we can do more things but that we can more accomplish.

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**III.**  
**BUSINESS AND NON-PROFIT**  
**ORGANIZATIONS – GLOBAL AND**  
**REGIONAL ASPECTS**





# KNOWLEDGE ASSESSMENT METHODOLOGY – RESULTS FOR POLAND<sup>1</sup>

**Anna Ujwary-Gil\***

## **Abstract**

The object of this paper is to present the latest findings relating to the Knowledge Assessment Methodology (KAM), with particular regard to Poland, which the author has compared to other countries in Europe and Central Asia (taken as one grouping of countries according to region). The four main pillars of this tool for elementary analysis in the area are, eg. the economic and institutional regime, education, innovation and ICT. The article begins by presenting evidence of an emerging knowledge-based economy, its importance and issues concerning its definition. Subsequently the author discussed the key elements of KAM in order to present the results of the so-called, Basic Scorecard and KEI and KI indexes.

**Keywords:** *knowledge-based economy, the Knowledge Assessment Methodology, KAM, Knowledge Economy Index (KEI), Knowledge Index (KI), Poland.*

## **1. Introduction**

The knowledge-based economy is becoming the next stage in the development of current civilizations, where knowledge is the dominant resource is the knowledge and a person's contributions should be seen by the employer as an investment by the employer. It is where power doesn't depend on position held but is essentially attributed to the knowledge and skills (competence) possessed by the person, and where the functioning management style is network-orientated and flexible. It is an economy in which innovation is not created in isolation. Business strategies must be focused on cooperation and collaboration, where organization is based on trust (especially in the context of sharing knowledge and experience). It is also an economy in which customer relationships are interactive and constant changes are seen through the prism of opportunity to exploit ideas. At the same time the development of businesses in this type of economy is not a gradual

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process and becomes difficult to predict. The use of modern technology is a priority. It is dominated by the service sector and information processing with the Internet as a primary invention of the modern era (comparable to Ford's first moving assembly line, which in the last century revolutionized the automobile industry in the United States). Is Poland's economy this type of economy? Of course, these characteristics are qualitative and are not present in KAM. However, the modern day knowledge-based economy demands that such a perspective be taken.

The object of this paper is to present the latest findings relating to the methodology KAM (Knowledge Assessment Methodology), with particular regard to Poland, which the author has compared to other countries in Europe and Central Asia (taken as one grouping of countries according to region). The four main pillars of this tool for elementary analysis in the area are, eg. the economic and institutional regime, education, innovation and ICT. The article begins by presenting evidence of an emerging knowledge-based economy, its importance and issues concerning its definition. Subsequently the author discussed the key elements of KAM in order to present the results of the so-called, Basic Scorecard and KEI and KI indexes.

## **2. Knowledge-based economy – premises for foundation**

Prior to the “first wave” of transformations associated with what we now call “the Agricultural Revolution”, people grouped in small, nomadic groups were engaged mainly in fishing and pastoralism (Toffler, 1996a, 1996b, 1995). According to A. and H. Toffler we are witness to the changes happening before our very eyes of so-called “waves”, and we are a generation from an old civilization, while at the same time being the first generation of a new wealth of which the most important element is knowledge.

The so-called agricultural revolution of the Neolithic Age took place about eight thousand years ago. This led to a significant increase in the human population, the formation of villages, cities, states, hierarchical orders, structures of class society and the creation of new communication technology – writing. A characteristic feature of the “first wave” was the rapid development of the rural economy, where capital was the land – an indivisible resource of wealth. The medium of exchange were natural products as well as gold and silver bullion. Societies during this period shied away from competition, modernization and globalization in the name of security and stability.

The period of an agricultural economy continued to gain pace in the more developed countries (northern U.S.A., the industrialized countries of Europe – England) until the end of the seventeenth century. At the turn of the seventeenth and eighteenth centuries, there was another change in the structure

of society from one of an agricultural nature to that so-called industrial. The symbol of this period was the “Industrial Revolution”. Numerous factories were built, in which the power of human hands was replaced by machines. Along with the development of an extensive social security program, a state controlled competitive system (also international) was born perceived to be a source of growth. It was also a period of inventions such as the steam engine, water drive, railways, textiles and iron (Kleer, 2003). A new class, called the bourgeoisie, which focused on possessing sources of production: land, labor, raw materials and capital. According to P.F. Drucker (1999, pp. 22-44), the Industrial Revolution began in the mid-eighteenth century and lasted until the mid-nineteenth century. A characteristic feature of this period was the application of knowledge to the tools, processes and products concentrated in one area of the production process. While the domain of the rural economy had been production of crafts, in the industrial economy a system of machines and factories has become the dominant factor in production based on modern technology.

F. Taylor (Martyniak, 1996, pp. 13-17) was the first to apply knowledge in the testing, analysis and organization of human labor. Somewhat later, in 1907, H. Ford utilized a mobile assembly line for mass production of cars and the famous Model T. However, these developments do not constitute a breakthrough in history and they also were not the only simple transformations of technology from the perspective of building foundations in terms of organization, professionalism, economics and cultural changes to which society must adapt. It is not innovations in technology that instigate changes, but the willingness and ability of societies to evolve and adapt. Industrialization has been beyond doubt a multithreaded social process. It has transformed cities and existing organizations, created a new form of labor, developed transport and new ways of communicating.

P.F. Drucker also singled out “the Revolution in Productivity” as the “Second Revolution”, which lasted from 1880 through to the completion of World War II. The essence of transformations during this period was a more wider use of knowledge in the performance of work duties and in the development of electricity, automobiles, internal combustion engines and in the initial stages of new communication technologies: the telegraph and the telephone. The years 1945 – 1990 was, according to P.F. Drucker, the era of “a Management Revolution” where knowledge was used for this same knowledge and innovation was introduced. Schumpeter (1962, pp. 84, 1934, pp. 153-154) already perceived the need to introduce significant changes. He called for the creation of new structures through the use of new combinations of products and processes within existing structures and would lead to economic development. The whole development process depends

on continuously demolishing and reestablishing a state of balance through the exploration and application of new knowledge (innovation). Schumpeter (Foster, Kaplan, 2001, pp. 7-24) called this process “creative destruction” in the economy caused by the ongoing changes in technology and the emergence and spread of new ideas, products and manufacturing techniques. New technologies mean job losses in some areas, particularly the low-skilled (eg, in production automation, assembly line production), while others contribute to the creation of new jobs, generally requiring different, higher qualifications (eg business research and development in the pharmaceutical and chemical fields). Schumpeter also pointed out that the tendency to innovation and creative destruction is more important than the desire to make the best use of existing resources. Subsequently, R. Foster and S. Kaplan (Foster, Kaplan, 2001, p 31) analyze the functioning of companies and markets from the point of view of the way in which they manage and control the processes of creative destruction. While the functioning of the company is based on its continuous uninterrupted operation, markets are characterized by discontinuity, or creative destruction, and it is they who succeed in the long run.

Social, economic and technological transformations associated with new ICT skills and greater use of computers in social-economic processes are often referred to as the “Third Industrial Revolution” or in other words a knowledge-based economy. The main asset of a knowledge-based economy is the inexhaustible, hardly quantifiable, easy to multiply knowledge and technologies that enable near-instant diversification and its adaptation to the needs of the human being. We are thus dealing with a definitive end to mass production and the focusing of enterprises not on segments of the market, but on the lesser or even individual consumers. Requirements in relation to employees are growing so much that it’s becoming increasingly difficult to even consider replacing them with other employees. With constant and radical changes in the market begins to play a less important position in the economic status of a company is beginning play a less pivotal role, while flexibility and adaptability to change have taken over.

The present-day economy founded on knowledge has become an universal and widely acceptable term; the sources of which may very well stem from the deep recession of the eighties, where traditional industries strove to combat the problems of declining productivity, combined with the increasing the skills and know-how of the workforce (Kukliński, Orłowski, 2000; Kukliński, 2000; Kukliński, 2001; Kukliński, 2003). In this period a knowledge-based economy was identified with a “Service Economy”, where the so-called intelligent machines and industrial robotics were supposed to contribute to a greater economy and rising employment in the service sector as well as generate income in tourism, insurance, and aviation sectors (Quinn, 1992).

Such critics as Baumol (1973, pp. 941-973) and V. Fuchs (1968), Harris (2001, pp. 21-40), however, believed that economic growth based on services, the increasing standard of living would bound to slow down inevitably as many services do not generate any growth in productivity (eg hairdressing). Historians suggest that contemporary differences in productivity and economic growth of different countries are no longer related to the availability of natural resources, but are connected with the ability to improve the quality of human capital and new production factors, and in particular the ability to create and implement new knowledge and ideas. In developing this area of analysis P. A. David and D. Foray (2001, pp. 1-22) argue that intellectual capital in total wealth produced is of growing importance. They divide intellectual capital into two categories, corresponding to two different types of investments, whose share in GDP of rapidly developing countries is growing. They are: investments in the production and promotion of knowledge (eg, training, education, research and development, computerization) and investments connected with upholding the physical condition of human capital (eg expenditure on health). Developments of a knowledge-based economy and information technology (IT) have been observed particularly in the U.S. economy, which has experienced a 4% growth rate since 1994. The USA combined with Sweden have become the most prominent countries in terms of investing in information and communication technologies (ICT), and therefore are most often identified with a knowledge-based economy and advancements in ICT. It is exactly information technology which enables a greater level of efficiency in economic and innovative activities by activating old procedures while implementing new ones.

The Table 1 below contains some basic definitions of a knowledge-based economy:

**Table 1.** Definitions of a knowledge-based economy

<b>Source</b>	<b>Definition of KBE</b>
Ministry of Economy, 2007	A Knowledge-Based Economy (KBE) is characterized by the rapid development of the sectors of the economy that are connected with the development of science and information processing (mainly branches of industry in the field of high technology), as well as techniques and information society services. A knowledge-based economy is also one in which the source of competitive advantage for most companies, including both small and medium, are innovative initiatives.
OECD and The World Bank 2001	KBE is an economy in which knowledge is created, absorbed, transmitted and used more effectively by businesses, organizations, individuals and communities, enhancing the rapid development of both the economy and society. This definition does not focus solely on a narrow stretch of high-tech industry or on information and communication technologies.

Oslo Manual III, 2008	The term „knowledge-based economy” suggests a trend in highly developed countries where the role of knowledge, information and advanced personal skills is increasingly vital role and where a growing need exists for them to be easily accessible to both the corporate and public sectors . There is a growing complexity of knowledge and techniques / technologies, which in turn enhances the role of relationships between companies and other entities as a means of gaining expertise. A parallel phenomenon present in the economy of highly developed countries is the increasing degree of innovation in the service sector.
The World Bank 2006	An economy can be said to have become a „knowledge-based economy”, when the sustainable use and creation of knowledge are in the center of the process of economic development. A knowledge-based economy is one that uses knowledge as the engine of economic growth.

Source: Own study based on above sources.

### 3. Knowledge Assessment Methodology – basic information

Methodology for Estimating Knowledge KAM (*Knowledge Assessment Methodology*) was established in 1999 under the Programme for the Development of Knowledge (*Knowledge for Development, K4D*). Since that time regularly appearing on the World Bank’s website are the first results (*beginning with 1995*) in the four major pillars, reflecting the level of advancement of a country’s knowledge-based economy. This year, KAM includes a total of 148 structural and qualitative variables calculated for 146 countries. The results are presented as absolute and normalized values ranged 0-10 using the following formula:

$$\text{Normalized (u)} = 10 * (1 - \text{Nh} / \text{Nc})$$

Where:

(u) – the actual data are taken from World Bank data sets and international literature for all variables and countries. Marks are allocated to countries based on absolute values (actual data), which describe each of the 148 variables to form a *u* ranking.

(Nh) – the number of countries with a higher ranking after calculating for each country.

(Nc) – the total number of countries

Individual countries can be assessed as part of individual regions as well as the income category (calculated as Gross National Income per capita), which is illustrated in Table 2. Poland is classified among European and Central Asian nations as well as in the group with gross national income above \$ 12,276 per capita.

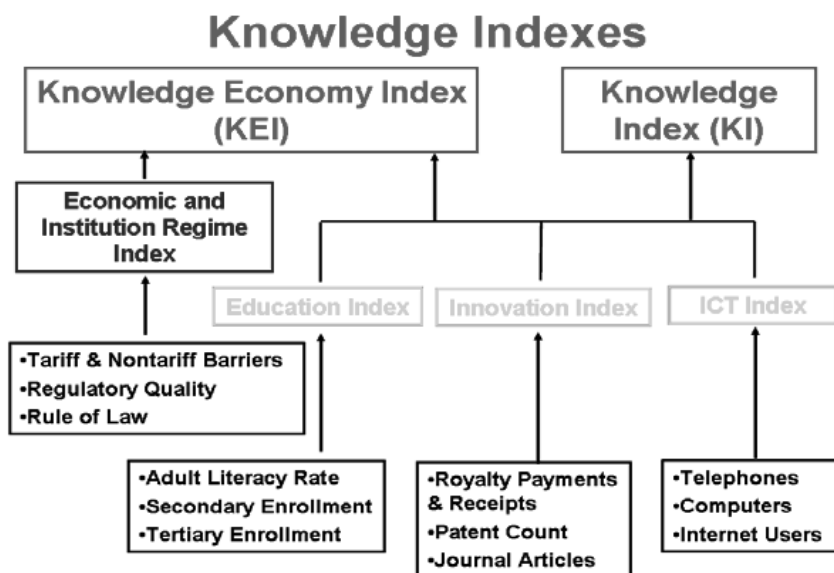
**Table 2.** Categorization by region and income

<b>GROUPING OF COUNTRIES BY REGION</b>						
North America	Europe and Central Asia	East Asia and Pacific	South Asia	Latin America	Middle East and North Africa	Sub-Sahara Africa
2	46	18	5	26	18	31
<b>GROUPING OF COUNTRIES BY INCOME (US \$)</b>						
High (> 12, 276)	Above average (3,975-12,275)	Below average (1,006-3,975)	Low (<1,006)			
46	40	38	22			

Source: Own study based on [www.worldbank.org/kam](http://www.worldbank.org/kam) (date read: 10.05.2013).

The basic pillars of KAM form a so-called Knowledge Economy Index and a Knowledge Index, which include the most important and variables readily available as are illustrated in Figure 1. The Knowledge Economy Index (KEI) contains all four pillars, particularly the first pillar (economic and institutional regime), which is omitted in the Knowledge Index (KI). KEI takes into account whether the environment is conducive to the effective use of knowledge in economic development. This is the average value that represents the overall level of development of a country or region towards a knowledge based economy. KEI is calculated based on the average of the normalized performance results of the country or region in all four pillars of the knowledge economy – economic and institutional incentives, education and employment, innovation and ICT system.

KAM Knowledge Index (KI) measures a country's ability to generate, adopt and diffuse knowledge. It illustrates the possibilities of knowledge development on the whole in any given country. Methodologically speaking, KI is simply the average of the normalized performance results of a country or region in the key variables of the three pillars of the knowledge economy with the exception of the first pillar.



**Figure 1.** Pillars, Indexes and key variables of KAM

Source: Measuring Knowledge in the World's Economies, Knowledge Assessment Methodology and Knowledge Economy Index, the World Bank Institute: [www.worldbank.org](http://www.worldbank.org).

Within the structure of KAM methodology so-called modules were formed that enabled results to be presented for each country on the basis of:

- Basic Scorecards containing 12 variables (3 from each pillar) listed in figure 1 and allowing for comparisons to be made between 3 countries or groups of countries maximum. (according to region or income),
- Custom Scorecards containing all 148 indicators and interpretation,
- Ranking countries according to KEI and KI indexes as well as individual pillars (average of 3 variables),
- Comparisons of times for specific periods (beginning with 1995),
- Comparisons between countries (bar graphs of indexes and KAM pillars),
- World map of KAM.

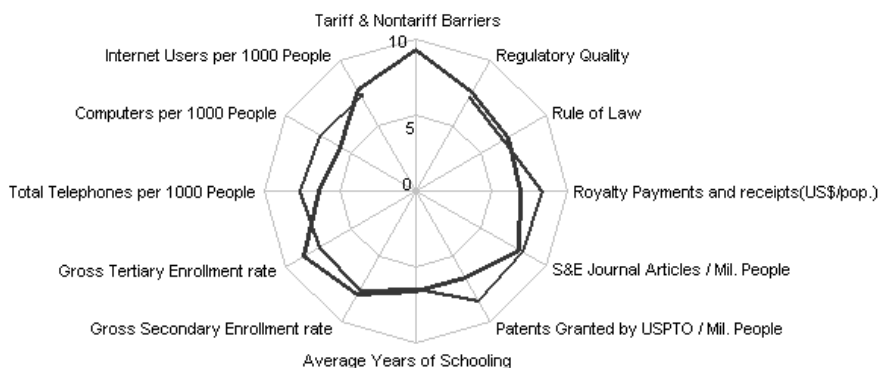
#### **4. Poland against a background of European and Central Asian countries – KAM results 2012**

In this part of the article the latest results of KAM will be presented for 2012 (although it's not uncommon for the indicators and calculations to be to be a combination of the years 2009 to 2011 and currently available data). These data, as assured by the World Bank, are constantly being updated. For this



purpose the Basic Scorecard is used to present Poland against a background of European and Central Asian countries.

### Poland, Europe and Central Asia



**Figure 2.** Poland against a background of Europe and Central Asia

Source: : [http://info.worldbank.org/etools/kam2/KAM\\_page2.asp](http://info.worldbank.org/etools/kam2/KAM_page2.asp) (data read: 10.05.2013).

Results normalized on a scale of 0-10 indicate that Poland in terms of the 12 core variables for the main pillars of KAM has achieved better results in the fields of: quality control (7.60), compliance with the law (7.12), average number of years learning (6.69 ), enrollment figures in secondary and higher education (7.93 and 8.65) and in the number of Internet users per 1,000 people (7,79). Other indicators fall considerably lower, as indicated in Table 3:

**Table 3.** Actual and normalized values for Poland, Europe and Central Asia

Variable	Poland		Europe and Central Asia	
	actual	normalized	actual	normalized
Tariff & Nontariff Barriers, 2011	87.60	9.30	n/a	n/a
Regulatory Quality, 2009	0.93	7.60	0.70	7.16
Rule of Law, 2009	0.68	7.12	0.56	6.75
Royalty Payments and receipts(US\$/pop.) 2009	43.12	6.96	170.03	8.36
S&E Journal Articles / Mil. People, 2007	187.24	7.86	327.10	8.10
Patents Granted by USPTO / Mil. People, avg 2005-2009	1.08	6.64	31.44	8.39
Average Years of Schooling, 2010	9.87	6.69	9.65	6.42
Gross Secondary Enrollment rate, 2009	98.94	7.93	96.63	7.55
Gross Tertiary Enrollment rate, 2009	71.35	8.65	58.13	7.41

Total Telephones per 1000 People, 2009	1.420.00	6.48	1.580.00	7.76
Computers per 1000 People, 2008	170.00	5.82	340.00	7.40
Internet Users per 1000 People, 2009	590.00	7.79	540.00	7.34

Source: Own study based on: : [http://info.worldbank.org/etools/kam2/KAM\\_page2.asp](http://info.worldbank.org/etools/kam2/KAM_page2.asp) (data read: 10.05.2013).

Poland is the weakest when it comes to its ICT (information and communication technology) assessment of basic elements, number of computers per 1,000 persons (5.82), number of telephones per 1,000 persons (6.48), and patents granted by the U.S. Patent Office (6, 64) – average being one patent per million inhabitants through the period 2005-2009.

Detailed data, including 136 structural and qualitative indicators in terms of the Custom Scorecard, has been listed in Annex 1 (12 indicators have been subtracted from Figure 2).

A practical tool of KAM is the third module, which enables the ranking of countries according to two indexes, KEI and KI, and by individual categories: regions and income. In the overall ranking of 145 countries listed in this year's edition of KAM Poland finds itself in 38th place, 3 places lower than in the previous edition. However, when it comes to presentation against the background of the total analyzed group the results are as follows:

**Table 4.** Poland ranked from among European and Central Asian countries (comparison group of 46 and 27 countries)

Ranking from among European and Central Asian countries (46)	Changes (2009)	Indexes and regions	Average value for Poland	Average value for Europe and Central Asia	Poland's ranking in the European Union (27)
27	-2	KEI	7,41	7,47	25
27	-2	KI	7,20	7,64	24
23	3	Economic and institutional regime	8,01	6,95	22
26	1	Innovation	7,16	8,28	23
18	-3	Education	7,76	7,13	17
31	-3	ICT	6,70	7,50	24

Source: Own study based on dta from [http://info.worldbank.org/etools/kam2/KAM\\_page5.asp](http://info.worldbank.org/etools/kam2/KAM_page5.asp) (data read: 10.05.2013).

The results listed in Table 4 are not satisfactory. If one takes into account the group of countries in Europe and Central Asia (46 countries), Poland in the four-dimensional ranking scheme of the KEI index sits at 27th place (two places lower than the previous edition of KAM 2009), putting Poland at 25<sup>th</sup> place in all of Europe 25 (with Bulgaria and Romania to follow). On the other hand, as far as the KI index by itself, (excluding any environmental impact on the effective use of knowledge in economic development), it is also 27<sup>th</sup> (for the whole group of 46 countries in Europe and Central Asia, giving it two positions lower than in 2009). In terms of the European Union itself its position is 24<sup>th</sup> (Latvia also lagged behind). Its average performance in the area of economic and institutional regime looks somewhat better with a ranking of 23<sup>rd</sup> among the 46 countries in the group (up three places), while in the group of EU member states this position is 22<sup>nd</sup>, (behind us are France, Italy, Cyprus, as probably are Romania and Bulgaria). The best results were obtained by Poland in Education, giving it a comparable position in both Europe, Central Asia and the EU. This means that other countries obtain significantly worse average results of the three key variables in this pillar: the average number of years learning, enrollment figures in secondary and higher education. Of the 46 countries in the group Poland sits relatively low at 31th place in the area of ICT when it comes to Internet users, quantities of phones and computers. This gives Poland a comparable position in the EU gives its position comparable in terms of the KI index.

Slightly better were the average results compared to the whole of Europe and Central Asia (6.95) Poland gained a rating of (8.01) and (7,76) for the economic and institutional regime and education respectively.

## **5. Conclusions**

The results obtained in the framework of the World Bank's interactive tools are certainly a good starting point for comparing the countries, groups of countries or regions based on a number of indicators, (to date 148 structural and qualitative indicators have been used grouped into a total of seven functional areas: economic performance, economic regime, governing, system innovation, education, work, ICT – tools available in the form of Custom Scorecards). For the purpose of this article comparisons were made of countries on the basis of elementary variables that constitute the essence of KEI and KI indexes. Data was used on tariffs and non-tariff barriers, regulatory quality and regulatory compliance, average number of years spent learning, enrollment levels at secondary and higher institutions, royalties and licensing fees, the number of patents and scientific papers, the number of telephones, computers and Internet users. It remains an issue as to the selection of the key variables

from the group of 148 classified to represent the level of advancement of the knowledge-based economy of a country as well as the reasons for their choice (apart from the availability of data).

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*Internet sources:*

*KAM* : [www.worldbank.org/kam](http://www.worldbank.org/kam)

*OECD*: [www.oecd.org](http://www.oecd.org)

**Appendix 1.** Structural and qualitative indicators of KAM 2012 for Poland as well as Europe and Central Asia (with the exception of the 12 indicators presented in the Basic Scorecard in Figure 2).

Variable	Poland		Europe and Central Asia	
	actual	normalized	actual	normalized
Annual GDP Growth (%), 2005-2009	4.80	6.46	1.20	1.32
GDP per Capita (in/nal current \$ PPP), 2009	18.905.00	6.88	23.696.00	7.34
GDP (current US\$ bill), 2009	430.08	8.61	371.28	8.23
Human Development Index, 2010	0.60	3.13	n/a	n/a
Multidimensional Poverty Index, 2008	n/a	n/a	n/a	n/a
Gender Inequality Index, 2008	0.33	7.93	n/a	n/a
Seats in Parliament Held by Women (as % of total), 2009	18.00	5.40	n/a	n/a
Composite Risk Rating, 07/2010-06/2011	75.22	7.26	73.02	6.41
Gr. Capital Formation as % of GDP, 2005-2009	21.60	3.80	20.40	2.91
Trade as % of GDP, 2009	78.00	5.39	70.00	4.33
Soundness of Banks (1-7), 2010	5.20	4.96	4.74	3.51
Exports of Goods and Services as % of GDP, 2009	39.00	5.70	36.00	5.28
Interest Rate Spread, 2009	n/a	n/a	5.00	7.29
Intensity of Local Competition (1-7), 2010	5.40	7.86	4.91	5.53
Domestic Credit to Private Sector as % of GDP, 2009	53.00	5.74	130.00	8.79
Cost to Register a Business as % of GNI Per Capita, 2011	17.30	3.48	6.20	5.92
Days to Start a Business, 2011	32.00	2.62	13.33	5.67
Cost to Enforce a Contract (% of Debt), 2011	12.00	9.65	22.42	6.56
Government Effectiveness, 2009	0.64	6.99	0.63	6.75
Voice and Accountability, 2009	1.03	8.01	0.55	6.82
Political Stability, 2009	0.91	8.56	0.36	6.20
Control of Corruption, 2009	0.48	7.19	0.50	7.23
Press Freedom (1-100), 2010	24.00	7.78	36.11	6.22
FDI Outflows as % of GDP, 2004-08	1.19	6.72	n/a	n/a
FDI Inflows as % of GDP, 2004-08	4.56	5.57	n/a	n/a

Royalty and License Fees Payments (US\$ mil.), 2009	1.542.00	8.24	1.595.64	8.28
Royalty and License Fees Payments (US\$/pop.), 2009	40.42	7.36	104.23	8.28
Royalty and License Fees Receipts (US\$ mil.), 2009	103.00	7.14	1.007.26	8.86
Royalty and License Fees Receipts (US\$/pop.), 2009	2.70	6.35	65.80	8.60
Royalty Payments and receipts(US\$mil.), 2009	1.645.00	7.92	2.602.90	8.52
Science and Engineering Enrolment Ratio (%), 2009	21.44	4.61	n/a	n/a
Science Enrolment Ratio (%), 2009	8.45	3.89	n/a	n/a
Researchers in R&D, 2009	73.580.70	7.81	n/a	n/a
Researchers in R&D / Mil. People, 2009	1.928.73	4.93	n/a	n/a
Total Expenditure for R&D as % of GDP, 2008	0.61	5.35	n/a	n/a
Manuf. Trade as % of GDP, 2009	50.24	8.11	46.22	7.79
University-Company Research Collaboration (1-7), 2010	3.60	5.50	3.98	6.60
S&E Journal Articles, 2007	7.137.53	8.69	6.247.25	8.52
Availability of Venture Capital (1-7), 2010	2.70	6.26	2.69	6.18
Patents Granted by USPTO / Mil. People, avg 2005-2009	1.08	6.64	31.44	8.39
High-Tech Exports as % of Manuf. Exports, 2009	5.00	5.27	16.00	7.71
Private Sector Spending on R&D (1-7), 2010	3.00	5.57	3.52	7.33
Firm-Level Technology Absorption (1-7), 2010	4.60	4.35	4.96	5.73
Value Chain Presence (1-7), 2010	4.00	7.18	4.11	7.56
Capital goods gross imports(% of GDP), avg 2005-09	11.36	7.69	8.03	4.14
Capital goods gross exports (% of GDP), 2005-09	8.74	8.06	8.48	8.02
S&E articles with foreign coauthorship (%), 2008	45.72	1.46	50.41	2.19
avg number of citations per S&E article, 2008	1.46	4.86	2.36	8.78
Intellectual Property Protection (1-7), 2010	3.70	5.80	4.10	6.87
Adult Literacy Rate (% age 15 and above), 2007	99.51	7.67	n/a	n/a
Average Years of Schooling, female, 2010	9.95	7.17	n/a	n/a
Life Expectancy at Birth, 2009	76.00	7.31	75.00	6.76
Internet Access in Schools (1-7), 2010	4.50	6.56	4.84	7.14
Public Spending on Education as % of GDP, 2009	5.00	7.43	5.00	7.43
4th Grade Achievement in Math(TIMSS), 2007	n/a	n/a	n/a	n/a
4th Grade Achievement in Science(TIMSS), 2007	n/a	n/a	n/a	n/a
8th Grade Achievement in Math(TIMSS), 2007	n/a	n/a	n/a	n/a
8th Grade Achievement in Science(TIMSS), 2007	n/a	n/a	n/a	n/a
Quality of Science and Math Education (1-7), 2010	4.60	7.18	4.46	6.64
Quality of Management Schools (1-7), 2010	4.20	5.57	4.36	5.90
15-year-olds' math literacy (PISA), 2009	495.00	6.56	n/a	n/a
15-year-olds' science literacy (PISA), 2009	508.00	7.54	n/a	n/a
School Enrollment, Secondary, Female (% gross), 2009	98.77	7.59	96.00	6.88
School Enrollment, Tertiary, Female (% gross), 2009	84.31	8.51	64.00	6.89
No Schooling, total, 2010	1.70	7.56	1.30	8.11
No Schooling, female, 2010	2.20	7.40	n/a	n/a
Secondary School completion ,total (% of pop 15+), 2010	9.00	1.65	25.30	5.08
Secondary School completion ,female (% of pop 15+), 2010	14.40	2.60	n/a	n/a
Tertiary School completion ,total (% of pop 15+), 2010	9.10	6.61	9.90	6.81

Tertiary School completion ,female (% of pop 15+), 2010	9.70	6.93	n/a	n/a
Unemployment Rate,Total (% of labor force), 2005-2009	11.28	1.52	8.00	3.88
Unemployment Rate, Male (% of male labor force), 2005-2009	10.56	1.28	7.80	2.98
Unemployment Rate,Female (% of female labor force), 2005-2009	12.18	2.48	8.40	4.82
Employment in Industry (%), 2008	31.00	8.72	26.00	6.98
Employment in Services (%), 2008	55.00	3.21	66.00	6.19
Prof. and Tech. Workers as % of Labor Force, 2008	26.51	6.30	n/a	n/a
Extent of Staff Training (1-7), 2010	4.20	6.49	4.11	6.18
Brain Drain (1-7), 2010	3.20	5.04	3.50	5.95
Cooperation in labor-employer relations(1-7), 2010	4.10	3.97	4.51	6.56
Flexibility of wage determination(1-7), 2010	5.40	7.18	4.75	3.78
Pay and productivity(1-7), 2010	4.20	6.79	4.13	6.28
Reliance on professional management(1-7), 2010	4.60	6.26	4.58	6.11
Local availability of specialized research and training services(1-7), 2010	5.10	8.47	4.59	7.10
Difficulty of Hiring Index, 2010	11.00	7.87	32.50	5.50
Rigidity of Hours Index,2010	33.00	4.18	33.74	3.87
Difficulty of Redundancy Index,2010	30.00	5.53	25.87	6.13
Redundancy costs (weeks of wages), 2010	13.00	8.71	27.85	6.26
Labor tax and contributions (%), 2011	23.60	2.77	25.29	2.30
Employment to population ratio, Total, 15+ (%), 2005-2009	48.10	1.69	53.40	3.13
Employment to population ratio, Male, 15+ (%), 2005-2009	55.84	0.77	61.40	2.01
Employment to population ratio, Female, 15+ (%), 2005-2009	41.02	3.03	45.80	4.47
Employment to population ratio, Total, ages 15-24(%), 2005-2009	25.74	1.41	35.40	3.91
Employment to population ratio, Male, ages 15-24(%), 2005-2009	29.02	0.99	39.40	3.24
Employment to population ratio, Female, ages 15-24(%), 2005-2009	22.34	2.54	31.40	5.04
Employment to population ratio, Total, 25+ (%), 2005-2009	53.12	1.34	n/a	n/a
Employment to population ratio, Male, 25+ (%), 2005-2009	62.38	0.77	n/a	n/a
Employment to population ratio, Female, 25+ (%), 2005-2009	44.92	2.89	n/a	n/a
Share of unemployment with tertiary education , 2007	10.00	7.87	18.00	4.61
Share of unemployment with secondary education, 2007	73.00	0.48	49.00	3.49
Labor force participation rate, total, 15+, 2005-2009	54.27	1.69	n/a	n/a
Labor force participation rate, male, 15+, 2005-2009	62.46	0.63	n/a	n/a
Labor force participation rate, female, 15+, 2005-2009	46.80	3.03	n/a	n/a
Labor force participation rate, total, 15-24, 2005-2009	34.50	1.83	n/a	n/a
Labor force participation rate, male, 15-24, 2005-2009	38.21	1.13	n/a	n/a

Labor force participation rate, female, 15-24, 2005-2009	30.63	2.54	n/a	n/a
Labor force participation rate, total, 15-64, 2005-2009	63.51	2.39	68.80	4.61
Labor force participation rate, male, 15-64, 2005-2009	70.26	0.63	76.60	2.57
Labor force participation rate, female, 15-64, 2005-2009	56.87	4.01	61.40	5.53
Labor force participation rate, total, 65+, 2005-2009	4.95	1.34	n/a	n/a
Labor force participation rate, male, 65+, 2005-2009	7.73	1.34	n/a	n/a
Labor force participation rate, female, 65+, 2005-2009	3.25	2.25	n/a	n/a
Youth unemployment rate, total, 2005-2009	25.43	1.62	18.20	3.79
Youth unemployment rate, male, 2005-2009	24.08	1.13	18.00	3.35
Youth unemployment rate, female, 2005-2009	27.15	2.27	18.80	4.28
Adult unemployment rate, total, 2005-2009	9.56	1.11	n/a	n/a
Adult unemployment rate, male, 2005-2009	8.83	1.03	n/a	n/a
Adult unemployment rate, female, 2005-2009	10.43	2.06	n/a	n/a
Share of youth unemployment in total unemployment, total, 2005-2009	24.93	7.58	n/a	n/a
Share of youth unemployment in total unemployment, male, 2005-2009	25.78	7.94	n/a	n/a
Share of youth unemployment in total unemployment, female, 2005-2009	24.02	7.73	n/a	n/a
Long-term unemployment, total, 25+, 2005-2009	4.61	1.15	39.00	0.38
Long-term unemployment, male, 25+, 2005-2009	4.16	1.15	38.00	0.38
Long-term unemployment, female, 25+, 2005-2009	5.15	1.15	39.60	0.38
Labor force with tertiary education (% of total), 2007	22.00	4.78	29.00	6.67
Labor force with secondary education (% of total), 2007	68.00	9.59	46.00	6.58
Firms offering formal training (% of firms), 2009	61.00	9.53	n/a	n/a
Females in Labor Force (% of total labor force), 2009	45.00	6.06	45.00	6.06
Main Telephone Lines per 1000 People, 2009	250.00	6.51	370.00	7.95
Mobile Phones per 1000 People, 2009	1.170.00	7.24	1.210.00	7.72
Households with Television (%), 2008	98.00	7.86	98.00	7.86
Daily Newspapers per 1,000 People, 2004	114.00	6.00	173.00	7.33
International Internet Bandwidth (bits per person), 2009	2.748.00	6.41	16.713.00	8.84
Fixed broadband internet access tariff (US\$ per month), 2009	14.00	8.93	29.00	5.43
Availability of e-Government Services (1-7), 2008	2.14	0.88	4.20	6.12
Government Online Service Index (1-7), 2010	0.39	6.22	0.43	7.01
ICT Expenditure as % of GDP, 2008"	6.00	7.61	4.00	1.97



# PUBLIC AID IN FINANCING INNOVATIONS IN POLAND: THE OPERATIONAL PROGRAMME 'INNOVATIVE ECONOMY'

Ludmiła Kryskova\*, Wojciech Strzelczyk\*\*

## Abstract

*Public aid is nowadays an important instrument of the state's intervention mechanism. Redistribution of public resources directed towards the convergence process, also in the aspect of innovation co-financing, is considerably meaningful for supporting competitiveness on the medium-level (for individual sectors) and macro-level as well (for the entire economy). Financing of innovative projects is of great importance in carrying out effective state policies, including the innovation policy. The article focuses on the possibilities of providing financial support for innovations by application of various types of public aid. It also emphasizes the status of the Operational Programme 'Innovative Economy', the implementation of which has been assessed based on analysis of indicators of selected priority axes.*

**Keywords:** *innovation, public aid, innovative projects, innovative projects financing.*

## 1. Introduction

The formation of a durable and sustainable socio-economic development has been a challenge for contemporary state authorities. They are responsible for setting up the conditions that support sustainable development and mitigate the effects of economic shocks. The policy for innovation support is one of the components of the general state's policy. Intervention in the form of public aid for innovations is considered to be indispensable for effective functioning of the economy and for supporting competitiveness, and as such it complies with the Treaty on the Functioning of the European Union.

The Operational Programme 'Innovative Economy' (OP IE) holds the key position among the available public aid instruments for innovation project

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financing. The OP IE's strategy assumes financing of projects within the scope of research and development, new technology investments together with the infrastructure as well as development of competences of human resources which are crucial for implementation of the innovative projects. All these actions impact the strengthening of competitiveness in the international market.

This article aims to present the types of public aid for innovative projects offered, especially the Operational Programme 'Innovative Economy', and an analysis of the obtained indicators for selected priority axes.

To achieve the main goal, the following hypothesis will be verified: *public aid offered within the framework of the OP IE has been the biggest source of innovation financing in Poland over the period 2007-2013. However, the level of innovative projects implementation, as measured according to the indicators of product and result, does not reflect the assumed effects.*

This paper consists of four chapters. The focus of the first two is the theoretical aspects of innovation and public aid. The third and fourth chapters are based on empirical research and present the structure of the OP IE, allocation level, implementation level as well as an analysis of the indicators of selected priorities during the period 2007-2012.

The discussion on innovation financing within the framework of public aid is based on literary reviews and an analysis of programme data and reports. Additionally, an analysis of results obtained up until the present, as compared to the assumed levels, has been conducted and the implementation level has been examined. Last but not least, the representatives of a seed capital fund were interviewed using the Individual in-Depth Interviewing technique.

## **2. The nature and types of innovations**

The unceasing process of evolution is particularly determined by the continuous drive towards perfection. Man refines the surrounding environment or creates new things to meet the growing demands of people. Some people succeed in inventing or creating something that is nowadays called *an innovation*. Some commonly known examples of such innovations are: Thomas Edison's light bulb, Alexander Graham Bell's telephone, the Internet, the cell-phone, etc. The word *innovation* (Latin: *innovatio*) means renewal, novelty. Currently innovations are within the focus of attention of the theorists of economics, researchers of economic sciences, entrepreneurs, managers, politicians and consumers. It is proved when considering the increasing volumes of publications, books, magazines on innovation and new technologies development and the strategies being formulated by regional and central authorities (Świtalski, 2005, s. 78).

There is no unified definition of the term *innovation* in economic literature. The precursor of the theory of innovation was 18<sup>th</sup> century economist J.A. Schumpeter. He claimed in his works that economic development is stimulated by innovation in a dynamic process, in which old technologies are replaced by new developments. He focused mostly on technical innovations and their impact on the economy. He considered innovations implementation and their dissemination to be separate types of change that he called imitation (Dolińska, 2010, s. 16). It is noteworthy to mention that Schumpeter's theory applies to a capitalist economy, where land and production play considerable roles and factors such as knowledge and information were taken into account to a much less extent (Pomykalski, 2001, s.12).

In his work "Theory of Economic Growth" Schumpeter enumerated five types of innovations (Schumpeter, 1960, s.104):

- creation of a new product,
- introduction of new production method,
- opening of new markets,
- acquisition of new resources or semi-finished goods,
- introduction of new organization of production.

There are various approaches towards the definition of the term *innovation*. Two of them should be mentioned. The first one, so called broad approach (coined by J.A. Allen, Ph. Kolter or E.M. Rogers, among others), sees the nature of innovation as a perception of products or processes as new (Kolter 1994, s.322; Rogers 2003, s.12). Additionally, J.A. Allen emphasizes the strict relation between innovation and implementation for common use of a new product, process or a certain way of conduct (Allen, 1966, s.7). The second approach, so called narrow, suggested by Ch. Freeman for example, narrows down innovation to the first commercial introduction of a new or enhanced product, process or system (Freeman, 1982, s.7).

S. Kuznetz defines innovation as a new application of an old or new knowledge for production processes that initiate implementation of an invention. Similarly, L. Białoń defines innovation as implementation of new products production, triggering of new technological processes and organizational systems with the aim to increase effectiveness of administration (Białoń, 2010, s. 15-16).

A. Pomykalski represents the synthetic approach, according to which innovation is a process that encompasses all changes in activities related to creation of an idea, invention and then implementation of the new or improved product, process, organization or service (Pomykalski, 2001, s 25). He notices that innovation is not exclusively only an invention, it may be also a certain kind of modernization of a product, service or process, which, as a consequence, improve the effectiveness in the performance of the enterprise.

Most of the above mentioned authors of the innovation definition adhere to the point that it consists in creation of a new product, with an emphasis on change. So does it mean that every change is an innovation? Rather not! However, it is certain that each innovation is a change. Certainly, innovation is something new, but is every novelty an innovation? Or maybe innovation should be considered as a certain kind of a “breakthrough”? Such dilemmas have not been precisely explained which leads to an over-usage of the term.

In the era of domination of a knowledge-based economy, the most widely accepted definition of innovation is the one proposed in the *Oslo Manual*. “An Innovation is the implementation of a new or significantly improved product (a good or service), or a process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations.” (Oslo Manual, 2008, s. 48).

The definition set forth by OECD clears away much of the confusion that arose within the time span of the last few decades. It points out explicitly that not every new solution is an innovation because it requires a practical application. Even more so, not each innovation needs to be a novelty *sensu stricto*. It depends on the novelty of the development and on the diffusion (Bukowski, 2012, s.3). The OECD definition implies also that there are four different types of innovation to be distinguished: product, process, marketing and organizational innovations.

Product innovation is the introduction of a new or significantly improved in its characteristics or applications product or service. The improvements may relate to: technical specification, components, materials, software, use-facilitation or other functional characteristics.

Process innovation is related to implementation of a new or significantly improved method of production or method of delivery. These may include improvements in: technology, appliances or software and can aim at decreasing cost production per unit, delivery or quality improvements.

A marketing innovation stands for the implementation of a new marketing method that involves changes within production/construction of product or in packaging, distribution, product promotion, pricing strategy. It aims at increasing sales by better addressing customer’s needs or new product positioning on the market.

Organizational innovation is the implementation of new organizational methods in actions and procedures of an organization or a firm. Such innovations aim at reducing administrative and transactional costs, increasing work satisfaction, which, in consequence, should lead to the firm’s improved performance (Oslo Manual..., 2008).

**Table 1.** presents a classification of innovations according to various division criteria

<b>Criterion of division</b>	<b>Type of innovation</b>
Causes of origin	demand-related supply-related
Place of application	within the firm within the market environment of the firm
Uniqueness of the solution, dimension	radical (pioneering) imitative (adaptational)
Origin related to ownership of innovation	of the firm external as a result of cooperation between firms in the innovation process
Ways of development and implementation	system-like, developed according to existing procedures individual
Result of execution of specific process tasks	idea for new solution solution concept innovation implemented in the firm as a product of market sale.

Source: M. Dolińska, *Innowacje w gospodarce opartej na wiedzy*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2010, p.21.

Nowadays, innovations play a significant role in all sectors of free-market economies. They are the basis for maintaining position in the market and for distinguishing the firm as well as for increasing its competitiveness with other companies. Innovations influence the socio-economic development on macro and micro-scales. Additionally, they shape the level of development of the economy, economic condition and competitive position against other countries (Dolińska, 2010, s. 21).

While discussing the theoretical and practical aspects of innovations, it is also crucial to pay attention to the distinction between the notions of innovation and innovativeness. The definition of the first one has been discussed in chapter 1. Innovativeness, on the other hand, denotes the ability to generate innovation.

After joining the European Union (EU), Poland, as did other Member States, became subjected to the EU innovation policy as set forth in the Lisbon Strategy. Its aim was to effectively use the available resources such as work, knowledge, capital and environment, and to shape the new competitive advantages of the EU economic zone. The result of periodical assessments of the Strategy implementation has been the recommendation by the European Commission to introduce the Competitiveness and Innovation Framework Programme (2007-2013). The goal of this programme is to support innovative actions, improve access to financial resources and support enterprises on the regional level (Dolińska, 2010, s.43).

### 3. Types of public aid for innovations

The theory of state interventionism, assigned to one of the best known world economists J.M. Keynes, is considered as one of the most important economic theories. It exemplifies market imperfections and the necessity to take up actions by the state to mitigate demand shocks (Keynes, 1960).

Within years, the state interventionism theory has been increasingly applied. Public aid is the result of these changes. It consists of the selective application of economic policy tools to specified subjects. It is an instrument for fulfilment of goals of state policy in a specific country (Jaźwiński, 2007, s.85). It integrates activities that shape durable and sustainable socio-economic development.

Public aid is a wide term that encompasses a multitude of forms. Most often it implies the granting of financial advantages to firms and is accompanied by financial expenses on the part of the public budget (Choroszczak, 2009, s.11). It consists of spending public resources or decreasing public impositions in order to support firms or production of specific goods and, thus, becoming an economic advantage for the beneficiary.

The characteristic of “selectiveness” is at the core nature of public aid and this means that it is granted to selected firms and thus it creates advantages for one firm at the expense of another (Michalik, 2011, s. 180). It is important that the amount of aid granted is not overused in relation to needs as in such cases the aid may exert a de-motivating impact on competitive firms.

The granting of public aid is regulated by European law. The European Union, based on the article 107 of the Treaty on the Functioning of the European Union, enumerates the following circumstances for granting public aid (consolidated version of TFEU, art. 107):

- it has to be granted from public resources,
- it gives privileges to specified subjects or production of specified goods and provision of selected services,
- it is an economic advantage for beneficiary, that threatens or intrudes the competitors,
- it impacts trade between the EU Member States.

Aid may be considered to be public aid when all these conditions are cumulatively met. The Treaty generally prohibits granting public aid to Member States while at the same time enumerates exceptions. The allowable public aid is a kind of compromise between the European Commission and the Member State that considers granting it. It is very often a successful tool to reach goals that are of common interest to both, and in certain conditions it may eliminate any malfunctions and barriers in the market, while improving operations and competitiveness (Podsiadło, 2011, s. 67, 69). The public aid

granted by Member States, including the one offered in the framework of EU funds, is monitored on a permanent basis by the European Commission.

In literature written on the subject, as well as in statistical sources which are the basis for the most important state reports and European Commission reports, Community assistance is unequivocally classified as public aid. It is considered the most important economic, financial and legal instrument of the EU and the Member States. One can note in this context a certain paradox between the assumptions of European policy that aim to protect competitiveness and its main instrument, which is public aid that is specifically geared to subsidize activities (investment projects) (Famielec, 2011, s. 32-33).

Three main types of public aid may be distinguished, on the basis of the above-mentioned article 107 of the Treaty on Functioning of the European Union: regional aid – granted to the poorest regions; horizontal aid – granted to firms independent of location and sector, under the assumption that they undertake a specific action; and sector aid, directed to sectors that require support from public resources (Burzyński, 2008, s.25-28).

Public aid is a wide notion and for this reason the set of its instruments is not a finite one. Any aid that involves public financing is considered public aid, independent of type or form (Kožuch, 2011, s.75). European Commission reports present an interesting classification of forms for granting public aid and divides them into five groups: subventions and tax relief, capital-investment subsidies, soft crediting, warranties, guarantees, etc. (*Raport o pomocy publicznej...*, 2012).

There are many forms of public aid for research and development as well as for innovations. These may include: tax reductions (for example, if a firm is located within specific special economic zone), preferential credit terms or guarantees. However, the most significant form of public aid in the case of innovations, implementation of new technologies and R&D is direct investment in the form of subventions. Selected instruments of public aid directed towards financing of innovative projects are presented in Table2.

The most important institutions providing public aid for innovations are: Polish Agency for Enterprise Development, the National Capital Fund, Bank Gospodarstwa Krajowego (National Economic Bank), and indirectly the State Treasury. Other two institutions: The National Center for Research and Development and National Science Center finance mostly basic and applied research – preparatory stage in the context of creation of innovative solutions. Each institution provides different public aid of different type ranging from grants to tax relief. Also the volumes of allocated resources differ among the institutions. Table 2 presents the significance of subventions that serve to implement the objectives of the Operational Programme Innovative Economy through which over €10 billion were assigned for the period 2007-2013.



The instruments of public aid for innovative projects are the most significant part of the innovation policy of the state. Support for innovativeness of the Polish economy is one of the main aims of the National Cohesion Strategy for 2007-2013. Currently the innovation policy aims mostly at implementing the strategy Europe 2020, which holds at its core the “Union of Innovation” initiative (*Komunikat Komisji Europa 2020...*, 2010, s. 14). The innovativeness of the economy depends thus on the success of innovative projects. However, at the level of particular projects there is a problem of insufficient capital supplies in the segment of innovative enterprises. It is thus desirable to combine public and private funds. For this reason it is believed that solution lies within government programmes and other institutions in the public sector for innovation development at the regional and local level (Pelka, 2007, s. 155-156). Additionally, European funds which finance Polish pro-innovation policy to a big extent are of catalytic significance.

#### **4. Characteristics of the Operational Programme ‘Innovative Economy’ as one of the main sources of financing for innovative projects in Poland in the period of 2007-2013**

The Operational Programme ‘Innovative Economy’ (OP IE) is one of the biggest sources of financing innovative projects in Poland during the period 2007-2013, and is the focus of empirical research for this article. It is one of the instruments of the National Strategic Reference Framework 2007-2013 (NSRF). The programme specifies the directions for support from financial resources of the European Union (EU) within the framework of the European Regional Development Fund (ERDF), European Social Fund (ESF) and Cohesion Fund (*Narodowe Strategiczne Ramy Odniesienia 2007-2013, 2007*).

The main goal of OP IE is the development of the Polish economy based on innovative enterprises. To reach this goal, a number of specific goals have been formulated ([www.poig.gov.pl](http://www.poig.gov.pl)): an increase in innovativeness of enterprises, an increase in competitiveness of Polish science, an increase in the role of science in economic development, an increase in the share of innovative products of the Polish economy in international market, the creation of permanent and improved work places, an increase in information and communication technologies usage in the economy.

The OP IE aims at supporting innovative activities of both enterprises as well as scientific-research institutions. The OP IE provides financing for products, processes, marketing and organizational innovations which support the creation and development of innovative enterprises directly or indirectly.



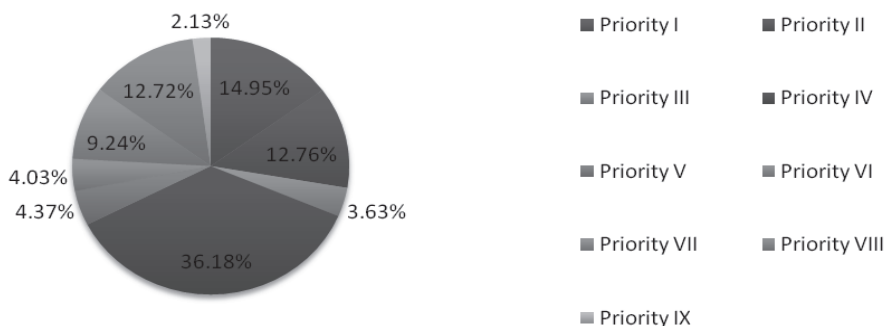
**Table 2.** Selected forms of public aid granted for financing of innovative projects

Institution	Instrument	Activities	Target group	Allocation/amount of support
<b>National Science Center</b>	Grants within call-for-proposals Harmonia, Opus, Sonata, Precludium, Maestro, Sonata Bis and post-doctoral internships NSC (FUGA I)	Financing of research projects, doctoral scholarships and post-doctoral internships.	Academic sector, R&D institutions, individuals, enterprises carrying out scientific research.	PLN 489,514,973.44 (period 2011) PLN 899,993,000 (period 2012) PLN 899,993,000 (planned for 2013 r.) Amount of financing differs depending on call for proposals, up to PLN 1,500,000.
<b>The National Center for Research and Development</b>	Grants within Applied Research Programme of the National Center for Research and Development Subventions within OP IE (Priority I and II), Operational Programme Human Capital (OPHC) (Priority IV) and Operational Programme Infrastructure and Environment (OPI&E) (Priority XIII) Voucher for innovations	Basic, industrial, applied research and technical implementations, feasibility studies for developmental works.	Entities carrying out scientific research and development Works, PAN Sector of Science, R&D institutions and enterprises.	PLN 1,200,000 – within Applied Research Programme of the National Center for Research and Development (period 2012-2017). Project co-financing up to max PLN 5,000,000 € 4,100,000 within OP IE, OPI&E, OPHC
<b>The Polish Agency for Enterprise Development ( PARP)</b>	Immovations loan	Purchase of service for implementing or development of product or technology. Purchase and implementation of the outcomes of R&D works, national or foreign licenses, infrastructure adjustment to new technologies.	SME sector	PLN 8,000,000 (period 2012); Up to max PLN 15,000 up to max PLN 2,000,000
<b>Bank Gospodarstwa Krajowego</b>	Technological credit for Priority IV, Acton 4.3 OP IE	Granting investment credits with option of technological premium after implementation of the project (for partial credit repayment).	SME sector	€ 409,850,588 Up to max PLN 4,000,000
<b>The National Capital Fund (BGK Group)</b>	Subvention	Capital support for Venture Capital funds for the SME sector through decreasing the gap in accessibility to financing for innovators.	Venture Capital funds	Over €200,000,000 up to max PLN 50,000,000
<b>State Treasury</b>	Tax relief for new technologies	Deduction from tax base of the expenses related to the purchase of intangible assets of new technologies. Not older than 5 years on a world scale.	All entities	Deduction of up to 50% of the value of the expense for purchasing of new technologies.
<b>The Polish Agency for Enterprise Development (PARP)</b>	Subvention within OP IE	Development of Polish economy on the basis of innovative enterprises.	Enterprise sector, scientific research entities, central administration institutions, business support institutions and technical assistance.	PLN 10,186,030,644 (period 2007-2013) Up to max PLN 40,000,000.

The Programme consists of eight theme priorities that are comprised of the following (*Szczegółowy opis priorytetów...*,2012):

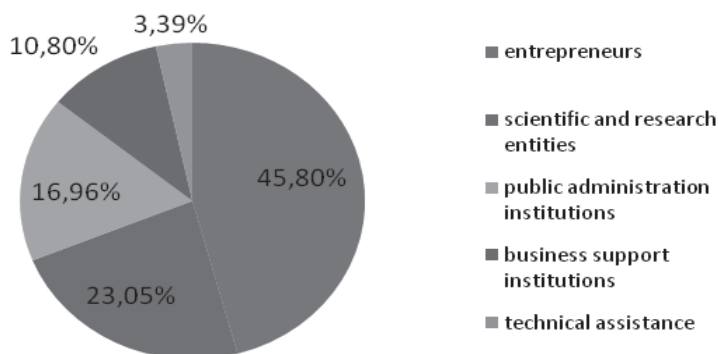
- Priority I Research and development of modern technologies,
- Priority II R&D infrastructure,
- Priority III Capital for innovation,
- Priority IV Investments in innovative undertakings,
- Priority V Diffusion of innovation,
- Priority VI Polish Economy o the international market,
- Priority VII Information society – establishment of electronic administration,
- Priority VIII Information society – increasing innovation of the economy.

Additionally, there is Priority IX Technical assistance, which allows to finance all actions related to servicing of the Programme. Figure 1 presents the allocation percentages of the resources directed for each of the priorities within the OP IE from 2007 till 2013.



**Figure 1.** Structure of resource allocation within OP IE within years 2007-2013 (Source: compiled by the authors on the basis of <http://www.funduszestrukturalne.gov.pl> (10.05.2013))

The OP IE targets four groups of beneficiaries – addressees of the public aid. The Figure 2 below presents the percentage structure.



**Figure 2.** Structure of beneficiaries of public aid granted within the framework of OP IE in the years 2007-2013 (Source: compiled by the authors, based on <http://www.funduszezstrukturalne.gov.pl> (10.05.2013)).

The financial resources of the OP IE are granted to four categories of beneficiaries: entrepreneurs that comprise 45.8% of all the beneficiaries and are thus the most numerous group, scientific and research entities (23.05%), the central administration institutions (16.96%) and business support institutions (10.80%). The remaining financial resources are directed towards the servicing of OP IE.

The OP IE's budget comes from the country's own resources (15%) and from the EU (85%) that corresponds to the main rule of co-financing of the European funds. The total amount of financial resources available under the OP IE is €10,186,030,644, out of which € 8,658,126,047 come from the European Regional Development Fund, and €1,527,904,597 from the state's budget (*Szczegółowy opis priorytetów...* wyd. cyt.). Table 3 presents the allocation of the resources among each of the priorities within OP IE for 2007-2013 and the degree of implementation of the programme.

**Table 3.** Allocation of financial resources per each priority axis of the OP IE for 2007-2013 and the programme implementation degree (as on May 2013).

Priority	Allocation in €	Number of signed contracts	Projects as %	Value of signed contracts in PLN *	Co-financing amount as %	Public resources used as %	Resources transferred as %
Ogółem	10 186,030,644.00	12 281	100	36 277 234 976.84	100.00	86.26	42.95
I	1 522 633 778.00	1287	10.48	5 943 780 313.08	16.38	94.56	49.76
II	1 299 270 589.00	130	1.06	5 603 959 923.45	15.45	104.53	56.35

III	370 000 000.00	290	2.36	1 353 032 132.31	3.73	87.40	54.74
IV	3 685 284 334.00	1 632	13.29	12 729 774 702.62	35.09	83.76	41.62
V	444 880 000.00	276	2.25	1 533 328 151.46	4.23	83.46	43.36
VI	410 633 035.00	3886	31.64	1 337 441 615.05	3.69	78.68	36.58
VII	940 758 085.00	32	0.26	3 801 438 888.70	10.48	98.07	40.38
VIII	1 295 864 941.00	4541	36.98	3 291 381 006.84	9.07	61.52	25.99
IX	216 705 882.00	207	1.69	683 098 243.33	1.88	76.10	40.84

\* Includes savings on terminated projects.

Source: compiled by the authors, based on [www.poig.gov.pl](http://www.poig.gov.pl) (15.05.2013).

Summing up, there have been in total 12 281 contracts signed since the beginning of the implementation of OP IE until May 7th, 2013. This makes for 86.26% of the amount of co-financing of innovative undertakings. Priorities VIII and VI have the highest number of projects. The share of projects in relation to the total number of signed contracts within each priority is: for priority VIII – 36.98% and a bit less for priority VI – 31.64%. It is noteworthy to mention that the highest nominal amount granted for innovative projects was PLN 12 729 774 702.62 and was granted for implementation of priority IV which accounts for the highest share of co-financed projects in relation to the total amount of co-financing granted (35.09%). Table 3 presents also significant information regarding the degree of resources used per each of the priorities. The general percentage of financing used within the OP IE is 86.26%. Excess use of resources was noted for implementation of priority II and reached 104.53%.

The lowest percentage of used resources is noted for priority VIII and stands on 61.51% whereas in case of the other priorities the percentage oscillates around 90%. The level of resource assimilation within the implemented projects is 42.95%.

## 5. Indicators Analysis for selected priorities of the Operational Programme ‘Innovative Economy’

Projects co-financed by public funds should generate, by rule, other investments financed by private funds, generating thus the so called leverage effect. State intervention in the form of public aid should not take the form of an immediate advantage for the beneficiary receiving such assistance. Projects implemented with such assistance should be long-term, and should be subject to monitoring. By long-term it is assumed, among others, maintaining the project’s effects by implementing the indicators of result and product. These indicators

are used for monitoring the degree to which the project's objectives are being met and for assessing the project's effects at each stage of its implementation.

The product indicators measure the changes that occurred during implementation of the project and, in consequence, the expenditure of granted resources. These indicators should not be applied to periods extending beyond the agreed implementation dates. On the other hand, the result indicators measure the effects of actions taken after the completion of the project and as such have direct influence on the socio-economic environment.

For the purpose of this article the analysis of the indicators of product and result has been conducted for the projects co-financed within the OP IE for the years 2007-2012. An analysis was done concerning the following selected priority axes: research and development of modern technologies (Priority I), R&D infrastructure (Priority II), capital for innovations (Priority III), investments in innovative undertakings (Priority IV). Table 4 presents the product indicators for the above-mentioned priorities.

**Table 4.** Product indicators for five priority axes of OP IE (as for the first half a year of 2012)

Prior-ity	Indicator	Measure	Imple-mented	Total to be imple-mented	Degree of imple-mentation in %
I	Number of supported projects	Units	630	1620	38.89
III			252	200	126.00
IV			1023	1265	80.87
V			215	670	32.09
I	Number of new job places (EPC) related to R&D activities, being created in relation to project implementation	Units	103	3400	3.03
II	Number of supported projects for R&D infrastructure	Units	8	60	13.33
II	Number of new and modernized laboratories	Units	19	200	9.50
IV	Number of supported enterprises (included SME) that introduced innovations by themselves	Units	1002(793)	1200(530)	83.50
V	Number of institutions engaged in cooperative activities (distinguished between entrepreneurs (including SME) and business support institutions)	Units	81	600	13.50

Source: compiled by the authors, based on Załącznik nr 1, Sprawozdanie okresowe z realizacji Programu Operacyjnego Innowacyjna Gospodarka 2007-2013 za pierwsze półrocze 2012 r., Ministerstwo Rozwoju Regionalnego 2012.

Information gathered in Table 4 shows that the achieved level of product indicators is diversified among the five selected priority axes. Priorities III and IV are characterized by a high achievement level related to the product indicator (126% and 80.87% respectively). However, it should be taken into consideration that the value of the indicator for the projects supported up until now is determined by the amount of co-financing granted. That means, that in the case when a lower average project value was assumed, then the indicator may not be reached even until the end of implementation of the project.

The low indicators for priority axis II – R&D infrastructure as shown in this analysis are a bit disturbing. The percentage of implemented projects for R&D infrastructure that were supported is only 13.33%, and only 8 laboratories were modernized, out of the assumed total number of 60.

The limited number of projects co-financed within the priority axis V is mostly related to a small number of projects being implemented within the activities of this priority. This situation is likely to change before the end of 2015.

There are also significant disproportions as to the degree of implementation of the assumed implementation levels, as shown by the result indicators analysis in Table 5.

**Table 5.** Result indicators of five priority axes of OP IE (as for the first half a year of 2012)

Priority	Indicator	Measure	Implemented	Total to be implemented	Implementation degree in %
I	Number of commercialised research results obtained in scientific institutions co-financed within OP IE	Units	27	420	6.43
I	Number of patent applications as result of projects implementation	Units	218	300	72.67
I	R&D expenditure of the entrepreneurs in relation to projects implementation (in millions PLN)	millions PLN	470.4	1770	26.58
II	Number of new job places (EPC) related to maintenance and servicing of R&D infrastructure that were created as project implementation result	Units	12	1000	1.2
II	Ratio of resources (including state's budget and OP IE) used for scientific equipment of environmental significance to the total amount of resources used for R&D equipment	%	b.d.	30	b.d.
II	Number of enterprises using services of the supported research and specialist laboratories (combined)	Units	9	1200	0.75
II	Number of accreditations that the supported research and specialist laboratories obtained	Units	0	50	0

II	Number of scientific institutions that make use of electronic databases and electronic magazines	Units	0	109	0
III	Number of newly created job places in the supported enterprises (in general and specific for male and female) [ <i>Number of directly created new Job places(EPC)</i> ]	Units	12	4500	0.27
IV			8660	42500	20.38
V			0	1350	0
III	Number of enterprises that use high risk capital and obtain capital from private investors (phases: seed, start-up, expansion – in general) in the framework of the granted support	Units	181	500	36.2
III	Number of supported newly opened enterprises (up to 2 years from their creation)	Units	4	355	1.13
III	Percentage of new SME supported within the priority axis and functioning 18 months after the support was granted	%	100	75	133.33
III	Number of investments in seed type enterprises	Units	0	18	0
III	Number of investments in start-up type enterprises	Units	0	37	0
III	Amount of mobilized private resources for financing of the innovative undertakings	mln €	105.21	140	75.15
IV	Number of enterprises (including SME) that started or developed their existing R&D activities as a result of granted support	Units	81 (55)	90 (60)	88.89 (91.67)
V	Number of newly created R&D job places in the enterprise sector (including SME) as a result of granted support	Units	336	1500	22.4
IV	Number of projects implemented in cooperation between scientific units and enterprises	Units	0	800	0
V			5	50	10
IV	Number of patents granted to enterprises (including SME) in the framework of implemented projects	Units	0	100(80)	0
IV	Number of SME that introduced organizational innovation within the framework of granted support	Units	243	240	101.25
IV	Number of enterprises (including SME) that obtained support for introduction of environmental Technologies or for development of eco-products	Units	34 (25)	157 (150)	21.66 (16.67)
V	Number of enterprises (including SME) that implemented innovation with assistance of business support institutions	Units	63 (61)	600	10.5 (10.17)
V	Number of patent applications of enterprises to EPO and USPTO as a result of granted support	Units	68	200	34
V	Number of enterprises (including SME) that used services provided by business support institutions	Units	5550	4000	138.75

Source: compiled by the authors, based on: *Załącznik nr 1, Sprawozdanie okresowe z realizacji Programu Operacyjnego Innowacyjna Gospodarka 2007-2013 za pierwsze półrocze 2012 r.*, Ministerstwo Rozwoju Regionalnego 2012.

The levels of indicators presented in Table 5. are very diversified, supposedly due to the fact that the projects are still being implemented. The high value of the indicator of patent applications for priority I is the effect of the implementation level of this priority that reached 72.67%. There is also a strict relation between some of the activities of priority I and IV that needs to be taken into account. These projects are implemented in two stages. In the first stage, a prototype is constructed and patent application is filed. In the second stage the results of R&D work from the first stage are implemented and the patent is obtained. For this reason, the indicator for priority IV requires special attention – the percentage of patents granted to enterprises. The value of this indicator equals to zero, which results from the fact that the average waiting period to obtain a patent in Poland is about 5 years. Most probably this indicator will reach its assumed levels only in 2015.

There are also high levels of result indicators for priority III – the percentage of new SEM that function 18 months after obtaining the grant reached 133.33%. The same goes for priority V – the number of enterprises (including SME), that obtained the support services from business support institutions reached 138.75%.

For priority II, the level of implemented result indicators is considerably low or even equals to zero. This is probably due to the fact that the contracted projects within priority II are in the process of implementation. These encompass infrastructural project with a very long time of completion.

From the data obtained from the Ministry of Regional Development one can conclude that the indicators for priority III, such as the number of investments in seed and start-up enterprises, are equal to zero. However, according to the representatives of seed and start-up funds that were interviewed, during the first quarter of 2012 investments were done as for start-up and seed enterprises. For this reason it may be concluded that the data in Table 5 missed such information because it was not provided for the reporting institution.

When analyzing the data for the period 2007-2012 one cannot expect that the levels of implementation would have reached the assumed levels of implementation. The full assessment of implementation indicators will be possible only upon completion of the period 2007-2013 and after finalizing all projects implementation of this period until 2015.

## **6. Conclusions**

Public aid for innovation financing has acquired various forms, which actually are diversifications of two groups. The first group – active – is direct



financing, such as subventions. The second group – passive – is a reduction in obligations to the state's budget.

This paper has focused on innovation financing from the OP IE, which is one of the instruments of state's structural policy in the period of 2007-2013. The total amount of €10 186 030 644.00 was allocated to meet the goals of the programme. The effects of implemented projects that are co-financed from the European Union resources have been measured by product and result indicators, that enable the establishing of the degree of implementation and durability of the projects.

The conducted analysis verified positively the main hypothesis and allowed for formulation of the following concluding remarks. The OP IE has been the main innovation financing source in Poland in the period of 2007-2013. The expected results of the programme in the form of assumed values of product and result indicators are not ready for assessment yet, despite the level of contracted resources of 86.26% in relation to the total allocated funds. The assessment of the actual degree of implementation of the project measured by the assumed level of product and result indicators will be possible after completion of the programme financing perspective and upon completion of the projects budget settlement that incorporates the rule of  $n+2$ .

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# METHODS OF ORGANIZATION IN MUNICIPAL SERVICES

**Joanna Czaplak\***

## **Abstract**

*The article contains an analysis of methods of organization in municipal services in the years 2007-2011 within the sphere of public utility services in Poland. It consists of two parts. The first chapter describes methods of organization in municipal services and their evolution in transition. In this part, the author also points out the main issues and dilemmas related to methods of organization of public utilities. The second chapter contains an analysis of methods of organization in municipal services in selected industries and their impact on the provision of municipal services.*

**Keywords:** *municipal economy, municipal services, legal, organisational transformation.*

## **1. Introduction**

As a result of the transition in the Polish economy, local self-government units have transferred essential municipal property for the execution of tasks – including municipal entities, which earlier had acted under the State Owned Enterprises Act, 1981. In becoming the owners of municipal enterprises local governments were obliged by legislation to choose the organisational and legal framework form for those entities. A wide range of restructuring and privatisation processes of municipal economy entities began. These processes are on-going even now and their effects determine the present ownership structure, organizational and legal framework of municipal economies.

A variety of forms in providing municipal services, the specific character of municipal economy and various theoretical concepts concerning the role of the public sector in the economy imply numerous yet unsolved problems in this field. In particular these problems are related to: the choice of organizational and legal framework as well as the privatization of assets (municipal entities) and local governments' public tasks.

The aim of this article is to identify organisational, legal and ownership structures of municipal entities acting in the water supply and waste

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management sectors. This article also contains an analysis of the impact of private capital on the provision of municipal services.

The first part of this article contains an analysis of evolving models in the provision of municipal services in transition. The second part presents the results of empirical research based on selected indexes of local governments' municipal management (presented in SAS) and on the research conducted by the author (SAS).

## **2. The evolution of models of municipal services provision**

In the municipal sector, there are various models of municipal services provisions, which were formed as a result of external restructuring initiated by legislation and as a result of local governments' individual experiences within the sphere of public utility services. The evolution of models in providing municipal services in Poland was determined by two opposing processes: municipal entities privatization progressing gradually from 1991 and self-governments' rising interventionism in management and the implementation of municipal services (Korczak, 2012, pp. 153).

Self-government units, while executing their tasks in the field of the municipal economy, often fulfill two contradictory functions. They are regulators of the market, where important services for local society are produced. The aim of these regulations is to ensure general access to the municipal services. Yet, local governments often provide municipal services through shareholding companies using local government capital or through public sector entities. Thus, they act as an entrepreneur guided by profitability. So we see that when local governments select the methods of organization in municipal services, they have to reconcile two contradictory objectives: a high level of effectiveness, quality and availability of public services AND – if they act as business owners – profitability.

Some local governments manage the municipal economy through budgetary units and budgetary enterprises, which operate in a similar way to non-profit organizations. The choice of this organisational and legal form is supported by the fact that local governments' main task is to ensure general access to municipal services – not commercial activity. However, some local governments decide to manage the municipal economy on market terms, claiming that self-government units should manage public resources more rationally.

The evolution of models of municipal services provisions, in terms of processes which exist in municipal economies, can be divided into three stages:

- 1) Budgetisation (transformation of municipal entities into budgetary units and budgetary enterprises),
- 2) Commercialization,
- 3) Privatization.

The first stage in the evolution of the municipal economy began with the reactivation of local government in the early 90s of the last century. Under the local government Act of March 8, 1990 (Ustawa z dnia 8 marca 1990 r. o samorządzie terytorialnym), self-government units were obligated to perform public services, in particular to sustain the continuous provision of services for the local society. The prerequisite for the execution of those tasks was the transfer of essential municipal property – including municipal entities which earlier had acted under the State Owned Enterprises Act of 1981. As a result of the “municipalisation”, local self-governing units became the owners of 1307 municipal enterprises (GUS, 1992, Table 6).

In becoming the owners of municipal enterprises, local governments were obliged by legislation to choose the organizational and legal framework for those entities. Local governments could select three tracts: municipal enterprises could be transformed into companies wholly owned by the local government, liquidated and transformed into a budgetary enterprise or entity or liquidated with the aim of being privatized (Grzymała, 2010, p.100). The difficulties related to the management of municipal entities and the provision of municipal services, especially in terms of natural monopoly, had an influence on the slow rate of organizational, legal and ownership changes. On the basis of a report prepared by The Research Institute for Market Economy, including the two first years of transition, we can see that among all the 163 companies analyzed, 43% were budgetary enterprises, 22% were companies, and only 9% were shareholding companies (Aziewicz, 1994, p. 32).

The next stage of restructuring of the municipal economy started, when the Municipal Economy Act of March 20, 1996 came into force (Ustawa z dnia 20 marca 1996 r. o gospodarce komunalnej). This act regulated the status of local governments as well as organizational and legal forms of the municipal economy. On the basis of this Act local governments could provide services straight through shareholding companies with self-government capital (See more: Modras, 2004) or local government public sector enterprises (hereinafter referred to as self-government entities of municipal economy), and they could entrust the provision of municipal services to private firms on the basis of civil-law contract (See more: Szydło, 2007). It is also worth noting that this Act finally liquidated municipal enterprises, which were transformed into shareholding companies with self-government capital. This Act was also to smooth the path of the transformation of the budgetary enterprises into

a shareholding companies. It caused the progressive commercialization of the municipal economy, which was an intermediate stage before privatization.

The last phase of the evolution of organization in municipal services contains the privatization of the municipal economy; both the privatisation of assets as well as local governments' public tasks. The process of privatisation in municipal economies began with the reactivation of the self-governing and municipalisation of municipal property. The Local Government Act, binding at that time, precluded running a business by the self-government units out of the sphere of public utility services. Therefore, it was necessary to liquidate and privatize municipal enterprises, which ran businesses outside the sphere of public utility services (See more: Sadowy and Grzymała, 2005, pp. 290-291). In the 90s of the last century self-government units were reluctant to cooperate with the private sector, because they were afraid of problems with the assurance of general provision of basic services. The privatization of municipal economies may also take the form of public tasks privatization based on cooperation between the public and private sectors through management contracts, lease agreements, and licensing (Zagożdżon, 2004, pp. 41-44).

A variety of forms of municipal services provision and, as mentioned in the introduction to this section, the existence of two opposing goals related to the functioning of municipal entities still imply unsolved problems which local governments face in selecting a method of organization in municipal services. Scientists, local governments officials and entrepreneurs have been discussing optimal models of organization in municipal economies for over 22 years. The main problems and dilemmas raised in this discussion are as follows:

- Should the entities of the municipal economy take into account the economic viability of performance while meeting the objectives of public utilities or should they work in a way similar to non-profit organizations?
- Should the municipal economy be managed as a municipal monopoly or as a market economy?
- Should and in which way should the excessive budgeting of a municipal economy be limited?
- Should and in which field should a municipal economy be privatized including cases allowing financing by foreign capital?
- How should the corporate governance over the shareholding companies with the self-government capital be exercised in situations where the local government fulfills the function of owner and organizer (controller) of the market?

Dilemmas related to the organization of municipal services result from local governments' concerns (and local authorities) for organizational, legal

and ownership changes which may lead to loss in control over the provision of municipal services and consequently may deteriorate the quality of services.

### **3. Organization of municipal services in selected utility sectors**

#### **3.1 Research methodology**

The analysis of legal, organizational and ownership structure of municipal entities and the impact of private capital on provision of municipal services is based on the database of SAS, created in 1999 by the Association of Polish Cities. This database is used to monitor the management of local public services: culture, social support, education, local roads and public transport, housing and public utilities. Local governments voluntarily enter data for different areas of functioning of local governments. In SAS the number of local governments, which enter the data (cities, districts, municipalities, parishes), oscillates between 80 and 200 local governments (SAS)

The main disadvantage of SAS is a relatively small number of local governments which regularly make data related to municipal economy accessible. And what's more, the indexes describing the municipal services (water supply, sewerage, waste management, district heating) have been presented in SAS only since 2007.

The SAS characterizes the municipal economy by various indexes examining the methods of management of municipal services in selected cities. Moreover, the number of providers of municipal services in water supply and waste management is presented. Thus, for purposes of the analysis, two sectors were selected – waste management as an example of the organization of municipal services in conditions close to the market economy and water supply, which represents a model of monopolistic market.

The analysis of waste management contains only 4 from 13 characteristics, presented in SAS, counted for each city. On the one hand, the author was guided by the availability of data, which was fairly limited. Many local governments did not provide information for the analysed period. On the other hand, it was necessary to select those indexes that comprehensively characterize municipal sectors in terms of the number of suppliers and the accessibility of municipal utilities. As a result, the following characteristics were selected:

- ind. 1 – the ratio of number of residential buildings, which are covered with the collection of waste from household to the total numbers of residential buildings in a municipality (%),
- ind. 2 – the ratio of the number of places to selective waste collection in a municipality to a thousand inhabitants of the municipality (number of places/1000 people),



- ind. 3 – the ratio of the estimated payment for monthly waste collection per capita to average monthly income per capita (%),
- the number of companies providing waste collection services in a municipality in the year being researched.

The analysis of the water supply sector contains 4 from 26 characteristics, presented in SAS (the choice of indexes was based on the same criteria as for waste management):

- ind. 1 – water supply failure per 1 km in the year being researched (failure/km),
- ind. 2 – the ratio of the number of inhabitants of the municipality, who use the water supply system to the population of the municipality in the year being researched (%),
- ind. 3 – the ratio of the estimated monthly payment for water sold from the municipal water supply system per capita to average monthly income per capita (%),
- the number of companies providing the water supply services in a municipality in the year being researched.

In regard to the criterion that participation of private capital was essential in the provision of services, local governments were classified into three groups:

- a public model – where local governments entrust the provision of services only to the self-government entities (budgetary units and budgetary enterprises or self-government shareholding companies), in which local governments have 100% of the shares and a majority stake,
- a mixed model – where local governments entrust the provision of services to entities with 100% share of self-government capital and private companies, or entities with 100% share of self-government capital as well as with mixed capital,
- a private model – where local governments entrust the provision of services only to private companies.

In the analysis of the ownership structure of entities providing municipal services in sectors being researched, the information contained in the database SAS was complemented by the author's own research based on the data contained from the web pages of town councils.

The time range for the analysis of water supply is spread over a period 2007-2011 and for waste management, due to lack of data, the analysis is carried out only for the period of 2009-2011.

### **3.2 Characteristics of one case study**

In order to conduct an analysis of the legal, organizational and ownership structure of entities providing municipal services in the waste management sector, including an analysis of the impact of private capital on the provision



of these services, 16 cities were selected. Data connected to the provision of municipal services and the number of suppliers of these services in waste management, was made accessible for the period 2007-2011.

The selected local governments came from 12 districts. In this case study mostly major cities with a population exceeding 100,000 were included.

However, to analyze the legal, organizational and ownership structure of entities providing water supply services and to assess the impact of private capital on the provision of these services, 22 local governments from 13 provinces from SAS database were selected. Among the analysed local governments, the majority were local cities with an average population of 50,000 to 100,000.

### 3.3 Organisation of waste management

In the years 2007-2011, when organising waste management, local governments were more likely to entrust the provision of waste management to private entities using the civil law contracts (table 1). The share of private enterprises among the total number of entities was more than 90% in 2009, about 87% in 2011.

**Table 1.** The ownership structure of entities providing municipal services

Specification	2009	2011
The number of entities with self-government capital, including:	17	18
100% share	15	16
Majority stake	2	2
The number of entities with private capital, including:	138	133
100% share	136	132
Majority stake	1	1
<b>Total</b>	<b>153</b>	<b>152</b>

Source: Own compilation based on information from data contained on the web pages of town councils.

In this case study, there were only three companies with mixed capital, one of them had a dominant share of a private owner and in two of them – the local government. The number of companies with self-government capital was fairly stable during the period under consideration. Through the period 2009-2011 the most service providers from among the 16 analyzed local governments were in three cities: Krakow (their number fluctuated from 60 to 82), Czestochowa( from 13 to 21) and in Jaworzno (there were 17 providers) (table 2). In 2009 in Glogow, Sępolno Krajenski Wabrzezno the market of waste management services was more characteristic of a monopoly.

In Glogow there was a monopoly of local government, but in the successive years the number of private entities entitled to providing services in field of waste management gradually increased.

**Table 2.** The number and ownership structure of entities of municipal economies

Local government	2009					2011				
	Sum	Self-government capital		Private capital		Sum	Self-government capital		Private capital	
		100% share	Majority stake	100% share	Majority stake		100% share	Majority stake	100% share	Majority stake
Chelm	2	2	-	0	-	2	2	-	-	-
Czestochowa	21	1	-	20	-	13	1	-	12	-
Dzierzoniow	3	0	-	3	-	3	-	-	3	-
Elblag	4	2	-	2	-	2	2	-	1	-
Glogow	1	0	1	0	-	10	-	1	9	-
Gorzow Wielkopolski	5	1	-	4	-	1	1	-	-	-
Inowroclaw	5	0	-	5	-	5	-	-	5	-
Jaworzno	17	1	-	16	-	17	1	-	16	-
Koszalin	2	1	-	1	-	2	1	-	1	-
Krakow	82	1	-	81	-	67	1	-	66	-
Legnica	2	1	-	1	-	12	1	-	11	-
Plock	3	2	-	0	1	3	2	-	-	1
Przemysl	4	1	1	2	-	6	1	1	4	-
Sepolno Krajenskie	1	1	-	-	-	2	2	-	-	-
Slupsk	2	1	-	1	-	3	1	-	2	-
Wabrzezno	1	-	-	1	-	1	-	-	1	-
<b>Total</b>	155	15	2	137	1	152	16	2	131	1

Source: Own compilation based on data in SAS and on information from data contained on the web pages of town councils.

There were two extreme cases in Wabrzezno and in Gorzow Wielkopolski. In Wabrzezno during the considered period there was a monopoly. However, Gorzow Wielkopolski was the only local government, where the reduction of the numbers of entities providing services led to a municipal monopoly. In other cities, except those mentioned above, self-governing and private entities were selected for the provision of services, and their number fluctuated from 2 to 12.

It should be mentioned that in 2009-2011 shareholding companies were dominant in terms of organizational and legal form and, in particular, over this

period limited liability companies accounted for 92% of all entities in waste management (Table 3). The high ratio of shareholding companies may simply be the result of the case study where cities with large populations were taken into consideration and where municipal activities are carried out on a large scale.

**Table 3.** The legal and organisational structure of entities providing municipal waste management services

Specification	2009			2011		
	100% share	Mixed capital with		100% share	Mixed capital with	
		dominance of self-government capital	dominance of private capital		dominance of self-government capital	dominance of private capital
budgetary enterprise	1	-	-	1	-	-
limited liability company	12	2	1	13	2	1
joint stock company	-	-	-	-	-	-
<b>Total</b>	<b>13</b>	<b>2</b>	<b>1</b>	<b>14</b>	<b>2</b>	<b>1</b>

Source: Own compilation based on information from data contained on the web pages of town councils.

Due to a shortage of data, it was impossible to analyze the legal and organizational structure of entities with private capital providing waste management services and data indicates that they are often limited liability companies.

The analysis above shows that local governments organised waste management in different ways. Few cities decided to fully privatize the market (private model) or to provide services directly through self-governing entities (public model). Considerably more, as many as 10 local governments in 2009 and 8 in 2011, decided to compete with private entities for the market (mixed model). In the analyzed period, we can also notice an increase of the number of local governments, which provided services in the field of waste management in the form of a public model. Two cities resigned from the mixed model, and thus from privatisation of local government services.

In Table 4 data on the provision of municipal services in three previously distinguished models are presented. The mixed model was characterized by the highest average ratio of number of residential buildings with household waste collection services to the total numbers of residential buildings in the municipality – ind.1. This index reached 92.77%. This model also stood out in

relation to the charging of household budgets with a fee for municipal services. Ind. 3, which describes the average value of the ratio of the estimated monthly costs of waste collection per capita to average monthly income per capita, was the lowest in 2009. This might have been due to the fact that the analyzed group of local governments consisted of large cities with the high level of market competition in the waste management market.

**Table 4.** Indexes for the provision of municipal services in the analysed groups of local governments

Specification	The number of local governments		The average value of indexes for each model					
			Ind. 1		Ind. 2		Ind. 3	
	2009	2011	2009	2011	2009	2011	2009	2011
Public model	3	5	92,77	91,51	2,5	2,4	0,88	0,92
Mixed model	10	8	92,9	92,61	1,62	1,79	0,74	0,81
Private model	3	3	90,41	93,15	1,52	1,88	0,98	0,82
The average value of indexes for all local governments	x	x	92,41	94,4	1,77	1,87	0,81	0,83

Source: Own compilation based on SAS.

However, the public model stood out in relation to the average value of the ratio of number of places of selective waste collection in municipalities to a thousand inhabitants of the municipality – ind. 2. Its value was about 2/3 higher than the value of the indexes for the other models. The private model was characterized by the lowest accessibility and the highest fee for municipal services, which is quite a surprising result. This might have been due to the fact that local governments included in this model were mostly small towns with a population of less than 76,000 and where the services market and the population density is quite low. On the other hand, the major goal of running the business by private entities is to maximize profits, which may just be at the expense of service quality.

It is surprising that after two years those tendency have changed – the public model was characterized by the lowest value of ind. 1 and the highest value of ind. 3. The high burden posed on household budgets in terms of fees for municipal services in this model in 2011 might have been the result of the growing local investments needs and a financial crisis. Local governments, using their privileged position in the market, were able to easily raise the price of services. However, in 2011 the best model in terms of accessibility and changes in fees for the provision of municipal services was the private model, which was characterized by the slightly higher value of the ind. 1 and the ind. 3 reached a 0.82 level and was slightly higher than the value of the index for the mixed model.

### 3.4 Organisation of services in the water supply sector

The water supply sector was dominated by entities with self-government capital over the analysed period. Their numbers compared to the total number of entities reached 97% (Table 5). It should also be noted that in the analysed period there was only one entity financed predominantly by private capital. In the analysed local governments, there were no fully (100%) private entities.

**Table 5.** The ownership structure of entities providing municipal services

Specification	2007	2009	2011
The number of entities with self-government capital, including:	30	31	31
100% share	26	27	28
Majority stake	4	4	3
The number of entities with private capital, including:	1	1	1
100% share	0	0	0
Majority stake	1	1	1
<b>Total</b>	<b>31</b>	<b>32</b>	<b>32</b>

Source: Own compilation based on information from data contained on the web pages of town councils.

In 2009-2011 only the city of Gdansk provided services with the use of two entities, where the owner of the infrastructure was the municipal shareholding company and the provision of services was entrusted to an entity financed predominantly by private capital (Table 6). In other local governments, there was only one entity, which provided water supply services. In Bielsko-Biala, Glogow and Gorzow Wielkopolski the local governments decided on the partial privatisation of local government entities, maintaining a dominant share in the capital. It should also be noted that only in Katowice, during the whole period, the number of providers of municipal services increased – to two entities. However, this increase was related to the “municipalization” of the water supply company, which took place in 2007. It was divided into several smaller entities. So in effect the city of Katowice had two municipal shareholding companies: one of them was managing the infrastructure and the other was providing the municipal services.

**Table 6.** The number and ownership structure of entities of municipal economies

Local government	2007				2009-2011			
	Sum	Self-government capital		Majority private capital	Sum	Self-government capital		Majority private capital
		100% share	Majority stake			100% share	Majority stake	
Bielsko-Biala	1	-	1	-	1	-	1	-
Bytom	1	1	-	-	1	1	-	-
Chelm	1	1	-	-	1	1	-	-
Czestochowa	1	1	-	-	1	1	-	-
Dzierzoniow	1	1	-	-	1	1	-	-
Elblag	1	1	-	-	1	1	-	-
Elk	1	1	-	-	1	1	-	-
Gdansk	2	1	-	1	2	1	-	1
Gdynia	1	1	-	-	1	1	-	-
Glogow	1	-	1	-	1	-	1	-
Gorzow Wielkopolski	1	1	-	-	1	1	-	-
Inowroclaw	1	1	-	-	1	1	-	-
Jaworzno	1	1	-	-	1	1	-	-
Katowice	1	1	-	-	2	2	-	-
Kolobrzeg	1	1	-	-	1	1	-	-
Koszalin	1	1	-	-	1	1	-	-
Krakow	1	1	-	-	1	1	-	-
Legnica	1	1	-	-	1	1	-	-
Lodz	1	1	-	-	1	1	-	-
Olesnica	1	1	-	-	1	1	-	-
Ostrow Wielkopolski	1	-	1	-	1	-	1	-
Plock	1	1	-	-	1	1	-	-
Poznan	1	-	1	-	1	-	1	-
Sepolno Krajenskie	1	1	-	-	1	1	-	-
Slupsk	1	1	-	-	1	1	-	-
Suwalki	1	1	-	-	1	1	-	-
Wabrzezno	1	1	-	-	1	1	-	-
Wagrowice	1	1	-	-	1	1	-	-
Wejherowo	1	1	-	-	1	1	-	-
Zory	1	1	-	-	1	1	-	-
<b>Total</b>	31	26	4	1	32	27	4	1

Source: Own compilation based on data in SAS and on information from data contained on the web pages of town council.

In years 2007-2011, in the water supply sector, in 22 analyzed cities local government entities weren't subject to any organizational, legal or ownership changes (Table 7). The entities, which provide water supply services, operate in a monopolistic market, so their market environment is relatively stable, and which may have an effect on the slight rate of transformation. In addition, these services have an influence on the quality of life and health of the residents, so the local governments are reluctant to privatize entities in the water supply sector.

**Table 7.** The legal and organisational structure of entities providing municipal services in the water supply sector

Specification	2007			2009			2011		
	100% share	Mixed capital with		100% share	Mixed capital with		100% share	Mixed capital with	
		dom. of self-gov. capital	dom. of priv. capital		dom. of self-gov. capital	dom. of priv. capital		dom. of self-gov. capital	dom. of priv. capital
budgetary enterprise	0	0	0	0	0	0	0	0	0
limited liability company	22	1	0	23	1	0	23	1	0
joint stock company	4	3	1	4	3	1	5	2	1
<b>Total</b>	<b>26</b>	<b>4</b>	<b>1</b>	<b>27</b>	<b>4</b>	<b>1</b>	<b>28</b>	<b>3</b>	<b>1</b>

Source: Own compilation based on information from data contained on the web pages of town councils.

The values of indexes of accessibility of water supply services for the analyzed cities appeared quite interesting. Private firms didn't operate in this market in 2007-2011. For this reason local governments were classified according to methods of organisation of services into two groups: a public model and a mixed model ( Table 8).

**Table 8.** Indexes for the provision of municipal services in local governments analysed

Specification	The number of local governments in 2007-2011	The average value of indexes for each model								
		Ind. 1			Ind. 2			Ind. 3		
		2007	2009	2011	2007	2009	2011	2007	2009	2011
Public model	18	0,69	0,78	0,63	97,73	97,81	97,81	0,94	0,89	0,89
Mixed model	5	0,39	0,4	0,39	96,78	97,21	97,3	0,85	0,85	0,88
The average value of indexes for all local governments	x	0,62	0,7	0,57	97,52	97,67	97,7	0,92	0,88	0,89

Source: Own compilation based on SAS.

Over the whole period the mixed model stood out in relation to the lowest water supply network failure – ind. 1, which describes the average water supply network failure per 1 km of this network. However, the public model was characterized by the highest average value of ratio of the number of inhabitants of the municipality using the water supply system, to the total population of the municipality – ind 2 – during this period.

In terms of indexes characterizing the charging of household budgets with fees for municipal services, the mixed model was characterized by a lower charging for water than the public model during the whole period. This may be the result of the high average income of residents. The mixed model consists of a high number of local governments such as: Bielsko-Biala, Gdansk, Poznan. The CSO data shows that the residents of large cities have a higher disposable income than those who live in small towns (GUS, 2012, Table 4).

#### **4. Conclusions**

The analysis showed that the involvement of private capital in the provision of municipal services could bring measurable benefits as well as in sectors with a natural monopoly in terms of development of those services accessibility and reduction of the charges for municipal services. Waste management in the analyzed local governments was dominated by private entities. In the analysed period the indexes for the provision of municipal services for three groups of local governments were quite surprising. At first in 2009 the mixed model was characterized by the highest share of the number of residential buildings with waste collection services at a low fee. However, in 2011 this model the opposite was true – low accessibility and higher fees.

The water supply market in most of local governments was dominated by entities with self-government capital. In the water supply sector, in the analyzed period, the highest accessibility of municipal services had a mixed model. Gaining private investor by the local governments had an influence on lower water supply network failure than in public model. Only the number of those using the water supply network was higher for the public model.

Legal, organizational and ownership transformations in municipal economies have been progressing very slowly, which is the result of the specific character of municipal economies and the local governments being concerned about the loss of control over public utilities services for which they are responsible. For over 20 years local government officials, experts and researchers have been discussing the key issue of the organization of municipal services – Should the services be provided in market conditions or in a way similar to non-profit organisations? This issue implies other dilemmas related



to the commercialisation and privatisation of municipal services. This matter could be solved by a consistent municipal policy, which would clearly define goals and directions of organizational, legal and ownership transformations (See more: Jerzmanowski, 2008).

The empirical analysis of the water supply sector and waste management indicated slow rate of change. In 2007-2011 the number of self-government shareholding companies and public finance sector entities was at a stable level. However, as a result of the amendment of the Waste Management Act in 2013, an acceleration within organizational, legal and ownership transformation in waste management can be expected in the near future.

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# ASSESSING THE INCENTIVE FUNCTION OF ENVIRONMENTAL FEES: CASE STUDY – THE DISTRICT OF SILESIA

**Wioletta Roman\***

## **Abstract**

*The environmental effectiveness of fees for using the environment (“environmental fees”) charged in Poland is demonstrated by their incentive function, which motivates organisations using the environment to behave in the appropriate, environmentally-friendly way. The purpose of this paper is to assess how well the fees fulfil this function. The incentive function is evaluated by analysing the quantity of pollution emitted into the air, water and soil, the quantity of waste landfilled and of water taken in within the context of changes to unit fee rates in 2005-2011. This study was conducted using data obtained from the Marshall’s Office of the Silesian District (Śląsk) of Poland, which transferred the highest environmental fees over the period of 2008-2011 [NFOŚiGW (National Fund for Environmental Protection and Water Management), Informacja ...]. Substances and processes for which the amount of pollution emitted or water taken in was significant, were chosen for the analysed sample. The assessment of the incentive function based on the figures from one district, (Voivodship), is illustrative in nature and one can only presume that the trends observed in this area, which uses the environment to a large extent, will also be true for data from the entire country and thus significantly impact the national average. However, for the sample to be more representative, it is necessary to carry out the same analyses for subsequent districts and to aggregate the data. The author intends to extend the research by doing so and this should be the purpose of separate publications.*

**Keywords:** *environmental fees, cost, emission quantity, environment, incentive function*

## **1. Introduction**

Environmental fees represent one of the tools used by Poland to implement constitutional assumptions of sustainable development [Art. 5 of the Polish Constitution]. Fee rates are expressed in PLN per one unit which expresses the release of a pollutant into the environment or the use of natural resources

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in the best way. [Małecki, Opłaty...2009]. The ability to freely supervise their effectiveness should constitute one of the fundamental tools which the State can use to assess the solutions it applies to implement the sustainable development policy. However, as mentioned in literature [Małecki, System..., 2012], the last detailed analysis of this subject was completed in 2003. This study is an attempt to assess the environmental effectiveness of environmental fees as illustrated by Silesia District as an example. This district, even though it is one just one selected area of Poland, is apparently quite representative, as the use of components of its environment in the operation of organisations is significant on the national scale.

## **2. A brief description of environmental fees**

Environmental fees are paid by organisations conducting business activity, institutions (schools, municipalities etc.) and in strictly defined cases also by natural persons running no business. In Poland, the payable fees are split into 4 components: gaseous and particulate air emissions, water intake, sewage disposal, waste landfilling. Rates per unit of pollutant or of water taken in are set by the Minister of Environment or by a decree of the Council of Ministers. Every organisation is obliged to calculate the due fee and to pay it to the account of the Marshall's Office with jurisdiction over the location where the environment is used.

The obligation to calculate the fee arises, for example, during the following processes:

- space heating with boilers fired with coal, coke, petroleum, gas, wood,
- poultry production,
- fuel reloading,
- emissions from installations used to produce charcoal,
- emissions from installations used in food mills,
- abstraction of underground water and intake of surface water for sanitation/consumption and other purposes,
- discharge of salty water, cooling water and other pollution into the soil or waters,
- running landfills.

The above activities implying the use of the environment are just a few examples of multiple processes which lead to the duty of calculating fees [Environmental Protection Law].

## **3. Functions of environmental fees**

Environmental fees are principally assumed to have the following three functions ranked as below (in decreasing order of importance) [Małecki, System...2012]:

- incentive function,
- revenue function,
- information function.

The incentive function motivates organisations obliged to pay the fee to take action to restrict operations harmful to the environment. This result can be achieved by various technical and organisational measures implemented within their business, which should ultimately lead to, for instance, a reduction of harmful air emissions, curtailing excessive water intake or sewage discharge [cf. Małecki, Oplaty...2009]. The incentive function can be defined as an action consisting in setting fees at a level which is significant from the perspective of costs, profit and prices applied by entrepreneurs [Fiedor, Podstawy...2002].

The revenue function is understood as the collection and then the secondary distribution of funds which are used to finance (co-finance or subsidise) projects protecting the environment and (or) rationalising the scope within which public and private organisations use environmental resources and the method by which they use them [Małecki, System...2012].

The information function consists in signals about significant environmental hazards coming from the quantity of pollution or environmental use reported by entrepreneurs [Małecki, System ...2012]

#### **4. Analysis of changes in the use of environmental components resulting from the change of environmental fee rates**

To achieve, *inter alia*, the purpose of this study, in January 2013 an application was sent to the Marshalls' Offices for environmental data including annual information about: the quantity of air emissions, of substances discharged in sewage, the quantity and type of landfilled waste, the quantity of water taken in. A pilot analysis was conducted using data received from the Silesian District Marshall's Office concerning the change in the quantity of pollution emitted and water taken in depending on the rate of current fees, including their changes. This area was chosen due to a significant scale at which its environment is used. The substances and processes - for which rate changes were presented in Table 1 and the scale of pollution emission changes is analysed - were principally chosen due to the quantity of air emissions, of pollutants emitted, the quantity and type of waste or the quantity of water taken in in the analysed period. Items characterised by high parameters were chosen. The time range selected is due to the availability of information stored in the IT system of the Silesian Marshall's Office since 2005. By January 2013, the quantities of pollution emitted and water taken in in 2012 had not yet been entered into the system. The data was collated globally (the total emission/intake of all reporting organisations) for the Silesian District, and also the

emission/consumption was determined for each organisation which reported in every year of the analysed period lasting from 2005 to 2011. The organisations reporting every year were distinguished to analyse the behavioural trend of organisations for which the use of the environment forms a long-term part of their business and which should take action to reduce the fees as a typical item pushing their costs up. In the remaining part of the publication, these organisations are referred to as the “permanent organisations”.

From 2005 to 2011, the rates of environmental fees changed insignificantly (usually by the inflation rate), with the exception of selected substances, and in particular rates for unsorted waste. The rates presented in Table 1 are basic rates exclusive of differentiating ratios which are applied to sewage, for instance.

**Table 1.** Unit fee rates in 2005-2011 and the 2011/2005 rate change in per cent

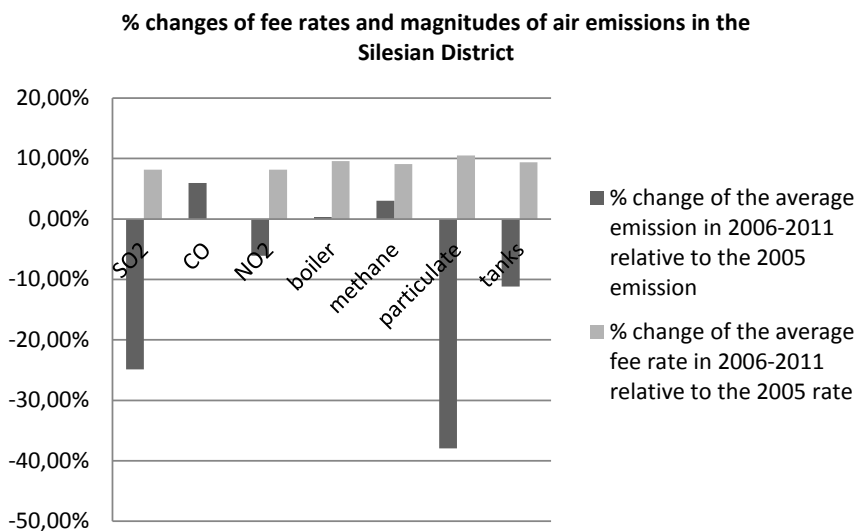
Unit fee rates								
Emission [substance/ installation/activity]	2005	2006	2007	2008	2009	2010	2011	2011/2005 change in %
sulphur dioxide (SO <sub>2</sub> ) [PLN/kg]	0.41	0.42	0.43	0.43	0.44	0.46	0.48	17.07%
carbon monoxide (CO) [PLN/kg]	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.00%
nitrogen oxides (NO <sub>2</sub> ) [PLN/kg]	0.41	0.42	0.43	0.43	0.44	0.46	0.48	17.07%
fixed grate boiler, natural draft, heat capacity <=5 MW [PLN/Mg of hard coal]	23.38	24.2	24.71	24.96	25.58	26.65	27.58	17.96%
methane PLN/Mg	0.22	0.23	0.23	0.23	0.24	0.25	0.26	18.18%
particulate from fuel combustion [PLN/kg]	0.27	0.28	0.29	0.29	0.30	0.31	0.32	18.52%
Filling underground tanks [PLN/MG of fuel]	2.40	2.48	2.53	2.56	2.62	2.73	2.83	17.92%
Waste type	2005	2006	2007	2008	2009	2010	2011	2011/2005 change in %
200301 – unsorted municipal waste [PLN/ Mg]	14.87	15.39	15.71	75	100	104.2	107.85	625.29%
191212- other waste (includes mixed substances and objects) from mechanical waste processing, containing no hazardous substances [PLN/Mg]	14.87	15.39	15.71	60	61.5	64.08	66.32	346.00%

200399 – Municipal waste, not listed in other subgroups [PLN/Mg]	14.87	15.39	15.71	15.87	100	104.2	107.85	625.29%
<b>Sewage – substance, pollution type</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	2011/2005 change in %
BOD5 [PLN/kg]	3.24	3.35	3.42	3.45	3.54	3.69	3.82	17.90%
COD [PLN/kg]	1.29	1.43	1.37	1.38	1.41	1.47	1.52	17.83%
Cl+SO4 [PLN/kg]	0.038	0.039	0.04	0.04	0.041	0.043	0.045	18.42%
cooling water with discharge temperature above +26 °C and under 32 °C [PLN/1 dm <sup>3</sup> ]	0.51	0.53	0.54	0.55	0.56	0.58	0.6	17.65%
rain- or meltwater from tightly surfaced roads and car parks [PLN/m <sup>2</sup> /year]	0.043	0.045	0.046	0.046	0.047	0.049	0.051	18.60%
<b>Water intake</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	2011/2005 change in %
Averaged water intake rate (for underground and surface waters) for the following purposes [PLN/m <sup>3</sup> ]:								
other	0.065	0.0675	0.069	0.0695	0.071	0.074	0.0765	17.69%
sanitation and consumption	0.041	0.0425	0.0435	0.044	0.045	0.0465	0.048	17.07%

Source: own development based on announcements and decrees on fee rates.

Graphs (1, 2) and Tables (2, 3) present the change between the average emission in 2006-2011 and in 2005 collated with the average change of unit rates for particular substances/activities in the same period. Figures shown in Graphs 1 and 2 as well as Tables 2 and 3 show that for the majority of items selected for analysing, the emission of air pollution fell (except for carbon monoxide and methane) while the rates increased. The emission of carbon monoxide increased while the fee rate per unit of gas emitted did not increase. This trend was noted for both all organisations in the district and those that reported in the entire period under analysis. In the analysed period from 2006 to 2011, the average carbon monoxide emission in the whole district rose by 126,000 Mg, with the maximum of 139,000 Mg recorded in 2010, and the minimum of 95,000 Mg in 2009. The same applied to methane (emission grew), even though the unit rate for emission was rising in the analysed period. In 2006-2011, the average methane emission amounted to 428 Mg, the minimum to 406 MG (2011) and the maximum to 441 Mg (2006) in the entire district.

Emission from boiler houses with the thermal capacity up to 5 MW for all organisations in the Silesian District increased slightly in the analysed period, but fell clearly for permanent organisations.



**Figure 1.** Changes of fee rates and magnitudes of air emissions

**Table 2.** Source data for Figure 1

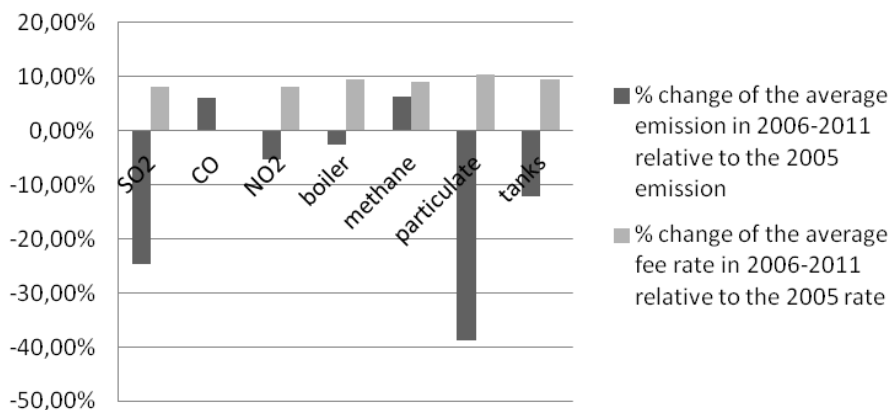
Substance/activity	% change of the average emission in 2006-2011 relative to the 2005 emission*)	% change of the average fee rate in 2006-2011 relative to the 2005 rate
Sulphur Dioxide (SO <sub>2</sub> )	-24.89%	8.13%
Carbon Monoxide (CO)	5.97%	0.00%
Nitrogen Oxides (NO <sub>2</sub> )	-6.08%	8.13%
Fixed grate boiler, natural draft, heat capacity <=5 MW	0.33%	9.55%
Methane	3.00%	9.09%
Particulate from fuel combustion	-37.95%	10.49%
Underground tank filling	-11.16%	9.38%

\*) negative values represent a drop, positive values – an increase

Source: own development based on long-term reports from the Marshall's Office.



**% change of fee rates and magnitudes of air emissions of Silesian District organisations reporting in each year from 2005-2011**



**Figure 2.** Changes of fee rates and magnitudes of air emissions for permanent organisations

**Table 3.** Source data for Figure 2

Substance/activity	% change of the average emission in 2006-2011 relative to the 2005 emission*)	% change of the average fee rate in 2006-2011 relative to the 2005 rate
Sulphur Dioxide (SO2)	-24.75%	8.13%
Carbon Monoxide (CO)	6.13%	0.00%
Nitrogen Oxides (NO2)	-5.33%	8.13%
Fixed grate boiler, natural draught, heat capacity <=5 MW	-2.60%	9.55%
Methane	6.21%	9.09%
Particulate from fuel combustion	-38.86%	10.49%
Underground tank filling	-12.06%	9.38%

A very clear trend quantity decrease trend is seen relative to the waste fees. As the unit rates for waste go up, the quantity of waste landfilled goes down. Data in Table 4 demonstrates that in 2005-2008, while the unit rates for waste landfilling changed only slightly, the quantity of waste kept growing.

Starting with 2008, when the rates for the analysed waste types increased drastically, the quantity of waste, particularly unsorted municipal waste, dropped significantly.

**Table 4.** Rates for, and quantities of landfilled waste for selected waste types from permanent organisations

Period	Waste type					
	200301 – unsorted municipal waste [PLN/Mg]		191212- other waste (includes mixed substances and objects) from mechanical waste processing, containing no hazardous substances [PLN/Mg]		200399 – Municipal waste, not listed in other subgroups [PLN/Mg]	
	fee rate	waste quantity [Mg]	fee rate	waste quantity [Mg]	fee rate	waste quantity [Mg]
2005	14,87	740 321,58	14,87	19 284,86	14,87	6 747,83
2006	15.39	792,216.43	15.39	30,073.41	15.39	8,946.87
2007	15.71	801,852.94	15.71	45,338.10	15.71	10,911.21
2008	75.00	617,292.97	60.00	120,301.71	15.87	14,483.64
2009	100.00	490,742.61	61.50	176,573.97	100.00	12,158.80
2010	104.20	332,868.30	64.08	233,029.47	104.20	5,095.80
2011	107.85	197,179.14	66.32	210,516.24	107.85	5,773.33

Source: own development based on long-term reports from the Silesian District Marshall's Office.

The quantity of other waste from the mechanical processing of waste containing no hazardous substances - for which the rates did not grow so rapidly and ultimately stopped at a level lower than for the remaining two analysed types of waste - kept growing steadily. This may be due to the intention to save on waste in an unorthodox way, which motivated organisations to act so as to make shifts between waste types and thus decrease the quantity of the type subject to the highest rate (200301) while increasing that of the type for which the unit rate is the lowest (191212).

In 2006-2011, the average quantity of landfilled waste amounted to:

- waste code 200301: 675,000 Mg,
- waste code 191212: 261,000 Mg,
- waste code 200399: 22,000 Mg;

which, compared to the 2005 quantities, represented respectively: a 25% drop, a 521% increase and a 70% drop for all organisations from the Silesian District.

With regard to the sewage discharged, the analysis of selected substances demonstrates a successive quantitative decrease. Graph 3 and Table 5 indicate that for permanent organisations, the quantity of sewage (substances) follows a downward trend. When the average sewage quantities in 2006-2011 are compared to those of 2005, there is a percentage decrease of most analysed items for all organisations from the Silesian District. The only exception is COD, whose quantity [kg] was 3.87% greater in 2006-2011 than in 2005. In the same period, the unit rate increased by 10.85% compared to that of 2005. In 2006-2011, the quantity of COD in sewage averaged 11,225 tons, with the maximum of 11,806 tons in 2010 and the minimum of 8,892 tons in 2006 for all organisations from the Silesian District.

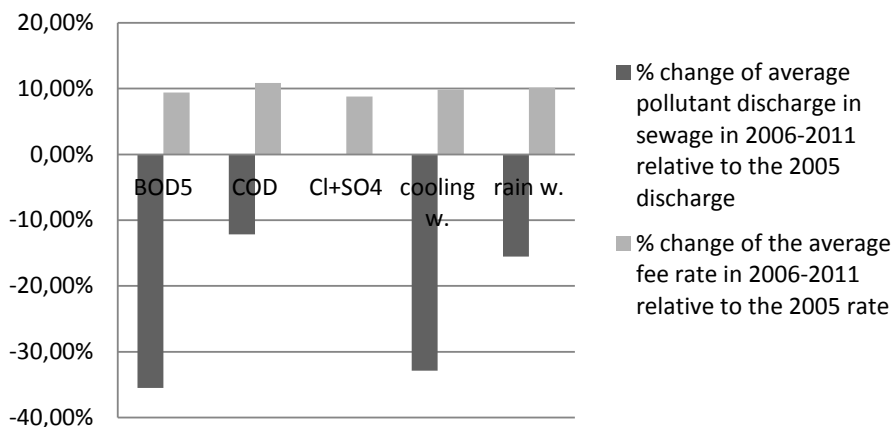
The Cl+SO<sub>4</sub> indicator was also slightly higher, on the average, in 2006-2011 than in 2005.

However, it should be noted that it is the figures for permanent organisations that should suggest the direction of change, as they show whether these organisations took any preventive measures between 2005 and 2011. On the contrary the figures for the entire district are distorted by data from organisations which, for instance, reported in 2005-2008 and then discontinued their business, or those that started operations in 2010 and reported in 2010-2011.

Figures on water intake also indicate a fall in the quantity of water taken in. For water, the analysis was conducted as follows:

- unit rates of fees for consuming underground and surface water were averaged for the following purposes: sanitation/consumption and other,
- the abstraction/intake of underground and surface water [m<sup>3</sup>] was averaged as divided into the following purposes: sanitation/consumption and other,
- the average consumption [m<sup>3</sup>] in 2006-2011 was calculated for the water consumption determined by the method under b. above,
- the average unit rate in 2006-2011 was calculated for the rate determined by the method described in a. above.

**% change of fee rates and quantities of sewage substances for  
Silesian District organisations reporting in each year  
from 2005 to 2011**



**Figure 3.** Changes in fee rates and quantities of sewage substances

**Table 5.** Source data for Figure 3

	<b>% change of average pollutant discharge in sewage in 2006-2011 relative to the 2005 discharge</b>	<b>% change of the average fee rate in 2006-2011 relative to the 2005 rate</b>
BOD5 *)	-35.49%	9.41%
COD **)	-12.17%	10.85%
Cl+SO4 ***)	-0.06%	8.77%
cooling water, discharge temperature above +26°C and up to +32°C [PLN/l dm <sup>3</sup> ]	-32.84%	9.80%
rain- or meltwater from tightly surfaced roads and car parks [PLN/m <sup>2</sup> /yr.]	-15.54%	10.08%

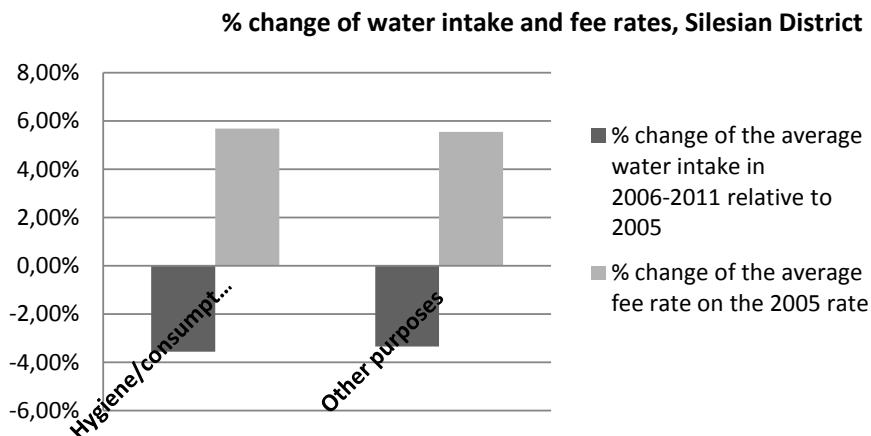
\*) BOD5 – five day oxygen demand: the quantity of oxygen consumed in five days to oxidise substances (mainly organic) contained in sewage).

\*\*\*) COD – chemical oxygen demand: the quantity of oxygen consumed in the process of chemically oxidizing sewage.

\*\*\*\*) Cl + SO4 - the total of chlorides and sulphides.

Source: own development based on long-term reports from the Silesian District Marshall's Office.

The data presented in Figures 4 and 5 justifies the statement that in the case of water, its average intake in 2006-2011 was smaller than in 2005.



**Figure 4.** Change in the water intake and unit fee rates for all organisations from the Silesian District.

**Table 6.** Source data for Figure 4

	% change of the average water intake in 2006-2011 relative to 2005	% change of the average fee rate relative to the 2005 rate
Hygiene/consumption purposes	-3.56%	5.69%
Other purposes	-3.34%	5.56%

Source: own development based on long-term reports from the Silesian District Marshall's Office.

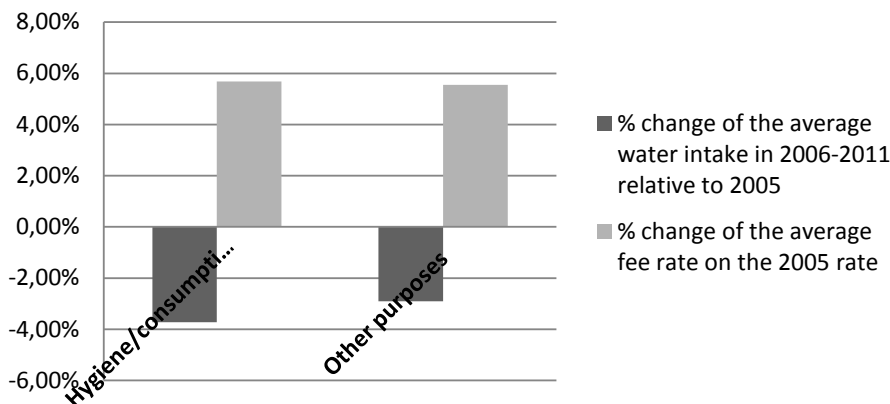
The decreasing trend of water consumption is observed both among permanent organisations and all those reporting in the Silesian District in 2005-2011.

**Table 7.** Source data for Figure 5

	% change of the average water intake in 2006-2011 relative to 2005	% change of the average fee rate relative to the 2005 rate
Hygiene/consumption purposes	-3.72%	5.69%
Other purposes	-2.91%	5.56%

Source: own development based on long-term reports from the Silesian District Marshall's Office.

**% change of water intake and fee rates for organisations from the Silesian District reporting in every year between 2005 and 2011**



**Figure 5.** Change in water intake and unit fee rates for permanent organisations

Source: own development based on long-term reports from the Silesian District Marshall's Office.

## 5. Assessment of the incentive function of fees

The analysis of figures on pollution emission into the air, water and soil, on waste landfilling or water consumption allows at least a preliminary assessment of the incentive function of environmental fees. The author believes that fees act as a factor forcing organisations to take action to reduce the harmful environmental impact of their operations. They do so by reducing the quantity of emitted pollution, landfilled waste or water taken in. Obviously, there may be drivers other than fees, but the financial aspect seems to play a leading role in the majority of economic activities.

A decreasing trend of the quantity of the analysed substances/activities is observed. This analysis seems to be confirmed by the amount of fees due for 2005-2011 as shown in reports filed by the obligated organisations with the Silesian District Marshall's Office. This is because a decrease in the emission of pollution or the intake of water is reflected in the value of fees paid for particular years. Table 8 shows that the fee value does not exhibit a constant growing trend for the same organisations. Neither does the increase in individual types of fees correspond to the growth caused by inflation.

**Table 8.** Amount of due environmental fees from permanent organisations, PLN

Period	Fee for an environmental component			
	Air emissions	Waste	Sewage	Water
2005	121,795,793.24	13,631,569.99	56,577,225.06	22,372,917.86
2006	137,131,644.16	15,780,996.00	61,712,485.00	22,879,194.00
2007	144,416,005.10	16,814,920.00	63,431,985.00	22,772,846.00
2008	104,553,608.00	65,421,163.00	55,579,581.00	22,000,803.00
2009	102,554,424.06	73,364,417.00	64,166,465.49	21,465,040.00
2010	121,519,074.41	62,107,326.00	71,215,934.00	22,541,551.00
2011	122,221,058.36	53,608,986.00	63,493,879.00	23,232,415.00

Source: own development based on long-term reports from the Silesian District Marshall's Office.

With regard to air emissions, the data for years 2008 and 2009 should not be included in this analysis, because in those years organisations which received emission allowances did not pay fees for carbon dioxide emissions to the Marshall's Office [art. 25.1 of the Act of 22 December 2004 on emissions trading...]. They paid them directly to the account of the National Fund for Environmental Protection and Water Management (NFOŚiGW). In the case of waste, the increase in fees is particularly due to a dramatic increase of unit fees for individual waste types. However, it should be noted that after the sudden increase of fees in 2008-2009, the following years saw a clear decreasing trend, which would confirm the reduction of the quantity of landfilled waste.

## 6. Conclusions

Environmental fees seem to fulfil one of their main intended functions, namely the incentivising one. Obviously, the research should be extended geographically, i.e. data from reports of other Marshall's Offices should be analysed, trends studied and the magnitude and range of variances determined. The fulfilment of the revenue function should also be studied. For example, the state environmental policy for 2009-2012 calls for PLN 24.4 billion of environmental spending financed by national public funds, while the revenue from fees for polluting the environment amounted to PLN 5.6 bn [NFOŚiGW, Informacja...2011] and represented 23% of all planned expenditure. If fee revenues in 2012 were the same, one can expect that they would cover about 30% of the spending.

To summarise: the figures for just one district do not unambiguously justify the claim that the incentive function, which is a criterion of environmental effectiveness, is fulfilled. However, a conclusion can be drawn

that organisations using the environment seem to behave rationally, which is proven by their appropriate reaction (a reduction in pollution quantity) to environmental fees (including their increase), and their constant tendency to reduce the magnitude of their detrimental environmental impact.

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# LEISURE TIME MANAGEMENT: POLAND'S INVOLVEMENT IN TOURISM

**Małgorzata Luberda\***

## **Abstract**

*The results of studies on the management of leisure time by participating in tourism indicate that for the majority of Poles aged 15 and over participation in tourism creates opportunities for gaining new knowledge (exploring) related to the chosen destination apart from rest and entertainment. For a certain part of Polish society tourism is becoming a permanent component of their lifestyle. On the other hand, there are groups whose consumption model does not include travel needs.*

**Keywords:** *leisure, tourism, travel*

## **1. Introduction**

Tourism is occupying an increasingly important position in the modern world, being one of the fastest growing areas of life. It has been calculated that in the whole world each year about 650 million people travel. By 2020 the number traveling in world tourism will have increased three fold and revenues connected with travel will have nearly quadrupled (Różycki, 2006, p. 120). Worldwide trade coming from services related to various forms of travel make tourism one of the leading economic sectors in the world. At the same time services for tourism are increasing their position in the hierarchy of the needs of consumers who are traveling with growing frequency.

The topic of choice for this paper deserves considerable attention due to the continuous development of tourism. Tourism is evolving and the main driving force behind this evolution are the requirements and needs of tourists. Tourism has become a vital part of the global market, ranking second in the world economy, after the computers and the electronics industry. The tourist industry takes, therefore, a very important position in the economy of most countries.

This article attempts to answer the question of how the involvement of Poles in the tourist trade is shaped and what the most commonly practiced forms of tourism and motives for participation in tourism are.

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The specific objectives include: finding out how leisure time is spent, an assessment of the participation of Poles in tourist trips, estimating the level of expenditure allocated for this purpose, as well as an attempt to explain the reasons for not participating in tourism.

The general working hypothesis is that the management of leisure time activities is related to the level of disposable income in the household. With the improvement of the financial status of households, the level of expenditures on leisure increases simultaneously. There is also an increase in the importance of tourism in the hierarchy of consumer needs.

The analysis was based on secondary sources, represented by the literature and published studies from different research centers such as: World Tourism Organization (UNWTO), Institute of Tourism in Warsaw, Central Statistical Office (GUS), and The Public Opinion Research Center (CBOS).

## **2. The concept and meaning of leisure**

Leisure has been defined by a team of UNESCO experts in an international study as including “the range of all activities in which an individual can be engaged in willingly or for leisure, entertainment, the development of their knowledge or self-training, voluntary social participation, and freedom from professional, family and community obligations.” This definition is derived from Dumazedier’s concept of leisure (Czajka, 1974, p. 39). As E. Wnuk-Lipiński (1972, p. 10-11) states, leisure time is “the time remaining at the personal disposal of an individual having fulfilled their professional, family, and school duties, and having met the biological needs of the organism”.

The definition of leisure proposed by A. Zawadzka (1983, p. 22) is noteworthy. According to her, leisure time is the time utilized for optional activities, undertaken on a voluntary basis, for rest, entertainment, comprehensive development and participation in social life.

On the basis of those definitions of leisure, it should be noted that it is primarily the time preferably managed subject to the freedom of the individual’s choice. Its characteristic feature is the personal feeling of the freedom of choice and a sense of autonomy during the activities in its duration. It is also a sphere of life not occupied by work and other responsibilities. Leisure time is, therefore, opposed to working time. It is based, however, on taking up activities manifested in relaxation and recuperation of the human individual’s strength (Woźniak, 2010, p. 237).

The time at the disposal of an individual, after completion of professional, family and social duties can be utilized passively or actively (Table 1). The passive forms not only impoverish the mental sphere of the individual, but also have destructive impact on their physical condition. Reasonably utilized leisure

time should therefore involve active leisure, which enables the realization of its creative function for the human being (Niemczyk, 2008, p. 40).

**Table 1.** Types of leisure activities

Passive recreation		Active recreation	
At home	Out of home	At home	Out of home
-	clubbing organized trips spa	self-study creativity crafts gardening hobby	education tourism culture other

Source: Cieloch G., Kuczyński J., Rogoziński K., *Czas wolny – czasem konsumpcji?* PWE, Warszawa, 1992, p. 52.

A person can spend their free time at home, or outside the home. The choice of space and forms of leisure time activities depends on many factors, including the amount of time the individual can utilize. Due to the duration of leisure time, the following are distinguished (Bywalec and Rudnicki, 2002, p. 72):

- leisure time during the day, i.e. short-term leisure,
- leisure time during the weekend, i.e. mid-term leisure,
- leisure time during the year (holidays, vacation), i.e. long-term leisure.

Each of the identified types of leisure time is characterized by a different structure its utilization. In the case of short periods, the dominant forms are home-based, and as the duration of leisure time increases, so does the spatial mobility of the individual (Niemczyk, 2008, p. 41).

W. Siwiński (2000, p. 23, 40) stresses that this time should be rationally used for: rest (mental recuperation), pleasurable entertainment, social activities on a voluntary and disinterested basis, development of individual interests and talents by learning or practicing amateur activities, such as art, science or sports. The same author mentions the functions of leisure, such as rest, entertainment, self-motivated education, and social participation.

The duration of leisure time and the activity of the consumer manifested at that time is an individual matter. This does not mean, however, that any consumer can use their time in a completely arbitrary manner (Kolny, 2004, p. 303). The activity is dependent on a number of objective and subjective factors, and religious determinants (Kieźel, 2005, p. 90).

### 3. Tourism as a form of leisure time management

One form of leisure time activities is tourism, defined as “the phenomenon of spatial mobility of people, which is related to a voluntary change of residence,

the environment and the rhythm of life”, as well as the environment, and the entry into personal contact with the environment visited (cultural, natural, social) (Przećławski, 1996, p. 30).

The World Tourism Organization (UNWTO) defines tourism as a whole activity of people who travel and stay for leisure, business or other for no longer than a year without a break outside of their everyday surroundings, with the exception of trips in which the main goal is rewarded gainful activity (Gołembski, 2002, p. 23).

There are many reasons for the rapid development of tourism and its increasing importance for the economy and meeting the needs of consumers. The most important include the peaceful development of international relations, improvements in transport and communication systems, increasing well-being, elimination or reduction of barriers to cross borders, globalization, economic and political relations, an increase in the level of education, employment changes (an increase in the amount of leisure time), moving to the next level in meeting non-material needs, and others. All these phenomena and their causes are also present in Poland (Górecka, 2011, p. 2).

#### **4. Participation of Poles in tourism in the light of empirical studies<sup>2</sup>**

##### **The activity of Poles in tourism**

Participation<sup>3</sup> of Poles in tourism was estimated on the basis of surveys conducted by the Institute of Tourism among Polish citizens aged 15 years or more. The study used a division into tourist trips into domestic and foreign ones, as well as short-term (2-4 days) and long-term (five or more days) ones.

Research of the Institute of Tourism and the Ministry of Economy (Department of Tourism) shows that tourist activity of Poles is characterized by high fluctuations. It is accompanied by permanent changes in the structure of mobility, i.e., the popularity of tourist trips abroad is steadily growing.

In 2012, the level of participation of Polish residents in foreign tourism was higher than in 2006. A rising tendency can be observed. In 2010 and 2011, we observed a decrease in participation in domestic long-term trips and domestic short-term trips. A year later, there was a noticeable increase in this type of trips. The growth rate reached 1.07 for long-term domestic trips and 1.32 for short-term domestic trips, respectively. A similar level of participation can be seen in short-term tourism in 2010 and 2011, as well as in the short-term domestic travels in 2006 and 2007 (Table 2).

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<sup>2</sup> It has been estimated by the Department of Tourism of the Ministry of Sport and Tourism (DT MSIT) based on data from the Institute of Tourism collected on behalf of DT MSIT.

<sup>3</sup> Participation in tourism mobility (traveling) refers to the people who had at least once taken part in a given type of trip (travel); some of the people had been involved in more than one type of travel.

**Table 2.** Participation of Poles in tourism (number of participants aged 15 and over, expressed in millions) in 2006-2011

Tourism	Participants (in millions)							Dynamics indicator (2006=1)					
	2006	2007	2008	2009	2010	2011	2012	07/06	08/06	09/06	10/06	11/06	12/06
<b>Domestic, long-term</b>	8.9	9.1	9.5	9.6	8.5	7.7	9.5	1.02	1.06	1.08	0.95	0.86	1.07
<b>Domestic, short-term</b>	7.5	7.5	6.6	6.8	7.2	6.7	9.9	1	0.88	0.91	0.96	0.89	1.32
<b>Domestic (total)</b>	13.1	13.3	13.1	13.4	12.5	11.9	13.9	1.01	1	1.02	0.95	0.91	1.06
<b>Abroad, long-term</b>	3.6	4.2	4.6	4.5	4.0	3.4	4.3	1.16	1.27	1.25	1.11	0.94	1.19
<b>Abroad, short-term</b>	1.2	1.0	1.2	1.1	0.8	0.8	1.3	0.83	1	0.92	0.66	0.66	1.08
<b>Abroad (total)</b>	4.5	4.9	5.5	5.3	4.6	4.1	5.2	1.08	1.22	1.17	1.02	0.91	1.15
<b>Domestic and abroad (total)</b>	15.1	15.3	15.5	15.7	14.7	13.9	16.8	1.01	1.03	1.04	0.97	0.92	1.11

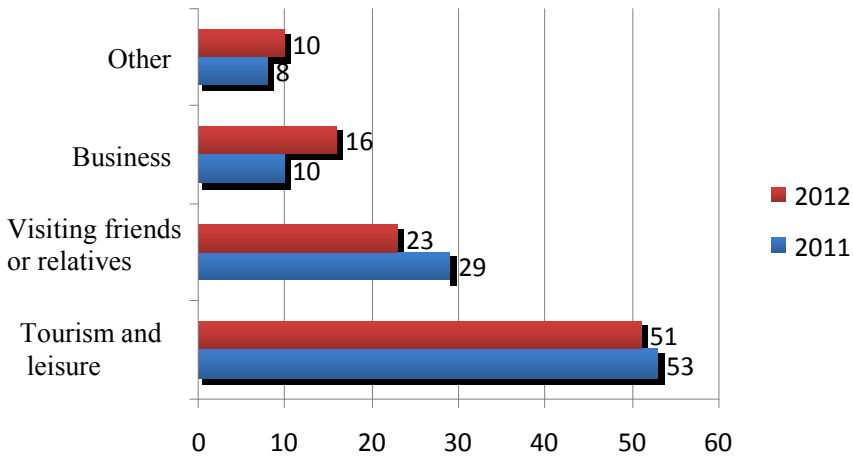
Source: Own, based on Łaciak, J. (2012). *Krajowe i zagraniczne wyjazdy Polaków w latach 2008- 2012 roku*, Warszawa: Instytut Turystyki. Retrieved from [http://www.intur.com.pl/inne/wyjazdy\\_polakow2008.pdf](http://www.intur.com.pl/inne/wyjazdy_polakow2008.pdf), <http://www.intur.com.pl/inne/wyjpol10.pdf>, *Wyj Pol 2012.pdf* (Accessed May 2013).

It gradually became more and more likely Poles would participate in foreign tourism. In 2011 5,926,900 people left the Schengen zone. These departures were usually registered as air border crossings estimated at 3,294,600 people (in 2010 – 3,375,300), making up for 55.6% of all trips made by Poles (Central Statistical Office, 2012, p. 56).

In conclusion, it is worth noting that the forecasts relating to Polish participation in tourism both domestic and foreign are optimistic (this is fostered by the appreciation of the Polish currency in world markets) (Grabowska, 2006, p. 198).

## 5. Motivation for participating in tourism

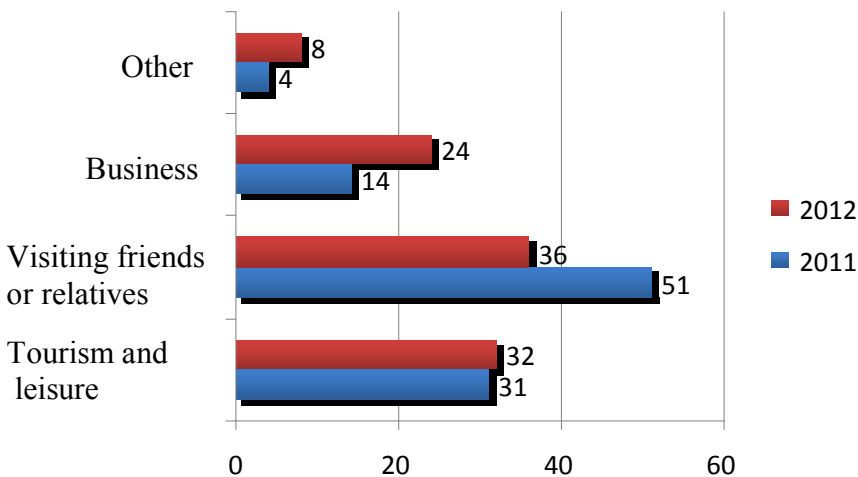
Taking into account the motives for tourism, one should note that in the case of long-term domestic travel, most Poles indicate sightseeing and recreation – 51% of respondents (Figure 1).



**Figure 1.** Domestic destinations chosen by the Poles for long-term trips in 2011 and 2012 (expressed in %)

Source: Own, based on Łaciak, J. (2012). *Krajowe i zagraniczne wyjazdy Polaków w 2012 roku*, Warszawa: Instytut Turystyki. Retrieved from *Wyj Pol 2012.pdf*, p. 11 (Accessed May 2013).

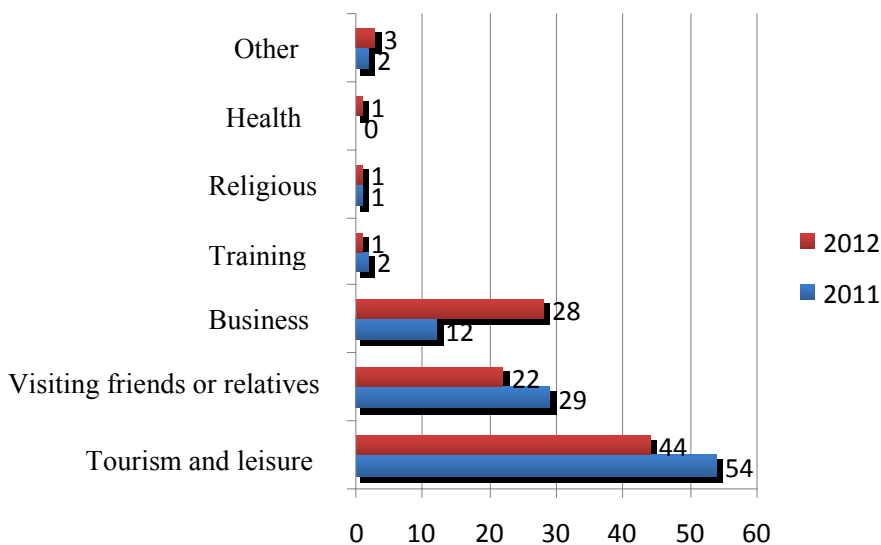
An analysis of the motives for participation in short-term domestic tourism (Fig. 2) indicate that the hierarchy of destinations was opposite the one previously discussed one. The main objective of domestic short-term trips was visiting relatives or friends (36% of responses).



**Figure 2.** Domestic destinations chosen by the Poles for short-term trips in 2011 and 2012 (expressed in %)

Source: Own, based on Łaciak, J. (2012). *Krajowe i zagraniczne wyjazdy Polaków w 2012 roku*, Warszawa: Instytut Turystyki. Retrieved from *Wyj Pol 2012.pdf*, p. 11 (Accessed May 2013).





**Figure 3.** Foreign destinations chosen by Poles in 2011 and 2012 (expressed in %)

Source: Own, based on Łaciak, J. (2012). *Krajowe i zagraniczne wyjazdy Polaków w 2012 roku*, Warszawa: Instytut Turystyki. Retrieved from *Wyj Pol 2012.pdf*, p. 11 (Accessed May 2013).

In comparison to domestic tourism, trips abroad are characterized by a more diversified structure of objectives (Figure 3). In addition to rest and relaxation (44%), as well as visiting relatives or friends (22%), business (28%), training, health, etc., were cited as reasons for travel.

## 6. Expenditures on tourism

Leisure time management by participating in tourism is shaped by many factors, including: economic, social, demographic, geographic, natural, political and others.

The scope and quality of participation in tourism are determined by the financial situation of the consumer-tourist and directly affects the size of the expenditure incurred on travel needs.

Household spending on tourism includes hotel services, transport, catering and services or products purchased in connection with domestic and foreign travel.

An analysis presented in Table 3 shows that the level of spending on tourist trips in 2012, compared to previous years, increased. Significantly larger amounts were spent both before and during the duration of the trip.

Another regularity is noticed: in the case of short-term domestic travel, the share of expenses incurred prior to the trip was higher than in the case of long-term travel, and close to the proportion of these expenses in traveling abroad. In turn, the part of expenses incurred during the trip was greater in the case of short-term domestic and short-term foreign travel.

The percentage of expenses incurred during the trip was much greater in the case of long-term domestic travel. This phenomenon may be related to the nature of the destination. The relatively high proportion of the expenses incurred by Poles prior to traveling abroad stems from the fact that the majority of trips are organized (e.g., through a travel agent or employer), including the full package of services. However, the relatively low percentage of expenditures on long-term domestic travel is justified by the character of such traveling, which tends to be independent and unorganized. It also usually requires the use of tourist accommodation at the place of destination to a much greater extent than in the case of short-term domestic travel (Niemczyk, 2008, p. 51).

The Institute of Tourism studies shows that in 2010, 32% of expenses (in 2009 – 31%, and in 2008 – 33%) related to long-term domestic travels were incurred by Poles prior to departure at their place of residence. In the case of short-term domestic trips – 43% (2009 – 41%, and 2008 – 42%), and in the case of trips abroad – 56% (57% in 2009, and 51% in 2008), respectively. In 2010, average daily expenditures of Poles for long-term domestic travel were 7% lower than in 2009, while on short-term domestic trips – about 3% lower and on trips abroad – about 15% higher. Over the period of an entire domestic trip lasting five or more days in 2010 Polish residents would spend about 1% more than in 2009 (the average length of the trip increased), and a domestic trip of 2-4 days – about 3% less. A trip abroad – 23% more (the average length of trips increased). In 2012 Poles spent the most on traveling.

**Table 3.** Average expenditure on domestic and foreign travel by Poles in 2008-2012 (expressed in Polish zlotys)

Specification	Expenses									
	travel ex-penses	per day	travel ex-penses	per day	travel ex-penses	per day	travel ex-penses	per day	travel ex-penses	per day
	2008		2009		2010		2011		2012	
Domestic, long-term										
Prior to the trip	306	30	276	28	292	27	326	33	335	36
During the trip	635	63	625	62	614	57	655	66	746	79
(total)	941	93	901	90	906	84	981	99	1.081	115

Domestic, short-term										
Prior to the trip	146	50	136	47	139	48	130	45	202	70
During the trip	198	67	195	68	181	63	195	67	330	114
(total)	344	117	331	115	320	111	325	112	532	184
Trips abroad										
Prior to the trip	1.215	80	1.210	115	1.454	129	1.070	96	1.304	121
During the trip	1.172	78	896	85	1.127	100	805	72	1.486	138
(total)	2.387	158	2.106	200	2.581	229	1.875	168	2.790	259

\* For the calculation of the average spending per day of stay in the destination the average length of stay of 2.9 days was adopted (while the average number of overnight stays increased by 1). In 2011, the same period of 2.9 days was adopted.

Source: Own, based on Łaciak, J. (2012). Krajowe i zagraniczne wyjazdy Polaków w latach 2008- 2012 roku, Warszawa: Instytut Turystyki. Retrieved from [http://www.intur.com.pl/inne/wyjazdy\\_polakow2008.pdf](http://www.intur.com.pl/inne/wyjazdy_polakow2008.pdf), <http://www.intur.com.pl/inne/wyjpol10.pdf>, [Wyj Pol 2012.pdf](http://www.intur.com.pl/inne/wyjpol10.pdf) (Accessed May 2013).

## 7. The influence of household income on tourism

Our analysis of the level of expenditures on organized tourism (Table 5) allows for the identification of certain regularities. The first of these is the fact that spending on organized tourism tends to increase with rising incomes (the highest was noted in groups that achieve relatively the highest income). This confirms the correctness of the basic economic law, that is, the extended Engel's law, explaining that expenditures on goods of higher order (organized trips can be classified as this sort of goods in Poland) increases simultaneously with increasing income. The rule that only at the higher discretion of funds one can expect a greater willingness to engage in organized tourism (Berbeka, Makówka, and Niemczyk, 2008, p. 81) has been confirmed. It should be noted that in the budgets of the richest households (self-employed) spending on organized tourism was dominant.

**Table 4.** Average monthly income per capita in households (expressed in Polish zlotys) in 2006-2011

Household	2006		2007		2008		2009		2010		2011	
	AI	DI	AI	DI	AI	DI	AI	DI	AI	DI	AI	DI
(total)	834	802	928	894	1.045	1.006	1.114	1.071	1.192	1.147	1.227	1.184
Employees	829	802	915	886	1.049	1.016	1.123	1.087	1.199	1.159	1.244	1.206
Farmers	689	669	846	820	887	856	884	856	1.024	989	984	957
Individual contract or self-employed workers	1.102	1.058	1.251	1.208	1.338	1.288	1.396	1.340	1.468	1.416	1.497	1.445

Pensioners (total)	872	825	937	887	1.031	978	1.116	1.054	1.180	1.116	1.233	1.171
Old age pensioners	943	890	999	943	1.096	1.037	1.180	1.114	1.244	1.175	1.298	1.231
Other pensioners	684	654	754	521	802	767	870	825	925	879	969	927

\* *AI* – household's available income, *DI* – disposable income

Source: own, based on Oleński, J. (2012). Mały rocznik statystyczny Polski 2006-2012. Warszawa: Główny Urząd Statystyczny. Retrieved from [http://www.stat.gov.pl/gus/roczniki\\_PLK\\_HTML.html](http://www.stat.gov.pl/gus/roczniki_PLK_HTML.html), p. 309, 192, 190, 187, 194, 194, 197 (Accessed May 2013).

**Table 5.** The average monthly spending on organized tourism per capita in Polish households during the period of 2006-2011 (expressed in zlotys) by socioeconomic group

Household		Organized tourism					
		2006	2007	2008	2009	2010	2011
(total)		8.56	10.39	13.32	14.48	14.76	15.13
Blue collar workers		3.93	4.81	6.49	7.08	5.51	6.55
	White collar workers	17.25	20.48	27.65	29.33	31.56	31.53
Farmers		2.31	2.56	2.77	3.39	3.63	3.65
Individual contract or self-employed workers		23.04	30.74	31.57	31.34	33.50	29.23
Pensioners (total)		5.48	5.16	6.55	8.17	7.21	8.17
Old age pensioners		6.23	5.97	7.47	9.02	8.18	9.44
Other pensioners		3.49	2.71	3.28	4.91	3.32	2.99

Source: own, based on Budżet gospodarstw domowych 2006-2011 roku. Warszawa: Główny Urząd Statystyczny. Retrieved from [http://www.stat.gov.pl/gus/5840\\_4824\\_PLK\\_HTML.htm](http://www.stat.gov.pl/gus/5840_4824_PLK_HTML.htm), p. 74, 90, 108, 104, 123, 119 (Accessed May 2013).

The level of spending on organized tourism is differentiated by the socioeconomic type of the household (Table 4). Based on the data from household budget surveys conducted by GUS one can observe that the highest levels of tourism needs in the case of organized tourism were satisfied for households with a good economic situation. This group included employed individuals in white-collar positions and self-employed individuals. The first would spend 31.53 zlotys on tourism in 2011, while the second – 29.23 zlotys. In turn, the smallest expenditures on organized tours were a strain on the budgets of pensioners and households involved in agriculture. They accounted for only 2.99 zlotys in the case of pensioners, and 3.65 zlotys in the case of farmers.

As a result, it can be concluded that the level of participation in tourism is shaped largely by membership in social and professional groups, educational level and financial situation.

## 8. Ways of utilizing leisure time in tourism

When traveling over the long term, Poles tend to choose passive ways of spending their time: a quiet holiday, socializing and entertainment, as well as spending time in natural environments preferably away from others. On the one hand, peace and quiet are appreciated by Poles, but on the other hand – fun and entertainment are valued as well. The behavior of Polish citizens when traveling long-term (for 5 or more days) is of a largely fixed nature. A list prepared based on data from 2010 was similar to the results obtained in previous years.

In 2010, there was an increase in the percentage of people interested in activities aimed at improving physical fitness. However, there was a loss of interest in visiting museums and monuments, qualified tourism, visiting national parks and landscapes. The percentage of skiers remained on the same level as a year earlier. At least one of the five outdoor activities in 2010 was attended by 40% of the respondents (2009 – 46% 2008 – 42% 2007 – 46% 2006 – 42%, 2005 – 43%, 2004 – 46%).

Table 6 illustrates how leisure time was spent by Poles on tourist trips.

During short-term travel and similar to long-term travel, Poles seem to prefer passive leisure activities. In 2010 the most frequent activities in the case of 2-4 days' trips, included short walks, social life, peace and quiet away from others, and time spent in cafes or restaurants.

In 2010 we observe a four-point decline in the percentage of those willing to improve physical fitness, a one-point decrease in the percentage of people engaged in qualified tourism and skiing, and a two-point increase in the percentage of those interested in visiting museums and monuments. Another form of active leisure was visiting national parks or nature reserves, which gained a similar percentage as before. In at least five of the mentioned forms of physical activity, in 2010 24% of the respondents leaving for 2-4 days participated in such forms of leisure (2009 – 26%, 2008 – 25%, 2007 – 23%, 2006 – 22%, 2005 – 25%, and 2004 – 26%).

Individuals leaving for typically tourist short-time visits are more physically active than those leaving for other purposes: e.g., 9% of the participants focus on physical fitness (significant decrease), 14% visit museums (no change), national parks are visited by 11% (decrease), 7% practices qualified tourism 7% (decrease), and 3% travels for skiing (no change). We can see a significant drop in participation in active forms of recreation in individuals traveling for tourism. In at least one of the five forms of previously mentioned activities 37% of the respondents participated (2009 – 46%, 2008 – 44%). On the other hand, social life and entertainment achieved a 35% result (no change), while the time spent in cafes – 14% (increase), and in front of the TV – 3% (decrease).

**Table 6.** Ways Poles spent their leisure time in domestic tourism in 2004–2010 (expressed in %)

Specification	Tourism													
	long-term						short-term							
	2004	2005	2006	2007	2008	2009	2010	2004	2005	2006	2007	2008	2009	2010
Relaxation, short walks	67	67	67	70	69	71	74	47	49	52	53	53	59	58
Socializing and entertainment	43	35	40	31	34	32	27	47	39	43	39	37	35	36
Spending time in nature, away from the crowd	23	20	20	21	24	23	23	14	13	15	17	16	14	14
Improving physical fitness: gymnastics, fitness classes, treks and strolls, swimming, games	21	19	19	20	17	18	20	8	9	11	9	11	10	6
Visiting cafes and restaurants	15	15	15	13	15	15	15	9	8	9	11	10	9	10
Sightseeing (museums, historical sites)	13	13	15	15	14	15	11	10	9	8	9	10	8	10
Visiting national parks and nature reserves	12	13	13	12	12	12	10	13	9	8	7	9	6	6
Adventure tourism (e.g. sailing, canoeing, climbing, horse riding)	15	10	12	9	11	11	9	8	6	8	7	7	5	4
Favorite pastimes (fishing, photography, mushroom hunting)	6	5	9	8	10	8	8	8	8	7	7	6	7	9
Listening to the radio, watching TV	9	8	9	7	8	10	6	6	5	5	6	6	10	6
Medical treatment, spa, climate therapy	9	7	7	6	7	7	6	5	4	5	5	5	1	1
Reading	3	4	6	5	5	6	5	5	7	4	6	4	4	2
Visits to sites of religious worship	7	7	3	5	4	4	4	3	3	3	3	2	6	6
Skiing	2	4	3	3	4	3	3	2	3	2	3	1	2	1
Acquiring knowledge and skills	7	6	3	4	3	3	2	1	1	1	2	1	6	5
Specialized therapeutic procedures related to disabilities	3	2	2	3	3	2	2	2	3	1	1	1	-	1
Participation in theatrical shows, concerts, film presentations	3	2	2	3	1	2	2	1	1	-	-	-	2	4
Other activities	19	20	18	21	16	19	15	23	26	23	29	20	24	23

Source: Own work, based on Łaciek J., *Uczestnictwo Polaków w wyjazdach turystycznych w latach 2004–2010*. Retrieved from <http://www.intur.com.pl>, p. 44, 61 (Accessed May 2013)

## 8. Conclusions

The conducted analysis leads to the assertion that tourism occupies an important place among the ways of spending leisure time for Poles. The data collected lead to the conclusion that, for part of Polish society, tourism is becoming a permanent component of their lifestyle. For many years traveling used to be placed among a group of higher needs. Currently tourism is sometimes included in groups of basic needs (Gołembski, 2006, p. 40). This is due to the socio-economic development of countries, and the increase in the level and quality of life.

From the point of view of the subject matter of this article the question of ways of spending leisure time during tourist trips is of great interest. On the basis of empirical data one can draw the conclusion that less active ways of spending leisure time by Poles during tourist trips, both short- and long-term, are preferred. They include: a quiet holiday, short walks, socializing, entertainment, enjoying the peace and quiet away from others.

Rather passive leisure activities are characteristic of short-term trips. A more active way of spending leisure time is seen in the case of long-term domestic travel. Poles have tried to improve their physical fitness through long walks, treks, participating in sporting activities, swimming, gymnastics and fitness classes. Another important way of spending leisure time was going out to restaurants or cafes. Moreover, activities designed for cognitive, educational purposes, such as visits to museums, heritage parks, historical sites, national parks and nature reserves should be mentioned. It should be noted that these tourists more often declared the practice of adventure tourism (such as sailing, canoeing, mountain climbing, or horseback riding).

An observed phenomenon suggests that in the case of participation in tourism, the mid- to long term is more likely to be considered.

Leisure time management by participating in tourism is shaped by many factors, including: economic, social, demographic, geographic, natural, political and others. According to estimates by the Institute of Tourism, the significantly higher level of participation in tourism in total was declared by Poles having a good financial standing. This is also confirmed by the results of research conducted by CBOS.

The analysis of the level of spending on tourism makes one notice certain regularities, the first being the fact that spending on organized tourism increases as income rises. In groups including individuals who earn relatively the highest income.

The level and structure of expenditure on organized tourism was differentiated by the socio-economic type of household. Data from household budget surveys conducted regularly by the GUS allow one to observe that

the best indicators of tourist needs in the case of organized tourism were characteristic of households that enjoyed a good economic situation (Berbeka et al., 2008, p. 81).

The observed phenomena support the previously stated working hypothesis that management of leisure time activities is related to the level of disposable income in the household. With an improvement in the financial status of households, the level of expenditures on leisure will increase.

An interesting issue seems to be the reasons for a lack of tourist activity. The most common barrier to tourism is financial problems followed by the lack of free time. Other factors play a smaller role and limit participation in tourism to a lesser degree.

The overall aim should be to implement the results and insights obtained in practice, so that organizations and institutions responsible for the tourist relations become more effective in dealing with the public, thus allowing growing sections of the population to benefit from leisure services.

In conclusion, it is worth adding that forecasts relating to Polish participation in tourism, both domestic and international, are optimistic.

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**IV.**  
**FINANCIAL ASPECTS**  
**OF ORGANIZATIONAL MANAGEMENT**



# BANK CREDIT AS A MEANS FOR COUNTERACTING THE ECONOMIC SLOWDOWN

**Anna Nijakowska-Augustyn\***

## **Abstract**

*This paper attempts to identify the factors contributing to the limitation of lending which may stem from risk aversion of both banks and companies. It also presents the importance of credit as one of the main sources of funding the needs of companies, as well as one of the major means for counteracting the economic slowdown. Therefore, an empirical part of this paper comprises research on the correlation between gross domestic product and credit given to companies in general. Since investments made by companies have a significant impact on economic growth, the paper also presents the dependence of investments on investment credit. On the basis of research done, it has been ascertained that the main goal of economic policy should be to stimulate the activity of entrepreneurs by implementing various regulations that would increase lending by banks. Such actions would definitely improve the economic situation on the whole .*

**Keywords:** *limiting lending, the importance of bank loans for the economy, economic slowdown, the importance of entrepreneurial investments for the economy.*

## **1. Introduction**

An economic slowdown is a characteristic feature of every economy. However, in order to precisely define it, it is necessary to take into account the interdependencies between particular elements of the economic system and problems which stem from them. During an economic slowdown, entities existing in the non-financial market send out signals indicating an increased demand for support from financial institutions, mainly from banks. Therefore, the dependencies between institutions operating in the above mentioned markets increase during difficult periods (Puszer, 2012, p. 11-12).

Economic studies indicate that credit is a common method of financing the economic activity of companies, and for many of them also a way to cover the costs related to their development. The economic slowdown that can be

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currently observed will definitely have a negative impact on the real economy. Therefore, stimulating effective demand should be an important part of the operation of market entities. One of the methods of stimulating the economy is to provide inexpensive credit to market entities, the type of which is currently limited in Poland (Kluza, 2009, p. B13). Therefore, the question appears as to the reasons for the presently existing situation. Which factors determine bank policies of limiting lending to companies?

Credit is the major source of income for banks. Therefore this paper aims to identify the main reasons for banks limiting the availability of credit to companies, and to determine the importance for companies of lending as well as to the whole economy as it attempts to identify the link between the loans given to companies and economic growth measured by gross domestic product and by the size of investments made in the economy.

The definition of credit has been broadened in the paper to include credit and cash loans given to companies by banks, as required by the availability of statistical data. Despite the fact that the definitions of credit and loan differ, they will not be discussed, and for the sake of this paper will be referred to as credit. Due to the availability of statistical data the notion of entrepreneurs has been divided into two subcategories: the sector of companies that include state-owned enterprises and companies, private enterprises and companies as well as cooperatives, including private individuals operating their own business enterprises that employ more than 9 people. We will refer to individuals operating their own business enterprises that employ up to 9 people as individual entrepreneurs. (NBP. Instrukcja wypełniania..., 2013, p. 8-9). The Pearson correlation coefficient calculated in MS Office Excel was used to determine the relation between presented categories (Wierzbński, 2006, p. 185-186). Also, a hypothesis was formulated which says that lending to companies by banks increases along with economic growth.

This paper is mainly based on reference books and papers, partly theoretical, as well as statistical data from various sources (i.a. Central Statistical Office, National Bank of Poland). The first section of the paper attempts to identify the factors that contribute to limiting lending by banks. It then presents factors that impact the demand for credit on the part of the companies. It is followed by an attempt to identify the influence of credit granted to companies on the macroeconomic indicators which may have positive impact on the economy in times of the economic slowdown.

## **2. Limiting lending by banks**

Multiple empirical research proves that stimulating economic growth depends on the efficiency of financial markets that provide funding both to

the companies and private individuals. At the same time, by limiting access to the sources of funding, the entire growth of the economy is hampered (World Bank..., 2008). Entities that do not receive external support are often unable to implement planned investments, which later impacts the state of the entire economy. Companies then do not have the chance for further development which results in decreased income, followed by limited budget revenues as well as the deterioration of conditions in the labour market and a decrease in innovativeness of the economy. This is due to the fact that companies that face low income attempt to limit their operating costs, including personal costs, and they also limit expenditure on research and development, thus having a negative impact on the innovativeness of economies and economic growth (Leicht, 2011, p.7).

Recently, we have observed persisting difficulties with obtaining external funding by the companies. Despite enormous resources supplied by the European Union to the financial system, banks have been taking a cautious approach to lending, which has led to a decrease in lending both for individuals and the companies (Dukat, 2013).

Publications point to various reasons for a policy of limited lending by banks. Among the major ones are:

- changes in the monetary policy of the central bank,
- imposing restrictive precautionary regulations on banks by supervising institutions,
- deteriorating situation in the banking system which results in increased risk of insolvency of banks,
- increase in credit risk,
- limited granting of preferential loan to borrowers (lesser support from the government),
- restrictive requirements of banks towards companies (among others: good credit standing and proper collateral security) (Tymoczko and Pawłowska, 2007, p. 48).

Limited credit needs on the part of the companies may exist due to:

- significant increase in costs related to obtaining the funding which is disproportionate to the real level of the risk of supporting the particular company,
- limiting the availability of financial products offered by markets, or their full withdrawal,
- an increase in the number of requirements with regards to documents supplied by the entities stemming from increased level of complexity of internal procedures of the banks,
- centralizing the banks' decision-making centers leading to uneven placement of capital (Leicht, 2011, p. 7).

Limited lending by banks may stem from companies' increasing reluctance to take risk. This basically means that when an economic downturn is anticipated, banks may reassess expectations in terms of the scope of their activity. As a result, they lower their demand for credit, even if its price is low. The years 2007-2011 have been acknowledged as a difficult period for the country during which the economy was subject to a test regarding economic stability. However, it is important to acknowledge the state of the Polish economy in 2012 as well as the prospects for 2013, during which we may experience an economic downturn to a much greater extent. In the fourth quarter of 2012, the economic and financial state of the industrial sector significantly worsened (NBP Instytut Ekonomiczny, 2013, p. 5). A slight deterioration with regards to the preceding quarter was also recorded in the first quarter of 2013. Companies believe that a slight improvement in the situation could be noticed no sooner than in the second half of 2013. However, in the second quarter of 2013 further deterioration is expected (Ibidem, p. 5). As a result of the persisting unfavorable situation in the economy, the percentage of the companies applying for credit in the fourth quarter of 2012 was very low. At the same time, the availability of credit remained at a low level compared to the third quarter of 2012 and it was significantly beyond the level from the previous year. The main reason, according to companies, as to why they were denied credit was lack of lending capacity (56%); the second reason was lack of proper security (16%). It is worth pointing out that the percentage of companies using credit as well as those applying for it, remained on one of the lowest levels recorded (21,6% of the sample).

The structure of the allocation of credit has remained stable. In the fourth quarter of 2012, similarly to the previous quarters, companies used mostly working capital facilities, mainly to fund their resources. Companies used bank credit to a much lesser extent in order to fund investments in fixed capital (slightly over 16% of new credit) when the long-term credit prices remained at relatively stable levels. What is interesting is that in the first quarter of 2013 a decline in the interest rate of long- and short-term credit was observed comparing to the previous quarter, (There was both an annualized and quarterly decline).

Risk aversion can also be seen on the part of the banks. Even though studies often focus only on the problems encountered by borrowers, it is equally important to consider issues from the perspective of credit providers. Problems encountered by banks affect the amount of credit available and what follows; the situation pertaining to the actual state of the real economy. Banks may considerably limiting lending due to various reasons mentioned above. These in turn affect the situation in terms of potential borrowers (Puszer, 2012, p. 17). Limitations in lending may, among others, stem from banks'



requirements for liquidity as well as from capital requirements. Liquidity of banks should be considered both as current liquidity; i.e. the ability to meet the current commitments of the banks and their ability to continue their operations by ensuring proper balancing of assets and liabilities. Maintaining appropriate parameters by banks and other financial institutions is currently one of the major problems of the financial market (Hałaj 2008, p. 16).

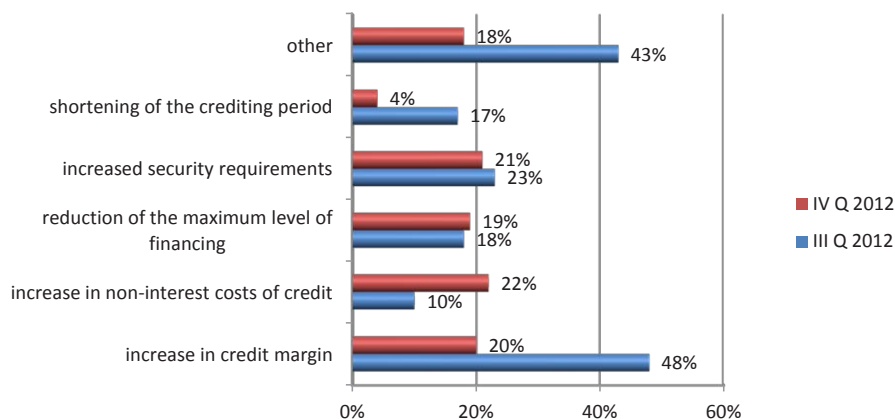
In order for the economy to grow in a stable manner, it is crucial that the banks do not reduce lending more than is required by the regulations imposed on them by the New Capital Accord that has been in place up until the present, but also by the requirements gradually introduced by the Basel III regulations (Kochaniak 2011, pp. 156 – 158). It is also possible to gain support from the central bank which, through monetary policy, can provide non-financial entities with capital necessary for the proper functioning of the market economy.

Even though the world-wide financial crisis in the years 2007-2011 did not have a significant influence on the Polish economy, it contributed to the slowdown of its development, and to the tightening of the credit policy by banks, including banks that operate in Poland, and which altered their operations significantly. One of the major changes was the introduction of a centralized European system of overseeing or supervising the entire financial system as a whole. It was implemented at a macro- and micro-prudential level and is designed to assess the situation of individual institutions in particular financial markets in order to ensure the stability of financial systems and protection for their clients. Implementation at the European level allows for the harmonization of national regulations and the unification of existing regulations, as well as facilitating risk assessment in financial systems of individual countries. However, it is worth pointing out that the main aim of the newly created system is supervision on a national level, since national institutions are to provide micro-prudential supervision and ensure protection for clients. Nevertheless, the ultimate decision-making and supervision remains at the European level (Hryckiewicz and Pawłowska, 2013, p. 16).

The crisis has affected the banks operating in particular countries of the European Union to a different extent. However, the Polish banking sector has proved to be relatively resistant both to the American crisis and the debt crisis in the Euro zone. This has resulted in the further functioning of the national banking system based on the traditional banking model; i.e. focusing on deposit and credit operations (Lepczyński and Penczar, 2012, p. 406). The level of the financial leverage of the Polish banking sector is still low compared to that of developed countries, which has sheltered Polish banks from certain problems. When granting credit, banks have to assess whether the security of deposits is put at risk. Up until 2005 the Polish banking sector

was characterized by a relatively steady balance sheet total, meaning that the amount of deposits was suffice to fund lending. The situation started to change rapidly in November 2007. The value of credit according to the data as of the end of 2008 significantly exceeded the value of deposits (respectively: 605.3 and 483.2 billion PLN) and this trend continued in the next years (at the end of 2011 it was 800.8 and 698.5 billion PLN respectively), and the quick rise in lending was funded mainly from foreign capital. At the end of 2005, foreign liabilities comprised 8% of the balance sheet total of the banking sector; in December 2008 they comprised 18% (Stefański, 2009, p. 299). This figure remained at a similar level in 2011 and it is not expected to change significantly in the coming years, which means that a considerable increase in lending is not very likely (KNF. Raport o sytuacji..., 2012, p. 5).

In 2012 credit policy was reshaped taking into consideration unfavourable forecasts of the economic situation and increased risk in particular sectors, especially in the construction sector (including construction, property development d related areas). These experienced a considerable downturn in 2012. Statistical information from banks confirm the above statements. In the fourth quarter of 2012 banks tightened the criteria for granting credit and loans to the companies, and this applied especially to small and medium-size companies. According to the information received from banks, in reality the scale of this process was smaller than it was expected to be (in the fourth quarter of 2012 banks forecasted bigger scale of restrictions). However, it is important to mention that considerable limitations were introduced as early as in the third quarter of 2012. The graph presented below reflects the situation (Fig. 1.)

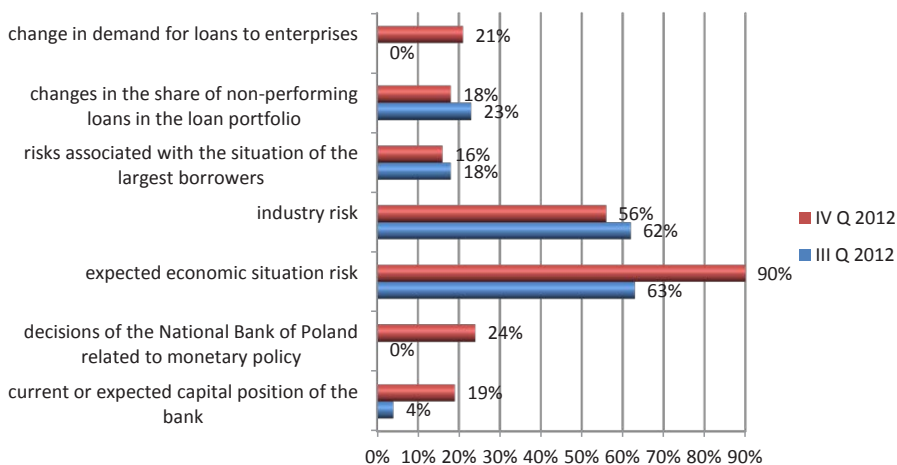


**Figure 1.** More stringent conditions of granting credit to companies

Source: self-study on the basis of: NBP. Sytuacja na rynku kredytowym... (2013).

In the second half of 2012 banks mainly introduced a policy of increased margins when dealing with companies and stressed the need to increase requirements and other conditions for granting credit, including a tightening of minimal market criteria. There was also an increase in the number of requirements for better forms of collateral as well as a reduction in maximum funding limits.

A lot of banks justified the tightening of their credit policy by pointing out the growing risk of deterioration in the economic situation in subsequent quarters. More than a half of all banks expect the risk factor to increase in particular sectors, especially the construction sector (which includes construction, property development and related areas), automotive industry and transport, retail and furniture production and woodworking. A tightening of credit policy was also a result of changes in the monetary policy of the National Bank of Poland: a negative impact of the lowering of the interest rates was mitigated by a rise of credit costs. However, in reality there were numerous reasons for changing credit policies (Fig. 2.) What is important to remember is that prospects for the future of the economic situation are difficult to forecast and the forecast by banks is not a positive one. Therefore, in the near future companies should not expect a credit policy to ease off. Uncertainty as to the future economic situation hampers correct assessment of credit risks and other risks faced by banks.



**Figure 2.** Reasons for changes in the credit policy of banks

Source: self-study on the basis of: NBP. Sytuacja na rynku kredytowym... (2013).

It is necessary to mention that companies which are aware of the general market downturn and lack of prospects of quick improvement in the economic

situation have a lower desire to increase their debt load, especially to take on more long-term credit as this results in postponing planned investments.

### **3. Credit as a source of funding for companies**

The Polish financial market is constantly developing and credit is one of the major sources of external funding for Polish companies. Therefore, limitation of credit availability by banks leads to problematic situations for companies when they find themselves lacking the necessary funds to support either their current activities or long-term investment projects. Without access to external funds, companies do not have the opportunity to fully use their production potential to extend the scale and scope of their production (Marzec and Pawłowska, 2011, p. 7).

Studies mention numerous functions of credit including issuing, income, distributing and stimulating functions (Bem, 2008), as well as the control function enabling the controlling of economic processes of the borrower (Stefański, 2009, p. 301). From the point of view of the borrower, the most important functions are the income and stimulating function. The stimulating function of credit refers to the purposes of the credit in the economy: to stimulate or reduce the economic activity of the companies. As far as the income function is concerned, it is related to the influence of credit on the income of the companies. Access to funding for company activities is one of the major factors which impacts the functioning and development of the company in the market. However, it is important that both sides show an interest in fostering mutual cooperation, i.e. the entrepreneurs should indicate a demand for credit and banks should grant this credit. The level of availability of financial resources and conditions under which companies can use credit are, at a later stage, the factors that contribute to the introduction of new products, services and technological solutions on the market (Brodowska-Szewczuk, 2009, p. 135).

The demand for bank products depends not only on the price that the company will have to pay the bank for granted resources. The decision on applying for credit is also influenced by such factors as the conditions of its granting, use and repayment. The bigger the requirements, the lower the demand for credit. Banks determine the form and size of the credit on such factors as the size of the company. Since the sector of small and medium-size companies is characterized by a low level of equity and simple organizational structure, usually the range of funds for such entities is smaller than in the case of large companies. However, as commonly known, the basic condition to be granted a loan is having creditworthiness (Wiatr, 2012, p. 146). Nevertheless, companies' credit applications are still most commonly rejected by banks due

to the lack of proper financial standing of the potential borrowers displayed through low liquidity and profitability (Tymoczko and Pawłowska, 2007, p. 48). Still credit is repaid from free cash flow gained from the borrower's operations and, therefore, past information has now more commonly become the starting point of assessment of the future financial standing of the borrower, taking into consideration the current and predicted economic situation (Dahmen and Jacobi, 2009, p. 83). Similarly, from the point of view of the companies, a vital factor influencing the demand for bank credit is the general economic situation which may be measured by a dynamic growth of the gross domestic product. Therefore, is it possible to observe a dependency between the gross domestic product and the companies' demand for credit?

The table below presents a comparison of statistical data related to the gross domestic product between March 2002 and December 2012 from a quarterly perspective and a comparison of credit and loans granted to companies and individual entrepreneurs within this period also from a quarterly perspective (Tab. 1.). Calculated Pearson correlation coefficients between gross domestic product and credit granted to companies and to individual entrepreneurs remain on very high positive levels which means that there is a very high relation between variables (Wierzbiński, 2006, pp. 185 – 186). Coefficients significantly exceed the critical value which needs to be reached by the absolute value of the correlation coefficient in order for it to be considered significantly greater than zero, depending on the sample size (Ibidem, p. 186). Moreover, the studies of the Pearson coefficient prove that within the discussed period, as many as 86% of changes to gross domestic product can be explained by the linear regression line of the relation with loans granted to companies ( $R^2$  – coefficient of determination) and as many as 88% of changes to gross domestic product can be explained by the linear regression line of the relation with loans granted to individual entrepreneurs. Very strong relation (almost a perfect linear correlation) occurs between credit taken by the companies and credit granted to individual entrepreneurs (Pearson coefficient of 0.9776), which may indicate the existence of strong connection between companies and individual entrepreneurs. Therefore, economic situation in the sector of companies may have considerable impact on the economic situation in the sector of individual entrepreneurs.

**Table 1.** Gross domestic product, credit in general granted to individual entrepreneurs and companies by banks in Poland between March 2002 and December 2012 (figures in millions of PLN, quarterly view)

		Credit in general		
Quarter		Granted to individual entrepreneurs	Granted to companies	Gross domestic product
2002	March	53 644,74	354 115,92	187 570,00
	June	52 698,31	351 593,84	197 917,50
	September	47 471,04	364 478,27	200 185,10
	December	46 008,96	360 407,45	222 186,90
2003	March	46 268,64	364 046,55	193 842,50
	June	45 632,24	365 949,18	207 307,10
	September	45 875,66	367 459,48	208 268,40
	December	46 207,61	370 596,92	233 738,20
2004	March	46 363,48	368 936,10	213 035,60
	June	47 269,67	360 585,46	224 806,10
	September	47 445,28	353 441,93	228 044,80
	December	47 251,75	354 650,10	258 651,10
2005	March	47 365,93	353 592,20	229 395,80
	June	48 788,23	360 832,52	238 094,50
	September	50 089,66	359 550,49	241 759,80
	December	50 619,46	361 127,28	274 052,20
2006	March	51 125,35	367 550,30	242 784,90
	June	53 379,57	376 049,45	255 497,10
	September	55 786,25	389 954,32	261 510,90
	December	58 398,25	403 784,81	300 238,50
2007	March	62 054,11	422 407,24	269 686,00
	June	67 721,06	450 484,29	282 591,40
	September	72 402,67	479 095,62	290 657,70
	December	75 999,61	501 751,57	332 331,20
2008	March	81 832,33	528 753,10	299 147,70
	June	90 806,54	561 660,81	310 884,30
	September	96 199,71	595 425,98	314 741,70
	December	102 053,66	639 895,68	350 734,60
2009	March	107 207,62	672 410,50	313 058,10
	June	110 847,80	660 052,27	325 485,60
	September	112 263,14	642 205,88	332 478,90
	December	115 289,48	634 312,09	373 482,50
2010	March	117 457,42	621 235,16	323 206,60
	June	122 895,14	618 355,34	344 700,00
	September	126 312,94	619 013,76	350 607,20
	December	128 529,95	620 810,84	398 071,50

2011	March	132 433,97	624 333,75	348 537,60
	June	138 408,79	650 481,03	368 884,70
	September	142 199,53	680 103,54	375 355,60
	December	145 465,93	714 069,91	430 467,40
2012	March	146 585,94	722 836,53	370 721,00
	June	151 587,21	739 052,03	388 258,00
	September	153 517,02	748 100,18	392 078,00
	December	154 314,13	742 126,53	402 653,21
Pearson correlation coefficient		0,9355	0,9300	
Coefficient of determination		88%	86%	

Source: self-study on the basis of: GUS. Rachunki kwartalne... (2007); GUS. Rachunki kwartalne... (2012); NBP. Należności i zobowiązania... (2013).

The observed high variation of investments in fixed assets is considered one of the main reasons for cyclical changes of the volume of aggregate demand and, as a result, changes to the gross domestic product. The relationship between the volume of implemented investments and the state of the economy is noticeable. A large part of these investments is done by the companies, therefore, decline in the number of investments in the sector of companies is often a portent of the worse economic situation, and an increase in the number of investments is often confirmation of the upward trend. In order to cover the investment costs, companies use resources from financial institutions more and more often (Molo, 2009, p. 37). In relation to the above statements, this paper additionally examines the linear relationship between investments made in the national economy between March 2002 and December 2011 and investment credit granted to companies and individual entrepreneurs in this period from a quarterly point of view (Tab. 2.) The time range of the data is related to the availability of statistical data regarding the capital expenditures in the national economy. Calculated Pearson correlation coefficients point to the relationship between variables, and their values are higher than the critical value, therefore, there is an indication of a linear relationship between investments and investment credit granted to companies and individual entrepreneurs. These connections are not as significant as the connections between the gross domestic product and granted credit (Pearson coefficients on the level of 61% and 62% respectively; details presented in Tab. 2.) It is concluded that in the discussed period on average 37% of changes in investments could be explained by linear relationships with investment credit granted to companies, and respectively 38% of changes could be explained by the linear regression of the association with investment credit granted to individual entrepreneurs. On this basis it can be assumed

that the role of investment credit in funding investments of the companies is relatively significant. Strong linear correlation between investment credit of the companies and those of individual entrepreneurs (Pearson correlation coefficients of 0.9692) confirms the existence of strong relationships between companies and individual entrepreneurs, which allows to assume that the rise in demand for credit among companies influences the rise in demand for credit among individual entrepreneurs.

**Table 2.** Investments, investment credit granted to individual entrepreneurs and companies by banks in Poland between March 2002 and December 2011 (figures in millions of PLN, quarterly view)

Investment credit				
Quarter		Granted to individual entrepreneurs	Granted to companies	Investments
2002	March	5 571,42	33 977,31	25 942,80
	June	17 118,75	107 075,65	32 858,90
	September	16 072,95	112 924,88	35 023,00
	December	16 003,42	118 728,78	57 647,20
2003	March	16 476,91	120 814,04	25 309,90
	June	16 199,35	120 044,08	33 073,30
	September	16 255,55	121 016,87	36 305,90
	December	16 740,37	124 975,21	59 069,00
2004	March	17 215,13	122 899,72	26 444,80
	June	17 544,28	118 996,40	35 192,90
	September	17 315,98	114 670,36	39 204,30
	December	17 341,99	111 838,68	66 316,20
2005	March	17 216,89	110 341,29	28 057,30
	June	17 686,13	115 371,79	37 211,20
	September	18 271,04	115 668,17	41 815,40
	December	18 637,90	115 479,72	72 096,10
2006	March	18 625,37	115 801,03	30 577,20
	June	19 577,58	120 395,94	43 806,20
	September	20 788,49	125 413,15	49 831,70
	December	21 193,91	123 417,49	84 649,00
2007	March	22 407,79	130 387,54	38 501,10
	June	24 097,29	133 018,86	53 322,60
	September	25 022,52	137 198,71	60 030,70
	December	26 065,08	138 420,19	101 874,10
2008	March	27 357,42	139 163,71	45 771,80
	June	29 992,09	149 571,17	63 849,70
	September	30 997,90	160 616,97	65 386,90
	December	33 041,25	176 149,55	108 897,60



2009	March	34 621,70	188 170,59	46 569,40
	June	35 102,23	186 639,36	63 505,80
	September	34 837,95	182 558,45	66 033,50
	December	35 766,27	183 239,76	108 540,20
2010	March	36 522,62	180 312,65	40 031,90
	June	37 927,44	181 565,49	62 237,30
	September	39 234,12	183 711,23	67 223,30
	December	40 362,44	186 480,46	111 827,80
2011	March	41 099,59	188 104,90	42 613,30
	June	42 183,20	198 592,50	67 352,90
	September	43 697,38	210 113,30	74 030,30
	December	44 743,19	228 172,73	125 746,30
Pearson correlation coefficient		62%	61%	
Coefficient of determination		38%	37%	

Source: self-study on the basis of: GUS. Rachunki kwartalne... (2007); GUS. Rachunki kwartalne... (2012); NBP. Należności i zobowiązania... (2013).

#### 4. Conclusions

The analysis carried out in this paper enabled confirmation of the formulated hypothesis. Along with economic growth, there is a rise in the demand for credit among companies. A strong relation has been observed between the gross domestic product and credit granted to companies and individual entrepreneurs in general, which was measured by the Pearson linear correlation coefficient. On this basis, it can be inferred that actions aimed at stimulating the economic growth which will result in an increase in gross domestic product, will contribute to an increase in demand for credit among companies. At the same time, supporting companies with credit will improve the economic situation. Therefore, the aim of the macroeconomic policy should be to stimulate economic activity through various incentives, including governmental programmes, which would increase the interest of companies in credit and would result in an improved economic situation.

The analysis also provides evidence that in the discussed period investment credit was important in funding investments made by companies. However, strong relation among variables cannot be observed, which could indicate that apart from bank funding, companies gained resources for investments from different sources. From a historical perspective the use of investment credit is significant and points to an upward trend, which may be related to the development of the financial market and the banking system and which could result in systematic stimulation of the economy in the future.

Despite the current economic slowdown, companies in Poland have been coping surprisingly well with the situation. However, recently banks operating in Poland have introduced new restrictions related to granting credit, which may result in reducing lending resulting in an economic downturn. Therefore, the goal of the policy of the government and the supervising institutions should be to support the activity of companies through the use of appropriate instruments and regulations that stimulate lending. Such actions should mitigate the impact of the economic slowdown on the Polish market.

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# THE USE OF DISCRIMINANT MODELS IN PREDICTING BANKRUPTCY OF ENTERPRISES IN THE CONSTRUCTION SECTOR

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## **Abstract**

*The problem of bankruptcy of enterprises, even if it is a natural process for the market economy and is even helpful for some theoretical conceptions, is that it also brings different kinds of threats. Yet, the prediction of these threats may reduce the negative consequences in a significant way. This paper examines the possibility of predicting the bankruptcy of enterprises in the construction industry listed at the WSE with the use of selected discriminant models.*

**Keywords:** *bankruptcy of an enterprise, discriminant models, construction sector, prediction abilities*

## **1. Introduction**

In 2007 the UEFA Committee announced a decision that the host countries responsible for organizing UEFA EURO 2012 would be Poland and Ukraine. This fact, along with existed delays in infrastructural investments in Poland, pointed at the construction industry as one of the biggest beneficiaries of this undertaking. This thesis was also supported by the rapid increase in share values of companies in the construction industry listed at the Warsaw Stock Exchange once the decision of UEFA Committee's was announced. Unfortunately, just before the beginning of the final stages of the championships, co-organized by Poland, the real physical situation concerning the construction industry turned out to be completely different. Numerous cases of companies not fulfilling their financial obligations to subcontractors along with the bankruptcy of other construction companies led to a point where we had to question whether it could have been possible to avoid this type of situation.

The aim of this paper is to discuss the prediction abilities of discriminant models with reference to the construction industry in Poland during preparations for EURO 2012. The results of the conducted analysis may help to answer the question if the use of the mentioned models could reduce negative economic effects connected with bankruptcy of construction companies. The financial

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analysis includes the companies from the construction industry listed on the Warsaw Stock Exchange.

## **2. The problem of company bankruptcies**

While evaluating the financial situation of a company, it is important to establish if this company is still able to continue on with its business. Such a criterion became crucial in the case of companies from the construction industry which were functioning in the Polish market between 2008 and 2012, the results of which was a „surge” of bankruptcies affecting the construction industry directly. The extent of these bankruptcies exceeded financial problems in other sectors of the Polish economy. What is more, the importance of the bankruptcy problem is emphasized by the fact that it concerned some of the largest companies functioning in the Polish market. One of the construction industries whose shares were included in the portfolio of WIG20 (the Warsaw Stock Exchange’s blue-chip index) in March 2012, may serve as an example.

The topic of problems connected with an entity’s bankruptcy is not a new phenomenon in the functioning of the market economy. It is the market’s natural way of self-regulation when companies which have been losing „the market game” and have ceased continuing their activity. This self-regulation results from the lack of „soft budget constraints” whose existence, as J. Kornai pointed out, was characteristic of companies functioning in socialist economies (Kornai 1985, p. 20).

While considering an entity’s bankruptcy in micro-scale, the problems which result are visible directly. However, in economic theory there are also conceptions suggesting that a company’s bankruptcy in macro-scale should be considered as a positive process. In particular it is worth paying attention to J. Schumpeter’s view about the existence of „creative destruction” (Schumpeter 1939, p. 40). The basis of such a philosophy is the assumption that a company’s bankruptcy will „free” ineffective resources used by this company and let them find a better allocation in the economic system. The power which leads to economic growth is the continuous aspiration for innovations resulting from leaving old methods of behaving in favor of new ones.

As E. Mączyńska emphasizes, the phenomenon of bankruptcy could be “as old as the hills”. This problem is indirectly discussed in such economic theories of the business cycle or company life cycle. Mączyńska also adds that there is a visible lack of one compact, comprehensive theory concerning this issue. Attempts at shaping this theory may be found in the work of A. Schwartz entitled „A Normative Theory of Business Bankruptcy” (Schwartz 2004).

The reasons for bankruptcy of companies may be divided into two groups: exogenous and endogenous. Among exogenous reasons a current business cycle comes to the forefront. According to research conducted by A. Hołda, there is a strong negative correlation between the dynamics of the Polish GDP and the number of bankruptcy proceedings and debt conciliations (Hołda 2006, p. 67-68). Another essential correlation concerning the bankruptcy problem is the existence of a clear correlation between the time of a company's existence on the market and the probability of its bankruptcy (the longer the company exists, the lower probability of its bankruptcy) (Altman 1993). Among other factors which determine the bankruptcy of a given entity worth mentioning is a deficit of financial resources, insufficient flow of information, a lack of qualifications, defects in planning, family problems, and revaluation of the basic ratios. (Hołda, Pocięcha 2009, p. 134-135).

An extremely crucial factor which is currently influencing the scale and intensity of bankruptcy is globalization. According to W. Szymański, „globalization dictates that it is necessary to introduce creative destruction at a pace and at the scale of the international markets” (Szymański 2005, p. 20). Internationalization also means that possible bankruptcies are not only a local, but also an international problem. It results from, as mentioned by J.A. Ocampo, S. Spiegel and J.E. Stiglitz, channels of shock transmission between domestic economies in the era of globalization (Ocampo, Spiegel, Stiglitz, p. 1-46). The first of these transmission channels exists in the real economy. To picture the effects of bankruptcy, one can imagine two cooperating foreign contracting parties, where one goes bankrupt and causes negative economic repercussions for the other, and thus a disruption in the country's economy.

The second channel is connected with the economy's finances. It occurs in a situation when there are financial connections between entities. The third of the mentioned channels is the existence of the so called „herding effects”. It means that there is a sudden change in investors' expectations for the market of a given asset (country or region). This change results in a „quick escape” of „hot money” capital. This escape brings serious negative consequences for the entire economy of the country in which it is taking place. The shifting of the above mentioned effects from one country to another is not directly connected with the existence of connections in financial or real terms. The reason for this escape is the existence of information asymmetry in financial markets. According to Greenspan „financial markets are characterized by periods of irrational pessimism or optimism” (Greenspan 2007, p. 188-208).

The problem of bankruptcy does not bring consequences only for the entity that it directly concerns. To some extent it touches upon each stakeholder functioning in the environment of the company; employees, contracting parties, creditors, consumers and the country. As was mentioned above, it is becoming

more and more difficult to control these problems in light of the progression of the globalization process. Therefore, a proper institutional-legal framework is crucial for the appropriate proceeding of a company's bankruptcy process. In Poland it is contained in The Bankruptcy and Reorganization Law (Act of February 28, 2003 – The Bankruptcy and Reorganization Law, Dz.U. 2003 No 60, poz 535 with changes). Regulations of bankruptcy and reorganization law have been introduced into the Polish legal system with new solutions in the field of recovery and composition proceedings. Settling outstanding liabilities by the debtor nor a debtor's excessive debt is considered premises for declaring bankruptcy according to the new regulations. A condition in order for a company to declare bankruptcy is that it possess sufficient financial resources to cover costs associated with bankruptcy proceedings.

### **3. Selected methods of predicting bankruptcy**

The existence of a suitable institutional-legal framework enables a reduction of the causes of bankruptcy from the moment they appear. If the threat that a company with financial problems may cease operations is discovered early enough, it may allow time to find ways of reducing financial costs; that is, loss of capital by shareholders, lenders' losses resulting from non-payment of a loan, cooperators' losses resulting from non-payment of bankruptcy fees, and social costs such as unemployment (Prusak 2004, p. 165-179). For this reason various researchers, starting in the early 1960's, began researching the possibility of an early warning system against bankruptcy. In theory and practice several methods of predicting bankruptcy have been formulated. They are the following:

- one-dimensional ratio analysis,
- linear multi-dimensional discriminant analysis,
- logit and probit models,
- steps division models (decision diagrams),
- hazard models,
- expert systems,
- mathematical programming,
- neural networks,
- application of fuzzy set theory.

The first mentioned method, a one-dimensional ratio analysis, was proposed by W. Breaver (Breaver 1967). In his analysis, Breaver included 30 financial ratios for „health” companies and bankrupts up to five years before declaring bankruptcy. The result of his research was the thesis that bankrupt companies up to five years before going bankrupt were significantly different from non-bankrupt companies as to the value of analyzed financial ratios.



W. Breaver's work is considered as ground-breaking. It is worth mentioning that Breaver's work was preceded by the works of the following authors: W. Rosendale (Rosendale 1908), J. Ramser and L. Foster (Ramser, Foster 1931) and C. Merwin (Merwin 1942). Significant contribution to the theory and practice of bankruptcy prediction were made by R.O. Edmister (Edmister 1972). He paid attention to the fact that a good quality prognoses concerning a company's existence in the market stem from the trend's analysis of financial ratios value, mainly considering its last level.

Main ratios used in the financial evaluation of a company (thus in the threat of bankruptcy) may be divided into five groups:

- liquidity ratios,
- activity (operating) ratios,
- debt ratios,
- profitability ratios,
- market ratios.

Possessing data from the financial statements of a given company, it is not difficult to calculate the value of the mentioned ratios. Unfortunately, a one-dimensional ratio analysis, apart from advantages such as simplicity and accuracy of prediction, has also numerous disadvantages. First of all, as E. Mączyńska emphasizes, many ratios may be marked with subjectivity in selecting them (Mączyńska 2001, p. 363-372). Furthermore, the arbitrary establishing of optimum value for each financial ratios is often questionable (Davis 1993, p. 45-55).

A linear multi-dimensional discriminant analysis helps in solving the problems with using a one-dimensional ratio analysis. The first one who suggested this kind of bankruptcy prediction method was E.I. Altman in 1968 (Altman 1968). He combined the classic ratio analysis with a multiple discriminant analysis. In his empirical research, Altman used data from 66 companies, half of which went bankrupt. Altman in his analysis used 22 financial ratios, then he reduced them to 5 of the most useful in predictions. Basing on historical data from the analyzed companies, he created a discriminant function which has the following expression:

$$Z_A = 1,2 * X_1 + 1,4 * X_2 + 3,3 * X_3 + 0,6 * X_4 + 1,0 * X_5 \quad (1)$$

where:  $X_1 = \frac{\text{working capital}}{\text{total assets}}$ ,  $X_2 = \frac{\text{retained earnings}}{\text{total assets}}$ ,  $X_3 = \frac{\text{EBIT}}{\text{total assets}}$ ,  
 $X_4 = \frac{\text{market value equity}}{\text{book value of total liabilities}}$ ,  $X_5 = \frac{\text{sales}}{\text{total assets}}$

The value of a given discriminant function (that is critical value) which determines the group classification, either to bankrupts or non-bankrupts group, is 2,675. Thus, „healthy” entities are characterized by values higher

than 2,675. It is necessary to emphasize that the model is extremely accurate in classifying 95,4% of the total sample correctly.

Transition of the Polish economy from a centrally-planned economy to market economy caused an increase in interest in the problem of bankruptcy. In light of frequent accusations that Altman's model was not adapted to the reality of the transitioning economy, the need to create a model based on the Polish economical reality appeared. The first such model was created by E. Mączyńska (Mączyńska 1994). The discriminant function presented by Mączyńska has the following expression:

$$Z_M = 1,50 * X_1 + 0,08 * X_2 + 10,00 * X_3 + 5,00 * X_4 + 0,30 * X_5 + 0,10 * X_6 \quad (2)$$

where:  $X_1 = \frac{\text{annual financing surplus}}{\text{liabilities}}$ ;  $X_2 = \frac{\text{total assets}}{\text{liabilities}}$ ;  $X_3 = \frac{\text{financial result before tax}}{\text{total assets}}$ ;  
 $X_4 = \frac{\text{financial result before tax}}{\text{annual revenues}}$ ;  $X_5 = \frac{\text{reserve}}{\text{annual revenues}}$ ;  $X_6 = \frac{\text{annual revenues}}{\text{total assets}}$

In the case of the function proposed by Mączyńska, the critical value is 0. Bankrupt companies have a value below 0.

The discriminant function for the total of companies functioning in the Polish economy, other than Mączyńska's function, was proposed by J. Gajdka and D. Stos (Gajdka, Stos 1996, p. 56). The function is expressed by the following:

$$Z_{GS} = 0,7732059 - 0,0856425 * X_1 + 0,0007747 * X_2 + 0,9220985 * X_3 + 0,6535995 * X_4 - 0,594687 * X_5 \quad (3)$$

where:  $X_1 = \frac{\text{sales revenue}}{\text{total assets}}$ ;  $X_2 = \frac{\text{short-term liabilities}}{\text{cost of manufacture of products sold}} * 360$ ;  $X_3 = \frac{\text{net profit}}{\text{total assets}}$ ;  $X_4 = \frac{\text{gross profit}}{\text{net sales}}$ ;  $X_5 = \frac{\text{total liabilities}}{\text{total assets}}$ .

In the case of the discriminant function proposed by J. Gajdka and D. Stos, the critical value determining classification of a company into a given group is 0,45. Above this value, companies are considered not subject to bankruptcy. Values below 0,45 determine the classification of an entity as bankrupt.

Another significant discriminant function was estimated by D. Hadaski (Hadaski 1998, p. 166). This model was checked during sample tests. Its accuracy was estimated between 83,33% and 95,74%. D. Hadasik's discriminant function has the following expression:

$$Z_{HA} = 2,36261 + 0,365425 * X_1 - 0,765526 * X_2 - 2,40435 * X_3 + 1,59079 * X_4 + 0,00230258 * X_5 - 0,0127826 * X_6 \quad (4)$$

where:  $X_1 = \frac{\text{current assets}}{\text{current liabilities}}$ ;  $X_2 = \frac{(\text{current assets} - \text{reserve})}{\text{current liabilities}}$ ;  $X_3 = \frac{\text{total liabilities}}{\text{total assets}}$ ;  
 $X_4 = \frac{(\text{current assets} - \text{short-term liabilities})}{\text{total liabilities}}$ ;  $X_5 = \frac{\text{receivables}}{\text{sales revenue}}$ ;  $X_6 = \frac{\text{reserve}}{\text{sales revenue}}$

In Hadasik's function, the same as in the case of E. Mączyńska's function, the critical value is 0. This means that entities with value below 0 for ZHA

are in danger of bankruptcy, and those with values over 0 are not subjected to bankruptcy.

The discriminant function presented by B. Prusak (Prusak 2004, p. 165-179) has a very high prediction ability. It was based on data from 40 entities from the period between 1998 and 2002. This function is expressed by the following:

$$Z_p = -1,5685 + 6,5245 * X_1 + 0,1480 * X_2 + 0,4061 * X_3 + 0,40616 * X_4 \quad (5)$$

$$\text{where: } X_1 = \frac{\text{operating profit}}{\text{annual average of assets}}; X_2 = \frac{\text{costs of basic operating activity}}{\text{average short-term liabilities}^3}; X_3 = \frac{\text{current assets}^4}{\text{short-term liabilities}^5}$$

$$X_4 = \frac{\text{operating profit}}{\text{average short-term liabilities}}$$

In B. Prusak's model a company is subjected to bankruptcy if the value for its  $Z_p$  function is lower than -0,13. In order to include a company in a group of „healthy” companies, its function's value has to be over 0,65.

The next discriminant function for the companies functioning in Poland is presented by A. Hołda (Hołda 2006, p. 80). In Hołda's model explanatory variables are financial ratios which describe profitability, liquidity and debts. This model is characterized by a high forecasting accuracy (in tests it reached over 80% of accuracy). Hołda's function is expressed in the following manner:

$$Z_H = -0,073 + 4,015 * X_1 + 0,587 * X_2 + 0,78 * X_3 \quad (6)$$

$$\text{where: } X_1 = \frac{\text{sales returns (loss)}}{\text{costs of operating activity}}; X_2 = \frac{\text{current assets}}{\text{short-term liabilities}}; X_3 = \frac{\text{liabilities+reserve+RMB}}{\text{total assets}}$$

What is more, A. Hołda is also the author of a discriminant function prepared only for entities in the construction sector. The discriminant model created by him is characterized by a high classification ability in a „learning group”. The discussed function is expressed as the following:

$$Z_H = 1,466 - 3,101 * X_1 - 0,015 * X_2 + 2,629 * X_3 \quad (7)$$

$$\text{where: } X_1 = \frac{\text{net cash from investment activity}}{\text{total assets}}; X_2 = \frac{\text{short-term receivables}}{\text{total trading revenue}};$$

$$X_3 = \frac{\text{net profit (loss)+ result from previous years}}{\text{short-term liabilities}}$$

For both Hołda's discriminant functions (the first one made for all companies and the second one for the construction sector) the critical value is 0. The companies for which the value of discriminant function is over 0 are not in danger of bankruptcy. Those companies with the function's value below 0 are classified as bankrupts.

A multi-dimensional discriminant analysis is the most popular analysis used in the contemporary practice of bankruptcy prediction. This analysis is

used in more than 30% of cases (Hołda, Pociecha 2009, p. 139). Unfortunately, the use of this method has some disadvantages too. They are the following:

- a lack of opportunity to make a content-related interpretation of a synthetic meter,
- a high level of generalization and synthesis,
- difficulties connected with the creation of discriminant model with reference to a specific company basing on dynamic data,
- a lack of complete comparison of data between each unit (it results from differences in accounting's policy)
- difficulties in getting an access to empirical data (Nowak 2002, 157-163).

Apart from the discussed methods, a one-dimensional ratio analysis and discriminant analysis, as well as a logit analysis play a significant role in the practice of predicting bankruptcy of companies. The logit analysis is used in over 21% of processes of estimating entity's ability in continuing its business (Hołda, Pociecha 2009, p. 139). Logit models belong to the group of models in which the explanatory variable has only two values or models of binary classification. What is more, logit models are characterized by the existence of logit, that is, the log-odds unit. The first scholar who constructed a logit model was J. Ohlson in 1980 (Ohlson 1980). M. Gruszczyński (Gruszczyński 2001) and D. Wędzki (Wędzki 2005) created logit models for the Polish entrepreneurs.

#### **4. Prediction abilities of selected discriminant models**

The presentation of methods used in predicting bankruptcy of companies proved that the linear discriminant analysis is the most popular method among practitioners. Additionally, the models constructed according to this method are characterized by a high accuracy of forecasting the company's future situation. Therefore, formulas based on this analysis were selected to check their prediction abilities in the case of construction companies listed on the Warsaw Stock Exchange. Among numerous models of that kind, research was based on works by E.I. Altman, E. Mączyńska, J. Gajdka and D. Stos, D. Hadasik, B. Prusak and A. Hołda.

The crucial category in estimating the model's prediction quality is its power. It specifies how precisely this model divides a group of companies into entities not subjected to bankruptcy and bankrupts (Stein 2002, p.1). In this context also important are categories such as estimation failure of the 1<sup>st</sup> and 2<sup>nd</sup> type. The first one means, that the unit which in reality went bankrupt was recognized as a „healthy” unit. Failure of the 2<sup>nd</sup> type points to the idea that the unit which was not subjected to bankruptcy was recognized as a bankrupt.

Even though failures in both categories are important in describing the quality of a model, while analyzing the situation of the construction industry and negative consequences of bankruptcy of its meaningful companies, it seems that failure of the 1<sup>st</sup> type is more significant. In other words, this kind of failure should be kept to a minimum.

A group of companies, on which an estimation of power of the mentioned discriminant models was based, are construction companies listed at the WIG-construction index. This index includes all construction industry companies whose share are quoted on the Warsaw Stock Exchange. What is more, the research also includes companies which went bankrupt in 2012 and now they are not included in portfolio of index WIG-construction. Summing up, a sample of tested companies includes 28 companies, 4 of which went bankrupt in 2012. A group of bankrupts in the present research was extended to companies with an investment rating on a D level („default”), which means that two more companies are added to „bankrupts” (see Hołda, Pociecha, p. 126-132).

Data from financial statements of companies tested were introduced as explanatory variables to the discriminant models mentioned above. The obtained values were compared with the real situation of companies in 2012.

The power of Altman’s model used for predicting bankruptcy of companies in 2012 on the basis of financial data from 2011 was about 42%. The value of the variable was decreasing along with the use of companies’ financial data from the previous years (that is, from 2008 to 2010). What is interesting, is that Altman’s model correctly pointed to all bankrupts (on the basis of data from 2011). The low power of this model results from the high value of the 2<sup>nd</sup> type failure. It results from a drop in share prices of the construction companies listed at the WSE (variable in a model), which was then the effect of increasing aversion of international investors to markets of developing countries.

E. Mączyńska’s model definitely had better prediction abilities concerning the situation of construction companies in 2012. Its power’s value (on the basis on data from 2011) was about 82%. This model is characterized by effective prediction abilities also using of data from the previous periods. Unfortunately, this model did not indicate correctly all bankrupts since it was characterized by a high level of 1<sup>st</sup> type failure.

J. Gajdek and D. Stos’s model was also characterized by a high level of prediction abilities. Its power was 78,75% (basing on financial data from 2011). In this model prediction values were decreasing along with the use of financial data from the previous years. Unfortunately, this model did not indicate correctly all the companies from the construction industry which went bankrupt in 2012.

The next analyzed model of D. Hadasik also has a high prediction ability. The classification of companies made by this model is correct to the level of 82% (according to data from 2011). Yet, this model correctly predicted the bankruptcy of only one company. What is interesting also is that the failure of the 1<sup>st</sup> type is increasing along with the use of data from the previous years.

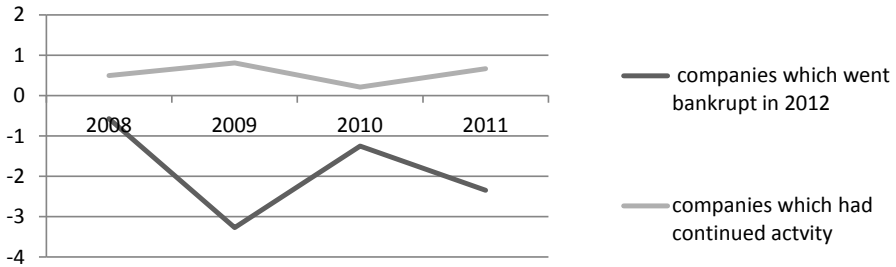
The model of B. Prusak is characterized by low power (especially while comparing with the models described above). Its advantage is a correct indication of all bankrupts. Additionally, basing on data from 2012, this model indicated only one company which went bankrupt in 2012 as a „non-bankrupt”.

Both Hołda’s models, the first one for all companies and the second one created only for the construction sector, are characterized by a high level of power: 85% and 79%. These models are characterized by a high prediction ability of company’s situation in 2012, also with the use of data from the years before 2011. It means that these models sent signals about possible bankruptcy in advance. The model created only for the construction sector has better results with regard to the 1<sup>st</sup> type failure. Using this model (on the basis on data from 2011) it was possible to correctly indicate all companies which went bankrupt in 2012. What is more, this model up to 2 years in advance failed to indicate correctly only one bankrupt. Table 1 presents a matrix of classification’s results for the A. Hołda’s model (for the construction sector) with the use of the company’s financial data from 2011.

**Table 1.** A matrix of classification results made with the use of A. Hołda’s model for the companies in the construction sector

		Situation of companies forecasted at the end of 2011	
		bankruptcy	avoiding bankruptcy
Real situation of a company	bankruptcy	6	0
	avoiding bankruptcy	6	16

Significant information concerning the future condition of a company in the construction sector may be obtained also from an analysis of the variance of the average value of the discriminant function (Hołda’s authorship) for each company between 2008 and 2011. As Graph 1 indicates (the graph which presents average values of discriminant function for „bankrupts” and „non-bankrupts” companies between 2008 and 2011) there are significant differences between levels of the mentioned averages. Additionally, the direction of their changes is opposite as time goes on.



**Figure 1.** Average value of the discriminant function for bankrupt and non-bankrupt companies

## 5. Conclusions

The problem of bankruptcy of enterprises, even if it is a natural process for the market economy and is even helpful for some theoretical conceptions, is that it also brings different kinds of threats. These threats have different forms and scales depending on an entity's size and the scale of connections in the environment in which it functions. It is worth paying attention to the fact that the problems connected with bankruptcy may increase along with the progressive process of globalization. It results from the changes in the environment in which the company functions. The result of this is increasing uncertainty of the company's business activity. The increase of the mentioned threats results also from the existing problem of information asymmetry and "herding effects".

2012 brought many bankruptcies of companies functioning in the Polish construction market. The problem concerned the largest entities too. The negative effects of insolvent companies suffering from a decline also affected in a significant way the entities which cooperated with them; mainly the subcontractors. What is more, a large part of the bankruptcy costs was then imposed on the taxpayers, who had to pay twice for the same service. Therefore, it is crucial to address the question of whether the use of bankruptcy prediction might assist in pointing out the threats in advance.

Within the framework of this paper an analysis was done of financial results of companies from the construction industry listed at the Warsaw Stock Exchange between 2008 and 2011. This analysis made use of selected discriminant models. In accordance with this analysis, discriminant models seem to be the proper tools in predicting the bankruptcy of companies from the construction industry in situations such as that which took place in Poland while preparing for EURO 2012. Thus, a discriminant model is a tool which may influence reduction of negative effects of company bankruptcies in the future.

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# THE INCREASING IMPORTANCE OF COMPANIES USING FINANCIAL INSTRUMENTS FROM THE NON-FINANCIAL SEGMENT AS A CONTEMPORARY ASPECT OF MANAGING COMPANY FINANCES IN POLISH CONDITIONS

**Bogusław Waclawik\***

## **Abstract**

*With the author's analysis of financial reporting, specialist market reports and other literature, it follows that over the last few years among Polish enterprises from the non-financial segment, we can observe a significant increase in people responsible for the finances using a broad spectrum of financial instruments to manage company finances.*

*The aim of this article is to identify the main reasons for such a large increase of companies in the non-financial segment using these instruments, as well as to indicate and discuss the most important financial instruments used by business units. In addition, it aims at identifying the major problems being revealed related to using financial instruments in accounting, financial reporting and auditing. It elaborates also on the problem of so called "toxic currency options" of Polish exporters.*

**Keywords:** *derivatives, corporate bonds, financial instruments, financial management of enterprises, financial risk, problem of Polish toxic currency options, short-term corporate bonds (commercial papers), stocks.*

## **1. Introduction**

Contemporary, financial instruments (contracts) clearly can be seen as an inseparable component of the market economy in widely understood financial markets. In the author's opinion, it is possible to talk about a significant increase in usage of financial instruments by non-financial companies to maximize their market value.

The above statement is reflected in the practice of Polish economic life by the fact, that each manager is, without a doubt, conscious that the market economy has been saturated with everything ( every kind of material goods), but not with money (finance capital). Thereby managers of companies are

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trying to select and use, but also to create these instruments so as increase the value of companies to the highest possible degree. Moreover, it is worth noting that financial instruments are more often present and in increasingly greater quantities. It is also true in terms of growth of their nominal value in relation to the total of economic entities, as evidenced in the books of these companies.

The target of this analysis is to indicate the reasons for the increasing use of financial instruments by non-financial companies and to present the major instruments that can be used by this units. It also aims to present the major problems with financial instruments in accounting, financial reporting and audits, and also a discussion – on the so called problem of currency option of Polish exporters – inappropriate exploitation of financial instruments.

During an elaboration of this article, the author carried out an analysis of the financial reporting of national enterprises (medium and large, including enterprises quoted on the Warsaw Stock Exchange) from the non-financial segment. Moreover, the author used specialist market reports regarding financial instruments used by non-financial enterprises, and carried out a study of literature written on this subject.

## **2. The overriding objective in managing a company's finances**

Literature indicates that the overriding objective in managing a company's finances (profit-oriented), is to maximize market value for its owners [Dziawgo, Zawadzki, 2011, p. 20; Czekaj, Dresler, 1996, p. 12]. However, it is worth noting, that the criterion of maximizing profits is defined unambiguously where decisions in the company are taken in conditions of certainty, and decisions are related to a short period of time. However when decisions are taken in conditions of uncertainty, and the consequences of those decisions (future real effects) are expanded for several periods, this criterion cannot be clearly interpreted, and thus cannot be the basis for rational choices [Czekaj, Dresler, 1996, p. 14].

The author of this analysis maintains, that to fully accomplish maximum market value (as in short and long term), every financial director should be able to, first of all, ensure financial liquidity of the unit because, as empirical research shows, the loss of financial liquidity is the main reason for the collapse of an enterprise [Wędzki, 2006, p. 264-265]. Financial directors<sup>2</sup> should ensure sufficient financing in advance for the company's current and development (investment/strategy) activities. We can distinguish two main types of financing [Megginson, Smart, Lucey, 2008, p. 367-368; Dziawgo, Zawadzki, 2011, p. 31]:

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<sup>2</sup> In a small economic entities where is no such position, the owner or general manager are responsible for finance companies, which also act as finance director.

- Prospective (external) – when an economic entity uses foreign financial resources in the form of loans, credits or emitting its own debt instruments (such as commercial bonds, obligations),
- Retrospective – when an enterprise uses their own financial resources; for example retained earnings from previous years or funds from the restructuring of their assets.

It is also worth drawing attention to the specifications of a global economy in the context of well-educated economic market models of corporate financing. We can distinguish the following models (systems) of financing economic activities [Clarke, Chanlat, 2009, p. 146-148; Tirole, 2008, p. 333 -334]:

- Anglo-Saxon model – in this system which is functioning, for example in United Kingdom or United States of North America, companies acquire, in the most part, the financial measures (capital in it) of the financial market from investors who are ready to take risk and purchase from enterprises emitted by them instruments, so of the equity (for example shares), and also debt (for example commercial bonds, obligations),
- Continental model (German-Japanese) – in this system, which is functioning, for example in Germany, but also occurs in Poland, business entities acquires financial measures and capitals, mainly from banking system, in the form of loans and bank credits. However, in this system, the financial market, as a place to acquisition of necessary financial measures, also plays some role.

Relating to the economy in Poland, it can be said, that there is a gradual increase in the role of financing, especially investment undertakings by indigenous entrepreneurs in the capital market through debt emission, and also equity securities. It does not mean that companies do not try to raise funds to finance their current activities using the financial market. Also, in the area of financing current activities, there is visible growth in the acquisition of financing from, for example, the emission commercial bonds or corporate obligations.

### **3. The growth in importance of exploiting financial instruments in the management of company finances in Polish conditions**

Nowadays, financial instruments (contracts) can clearly be seen as an inseparable element of market economies in particular widely understood financial markets. It is directly reflected in the rapidly advancing processes of transferring funds, capital or in terms of the risk in various forms of these financial instruments. Moreover, financial instruments support the process of managing a company's finances by, for example, the possibility of acquiring necessary financial/capital backing (for example by emission of commercial

papers, obligations or shares/treasury shares). They also can be used as an instrument of allocation of available funds.

In developing countries or so called, *emerging markets*, including Poland we can observe a gradual but quite clear increase in the use of these instruments by business entities. The Polish financial market offers companies quite a considerable range of instruments possible for use by national business entities. Attention should be paid to the fact, that the Polish economy is still in the process of economic transformation, and the number of possible financial instrument available for national companies is still lower than in countries of Western Europe, the United States, and Japan. Not so long ago, the main financial instruments used by Polish entrepreneurs – or more precisely, the instruments which were mainly used for the allocation of still available financial resources – were deposits, treasury bonds or term deposits in banks (occasionally shares, without mentioning instruments for securing against risk). Currently visible is a very wide range of financial instruments used by national non-financial corporations. As one example, a growing consciousness among native enterprises has been observed for some time and a significant increase in using derivative instruments to protect against financial risk.

Thus, we can draw the conclusion, that in present Polish conditions we are dealing with a large increase in the importance of the use of financial instruments by companies to maximize their market value. Reflected in the practice of Polish economic realities, the current situation is that:

- financial instruments are more often present and in increasing greater quantities, but also in the terms of the growth of their nominal value, in relation to the total balance sum of economics entities- as evidenced in the books of these companies,
- there is an increase in the use of financial instruments, but also reports by companies demanding newer financial instruments (for example based on securitization receivables – an important development issue such instruments in Polish market in the near future),
- in the last years, we have been able to observe a rapidly developing new discipline of finance, namely financial engineering, which has been supplying more and more new instruments especially to manage financial risk companies,
- each manager is undoubtedly aware, as has been already said, that the market economy has been saturated with everything (with every kind of material goods), but not with money (finance capital). Thereby managers of companies need to try to select, use, but also create<sup>3</sup>

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<sup>3</sup> As an example, of creation financial instruments by companies, can be example of instruments based on the so called securitization (for example quite popular in the United States, ABS instruments – *Asset Backed Securities*, which are based on the which are based on the assets held by the company). Securitization is not carry out directly by interested in company, but particularly established for this purpose company, so called *Special Purpose Vehicle* – SPV. However there are no obstacles to set up (create) a special purpose vehicle in the framework of the same company. In Polish conditions practice of securitization may be encounter for example in medical institutions.

these instruments, so as to increase the value of companies to the highest degree.

Attention should be paid to one very essential fact. We have to be conscious that risk (once smaller, once bigger) unavoidably accompanies financial instruments related to ownership of these instruments or emissions by a business entity.

Table 1 indicates the shape of the nominal value of financial derivatives in accounting books of Polish companies in the non-financial sector between 2007-2009.

**Table 1.** Nominal value of financial derivatives in accounting books of Polish companies from the non-financial sector 2007-2009 (in millions of Polish zloty).

Year	2007	2008	2009
Nominal value	39 367,6	37 628,6	43 030,6
Percentage change	-	- 4,42%	+ 14,36%

Source: Own calculations based on: Główny Urząd Statystyczny, *Instrumenty pochodne w portfelach przedsiębiorstw niefinansowych. Raport z badania*, Warszawa 2010, p. 34.

From data presented in Table 1 we can see, that in 2008 the nominal value of financial derivatives reported in accounting books of Polish companies from the non-financial sector indeed decreased at the end of this year by nearly 4.5%. However, from the point of view of that period it was not a very significant decrease. 2008 was the year, when the financial crisis had a culmination meaning that industrial production in the global economy slowed down very rapidly, also in Poland. In 2009 (despite the ongoing crisis) the nominal value of derivatives in the accounting books of these companies increased very substantially exceeding the value at the end of 2007 despite the ongoing financial crisis (depression).

To sum up we can say unequivocally that nowadays financial instruments are an inseparable element of the market management process both in terms of investments, the transferring of financial capital, management of risk, or, what is the most important, serving companies to maximize their market value.

#### **4. More important financial instruments available for use by non-financial Polish companies**

This section will present and discuss briefly the major financial instruments which companies from the non-financial sector may use as these instruments are increasingly used in practice by these companies.

## Instruments for gaining financing and capital

### Commercial papers

Commercial papers are short-term securities with a debt. These instruments are sold on the basis of a discount to their buyers. One of the most important purposes related with their emission, is reducing total costs of acquiring funding in comparison to other alternative instruments, for example, short-term loans or bank credits. An important matter related to these instruments, is the ability to roll over commitments with their help, meaning financing a new emission with the previous one.

In Polish legal regulations there is no single legislative act which comprehensively regulates the question of their emission. However, to emit commercial papers, their issuers (meaning banks as an organizers of emission) can use the Act of June 29, 1995 concerning obligations, the Act of April 28, 1936 – a law on bills of exchange, and also the Act of April 23, 1964 civil code in dependence of specifications of emission.

Table 2 shows the global market value of short-term debt securities in Poland at the end of the fourth quarter in period 2004-2012. Based on the data contained in the table, we can see a significant increase in the use of this instruments in the acquisition of funding by non-financial companies to finance their currently activity. The author of this analysis considers, that from period to period the uptrend and global market value will be preserved and also in the long run, commercial papers (on the assumption that financial market in Poland will develop significantly) will be one of the most important instruments/funding sources of current activity especially for larger entities.

**Table 2.** The market value of short-term debt securities in Poland at the end of the fourth quarter in period 2004-2012 (in billions of Polish zloty)

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Value	9,94	8,60	12,89	13,76	12,95	9,97	14,8	22,25	26,37
Dynamics	-	-13,48%	+49,88%	+6,75%	-5,89%	-23,01%	+48,45%	+50,34%	+18,52%

Source: own calculations based on data from: [http://www.fitchpolska.com.pl/papiery\\_dluzne.htm](http://www.fitchpolska.com.pl/papiery_dluzne.htm).

### Obligations

The second financial instrument that allows the acquisition of required capital from financial markets by companies are corporate bonds. This instrument is some kind of alternative in relation to the traditional debt instrument – a bank credit. Wherein the bank can participate in the emission of these bonds as the so-called, “agent of issue”, but also the banks may be



interested in purchasing these instruments. At this moment, in present Polish conditions, banks purchase corporate bonds to a vast extent of reputable companies only. However, it does not mean that banks are the only target group or the only investor in this market. Increasingly more private investors are also purchasing these instruments from companies.

Some of the more important advantages of bonds as a source of capital include the following: a short term acquiring of funds, a grace period for repayment of capital (until redemption of bonds the company pays interest only semiannually or annually – depending on emission conditions), or also the possibility of matching the value of an emission to the capital needs.

At the moment the majority of companies use mainly non-public emissions of bonds. However it seems to be that the exchange market will become (but even more slowly) – a target place of placement emission of this instruments, as companies are increasingly conscious that “appearance” on financial markets can draw large crowds of potential investors interested in acquiring these instruments.

Table 3 shows global market values of corporate bonds in Poland at the end of the fourth quarter during the period 2004-2012. Based on the data contained in the table, we can see a significant increase in the use of these instruments in the acquisition of capital by non-financial companies. Moreover, in contrast to the commercial paper market, this market seems to be more stable.

**Table 3.** The market value of bonds of companies in Poland, at the end of the fourth quarter during the period 2004-2012 (in billions of Polish zloty)

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Value	7,23	8,92	8,83	13,87	14,94	12,16	17,58	24,19	31,36
Dynamics	-	23,37%	-1,01%	+57,08%	+7,72%	+18,61%	+44,57%	+37,60%	+29,64%

Source: own calculations based on data from: [http://www.fitchpolska.com.pl/papiery\\_dluzne.htm](http://www.fitchpolska.com.pl/papiery_dluzne.htm).

### Treasury shares

The last instrument from this group, which could be used to acquire capital, is treasury shares of companies. For the past few years in Poland it has been possible to notice quite a significant increase in the interest to create new enterprises in the form of joint-stock companies or even converting existing ones, but operating in a different legal structure. Table 4 shows the number of joint-stock companies in Poland at the end of each year from 2004-2012.

The Warsaw Stock Exchange created the special market „*NewConnect*” for smaller companies in the form of a joint-stock company. Currently on this market, the total number of enterprises is 443.

Some of the major advantages of acquiring capital by company with help of issuing treasury shares include: a lack of permanent costs such as, for example, interest on credit (or issuing bonds).

**Table 4.** The number of enterprises in the form of joint-stock companies in Poland in the period 2004-2012 (mld. zł).

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Amount	8633	8607	8614	8853	8842	8969	9322	9797	10182

Source: own calculations based on: Główny Urząd Statystyczny, *Zmiany strukturalne grup podmiotów.. gospodarki..narodowej..w..rejestrze..REGON,..2012.r., GUS, Warszawa 2013.,p..37.*

In the case of financial instruments issued by companies, some of the issues that must be followed include [Dziawgo, Zawadzki, 2011, p. 73-74]: an emissions' right to a particular kind of financial instrument – for example-according to provisions in force personal companies cannot emit any obligations, costs incurred in servicing the liability – a very important matter in the case of the emission of debt securities and must be carefully analysed and compared with other alternative sources of capital, emission costs – additionally increase global (total) cost of liability incurred in consequence of emission of a financial instrument, flexibility – a real possibility of repayment of capital instalments and interest instalments in time, and finally the risk of service liabilities – the use of outside capital causes an increase in level of financial leverage and can cause also increase of new capital.

### **Financial instruments may be used in the allocation of financial surpluses**

Directors or people responsible for company finances must be able to properly manage the available financial resources so that these resources do not „lie idly”, but bring to an enterprise economic benefits. Incidentally we can say paradoxically that, available financial resources which have not been allocated even for a short period should not be included in components of assets because according to the definition of assets contained in the Accounting Act, they do not fulfill the premises which are indicated in the act, namely, that in the future assets have to bring economic benefits to the company [Accounting Act, art. 3 ust. 1 pkt 12].

To more important financial instruments which can be used to allocate available funds, we can include: timely banks deposits, treasury bonds, company shares quoted on the stock exchange (allocation of funds for investment purposes).

However, the share of non-financial companies as investors in financial markets is still quite small [Czekaj, 2008, p. 48].

Companies should allocate their funds into instruments which have considerable financial liquidity and profitability with a similar acceptable level of risk.

### **Derivatives for safeguarding against market risk**

The task of derivatives is safeguarding companies against market risk such as risks connected with foreign exchange rates when credit is in a foreign currency, or connected with fluctuating interest rates. As was mentioned, the market economy is saturated with everything except capital. Additionally the market process of management is characterized by the variability of market conditions. The result of this is the occurrence of one of the most significant risks as is financial risk. Thus each company should be aware of this, and in so far as conditions permit, use these instruments.

The main kinds of derivatives companies can use include [Jajuga, Jajuga, 2006, p. 36-40], [Hull, 1997, p. 217]:

- *Forward* contracts (non-stock market contracts) – the parties of a contract are a bank and a company, an economic entity can secure himself, for example, against risks connected with exchange rates,
- *Futures* contracts (on the stock exchange – entities must have a brokerage account) – a company can secure their share portfolios,
- *Option* contracts (option to purchase and option to sell)<sup>4</sup>,
- *Swap* contracts (there are many variations, but it consists of exchanging, in the future, a defined stream of payments).

## **5. Challenges of accounting, financial reporting and auditing related with financial instruments**

In this analysis it is also worth pointing out other important problems related with financial instruments, despite the positive role they play in the process of management of company finances.

At present in theory and in the practice of accounting, financial reporting and auditing, one of the very complex and also very problematic issues is simply the financial instruments themselves which create a lot of problems of a theoretical and practical nature, (for example testing them by chartered accountants). To the most important issues directly related to these instruments we need to include the following [Bielawski, 2010, p. 7]:

- valuation ( it is feasible to use methods and models of valuation),
- balance or off-balance sheet forms of their presentation,

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4 The subject matter of this option was described more precisely in section 6 of this study.

- adjournment losses and premature recognition of profits,
- risk related with these contracts,
- the loss of validity of the financial instruments.

Theorists of accounting (scientists) and practitioners (chartered accountants) are trying to solve the above problems. However, we need to be conscious that economic practice overtakes theoretical solutions and will be constantly one step further. It seems to be that, despite this, creating a strong methodological foundation, regarding the above-mentioned problems could to a high degree cause minor problems in the future.

It also seems, that from list above, to the most debatable issues related to financial instruments, undoubtedly, we have to add classification of their values. The problem of the evaluation of financial instruments poses a complicated challenge for accounting. The question is, if the fair value is in fact the most appropriate measure of valuation because quite often market prices succumb to significant fluctuation, often of a speculative nature, and thus fluctuations of market prices cause significant deformation of the real value of an instrument. Also a problem of proper evaluation appears and often accumulates if a given asset is not an object of trade in an active market. An example, absent from market turnover could be financial instruments necessary for establishing their actual price, and whose appraisal should be based on pricing models. In this context, the risk of model efficiency should be kept in mind in the situation where the model indicates an incorrect price of a financial instrument.

In the revision procedures regarding researching elements of the financial statements containing financial instruments, one should pay the most attention to the risk which could accompany the financial instruments as stockholders of companies expect from chartered accountants unambiguous information, (in the form of opinions and reports), that the data contained in the reports are in accordance with the actual state of affairs, and thus the opportunity of continuing the business of the entity is not endangered by risk, for example, from possessing financial instrument (in particular the risks connected with the derivatives).

To sum up, in literature these issues are touched upon leading to the formulation of the following questions [Bielawski, 2010, p. 8]:

- Is a new approach necessary for financial reporting in order to solve the problem of the specific features of financial instruments?
- Does the underlying theory to this approach lead to a rejection of traditional accounting principles based on historical costs, and ones which have been in use for years?
- Is an accounting model based on fair value a real possibility for use in all elements of financial reporting?

These questions and problems associated with them should be recognized as being the instrumental key, which requires a wide debate leading to fast and clear answers to these and other questions which are generated in economic practice (market).

## **6. Dangers associated with inappropriate use of financial instruments such as the so-called problem, "Toxic Currency Options"**

G. Millman stated that "the most glaring type of speculator is a company, which does not do anything in domain of management of risk, because it is exposed to the every kind of risk" [PARP, 2012, p. 5]. In the author's opinion in the case of the so-called problem, "toxic currency options", a failure to conclude these contracts would be the lesser evil and, undoubtedly, would cause a smaller degree of damage, but at least would not lead to numerous bankruptcies, significant liquidity problems or investors who lose their life savings placed in stocks or other securities where the problems occurred.

From 2006 to mid-2008, Polish exporters grappled with the problem of a significant appreciation of the Polish currency in relation to foreign currencies, especially to the Euro and U.S. Dollar. Polish export companies were forced to protect themselves against the risk of monetary policy in relation to a decline in denominated revenues in foreign currencies after conversion into Polish zlotys. One of the derivatives instruments available for use was currency options. We can distinguish an option to purchase (*call option*) from option to sell (*putt option*). An acquired call option gives a buyer the right to buy foreign currency, and an acquired *putt* option affords the right. As an example, for an exporter it has the right to sell such foreign currency at a predetermined price.

When a purchaser acquiring an option whether purchasing, or selling, he is obliged to pay a premium to the issuer. The bonus constitutes a wage for the issuer, but at the same time, constitutes the top limit of losses for the buyer of the optional contract, whereas financial responsibility of issuing the options is almost unlimited (in the case of a *call* option), because we have to remember, that the options are financial instruments about asymmetric (uneven) distribution of risk unlike other derivatives. For example, with *futures* contracts, where the profit of one side is unequivocal with losses of second side of a contract.

Global losses of Polish exporters related with "toxic options" are estimated at about 15 billion zloty depending on the source. Undoubtedly, reasons of these losses, became zero-cost strategies used by companies to avoid payment of premiums to the second sides such as to banks offering such products, often with a very complicated mechanism for settlement.

On the whole, the zero-cost strategy does not carry a risk in a situation when a denomination or purchased option and exposed option is 1:1. An example of this would be when a company acquired a *putt* option of 100,000 Euros and exposes a *call* option to the bank of the same value, that is 100,000 Euros. In this situation, the premium paid to the bank was balanced by the premium from the bank to the company (in other words, both premiums canceled each other out). For cases of “toxic options”, banks have constructed contracts in a manner that the nominal value of the *putt* option exposed by them was lower, almost twice, than the nominal value of the *call* option exposed by companies. Thus, companies were exposed to speculation, and often were subject to suffering losses in a situation where there was a reversal of the trend of exchange rate. Therefore, the behavior of company managers who conclude such contracts and who, undoubtedly, are or were aware of the risk to which their companies would be exposed, is astonishing.

Finally, the problem of currency options does not concern derivative instruments or in this case, options, but concerns the inappropriate usage of them by managers in speculating, but not protecting the company against currency risks.

## **7. Conclusions**

As has been proved, in current Polish conditions we can talk about the growing importance of using financial instruments to manage company finances, and especially to maximize market value. It can be seen that financial instruments are more often used – in larger amounts, but also in terms of their nominal value in relation to the total assets of economic entities – recognized in the balance register of companies. Moreover, it seems that in Poland in the near future, the acquisition of capital through financial instruments may rise significantly.

As also was proved, financial instruments are related to a string of problematic issues in accounting, financial reporting and auditing. It has a direct effect on the flow of information from these three systems to stakeholders of companies as these entities expect a clear answer on issues as to, for example, if financial instruments are properly used by the company and if their usage does not subject the company to the risk of bankruptcy such as the case of “toxic currency options”.

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# THE TURNOVER CYCLE OF CAPITAL IN SMALL AND MEDIUM-SIZED ENTERPRISES FROM THE CONSTRUCTION SECTOR LISTED ON NEWCONNECT

**Krzysztof Radwański\***

## **Abstract**

*The dynamics of small and medium-sized enterprises play a key role in the development of the Polish economy. These entities are essential for the sustainable functioning of the economy, allowing one to benefit from the effects of the dynamic development of future generations. In the first part of the article the diagnostics on the liquidity of a company is presented. Then liabilities turnover, receivables turnover cycle and inventory turnover cycle are briefly characterized. In the second part of the article issues concerning cash management are discussed. Proper capital management is a major media to a company and added value because it improves efficiency and contributes to the proper planning in terms of financial requirements and the rational obligations incurred. The third part of the paper verifies the effectiveness of usability indicators to determine the time length of the cycle. Using the indicators discussed a company obtains information about the levels of cash to enable it to minimize maintenance costs.*

**Keywords:** *debtors cycle, inventory turnover cycle, trading liabilities cycle, cash turnover cycle*

## **1. Introduction**

The need to distinguish small and medium-sized enterprises as well as establish their specifications and conditions for development and, among others, accounting issues is determined primarily by the scale of these small and medium-sized businesses. They represent over 98% of all enterprises in the EU and employ more than 87 million employees, forming the backbone of the European economy. A commonly expressed belief is that the sector of small and medium-sized businesses raises the spirit of competition, adapts to changing customer needs, contributes to socio-economic growth of European countries, and positively affects the increase in efficiency of the economy as a whole.

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In 2012 there were more than 4.3 million small and medium-sized enterprises in the EU, offering services based on expertise, including 46,000 enterprises operating in the high-tech sector. These include small and medium-sized companies that produce drugs or electronics, providing services in the field of research and development, etc. Together they represent more than one-fifth (21.1%) of all SMES in the EU (Karmańska, 2013, p. 5). Despite such a large expansion of small and medium-sized enterprises in Poland, they are constantly facing numerous barriers to development. Apart from financial problems, the most often listed problems are: inadequate experience and education of managers and employees, insufficient knowledge of a company's financial management and the lack of access to internal and external information, defined as short-term and reckless operation of businesses related to raising financial information processing and constructed (Lipiec, 2000, p. 9).

The research area covering the subject of this article has been selected due to the fact that the sector of small and medium-sized companies from the construction sector is the motor driving the economy. However, economic development in Poland has been affected by an industry crisis lasting for over a year now. For this paper entities were chosen that are listed on the NewConnect market in the construction line of business and have been operating over 12 months with a similar structure of operation as the NewConnect market.

## **2. The cycle of working capital**

The aim of widely understood financial-accounting services in every company functioning in a free market economy is to maintain liquidity at an optimal level. An optimal level of liquidity is particularly important in a period of high inflation and at the time of starting a business. At a time when the company is unable to liquidate often outdated goods or products, it is not possible to recover these frozen funds. In this situation, as a consequence of the decline in revenue from sales, and the lack of impact of the duties on a regular basis, the company may not smoothly adjust its obligations, which leads to payment congestion. The company loses confidence in their suppliers, and thus deepens its problems on the procurement market causing temporary difficulties for the company. From the experience of highly developed countries indications are that the main reason for the demise of small and medium-sized enterprises is the loss of liquidity.

A diagnosis for keeping afloat requires a very thorough analysis of the operating cycle, especially its length and timing of collection of import duties and regulating commitments (Sierpińska, 1992, p. 31). There also exists the need to examine the level of working capital and compare it with the level

of wealth and sources of short-term financing that affect the network. The management of financial capital is often related to the following issues: Rotary cycles (operation and charges) and net operating cycle. The first is associated with the management of financial assets, which are assets: monetary measures, short-term securities, accounts receivable, inventories, accruals. With regard to the net operating cycle, also called the cash conversion cycle, consideration should be given to the liabilities of the company, especially to the current liabilities in respect to supplies and services.

In order to make these comparisons in the first place, calculation of the level of working capital in terms of days should be made regularly. Net working capital in terms of days is presented by the following Model 1 (Sierpińska & Wędzki, 1997):

$$\text{Net working capital} = \frac{\text{working capital} * 360}{\text{net sales}} \quad (1)$$

This relationship reflects the number of days, for which the working capital is sufficient. With an increase in sales, the level of working capital decreases in relation to the sales figure. If the market does not proportionally increase the working capital, such financial policy runs the risk of loss of liquidity.

An analysis of the level of working capital must be enriched by indicators allowing the determination of the rotation of turnover (inventory, accounts receivable, cash) and the rotation of current commitments, i.e. the length of the period for which the undertaking has been granted credit by suppliers.

A company maintains inventories, mainly in order to preserve the rhythm of production and sales. However, it may not freeze too much capital in stock volumes, because this leads to an increase in capital costs and lower rates of return, and in the short term, the loss of liquidity. The cycle of stock turnover is presented by Model 2 (Kozłowski, 2003, p. 149):

$$\text{inventory turnover} = \frac{\text{inventory} * 360}{\text{Cost of products sold}} \quad (2)$$

It informs when a company renews its supplies connected with sales transactions. A high rate of rotation indicates slow inventory rotations, while a low rate means a quick rotation.

The same problem occurs when the duty cycle is determined. The period of rotation of liabilities is represented by Model 3 (Ross & Westerfield & Jordan, 1999):

$$\text{receivables turnover} = \frac{\text{receivables} * 360}{\text{sales volume}} \quad (3)$$

This determines the number of sales days on which cash has not yet been received and provides information to management on how the company has credited receivers of the products and for how long the funds are frozen. If the collection period of accounts receivable by the company differs significantly from that of the industry, this could prove the basis for a negative opinion concerning financial management and control services. A very short recovery period tends to be the result of a raw financial policy, which may ultimately lead to inhibited sales efforts.

The credit period of a company with current liabilities is expressed by a cycle of commitments. The rotation cycle of obligations is presented by Model 4 (Ross et al. 1999):

$$\text{Liabilities turnover} = \frac{\text{liabilities} * 360}{\text{Cost of products sold}} \quad (4)$$

This relationship represents the delay time in adjustment of current liabilities as the current liabilities are used primarily to finance current expenditure related to monetary costs.

The length of the working cycle is conditioned by the length of exploitation cycle and the time that passes between the moment when the liability is created to the time it is settled by the receiver. This period is counted from the moment of receipt of materials for production taking into consideration storage, production, storage of finished products until receipt of payment (Kralicek, 1995, p. 29).

The length of the operating cycle is determined by the length of the period from the date of purchase for the production of materials to their sales. This is the time in which stocks remain of material necessary for production, as well as supplies of finished goods at the end of the production period (Kralicek, 1995, p. 30).

The cycle of commitments or so-called, net turnover cycle – is the time of repayment, the settlement of liabilities, the period from the date of purchase until the purchased goods and services are paid for (Kralicek, 1995, p. 30). It is in the interest of the entrepreneur to have this period prolonged.

### **3. Management of cash in small and medium-sized enterprises**

The importance of small and medium-sized enterprises has been determined appropriately by P. Drucker, who stated that they are „the heel of the market economy” and represent the democratic base of socio-economic policy. Although there are many different concepts and views on their role in the economy, most of them serve economic and social functions. Drucker highlights their historical role in most market economies, the quantitative

dominance and, above all, social, economic and similar effects of their operation. In analyzing the importance of SMES with respect to their efficiency, this takes on mainly a qualitative dimension, but also includes quantitative characteristics as well (Serafin, 2012, p. 70).

We can distinguish three themes in terms of retention of capital in an enterprise (Sierpińska & Wędzki, 1997):

- transactional – the use of cash in the first place to finance current transactions, the level of cash resources in this case depends on the level of activity of the company during times when there is a larger demand for cash, with an excess of cash during a regression,
- prudential – relating to the need to be possession of cash in the case of unforeseen events, which may entail the need for a sudden and rapid disbursement of funds, it first and foremost concerns random events, flood, fire, collision, automotive, etc.,
- speculative – where the company retains certain cash levels for the purpose of securing participation in occasional transactions yielding significant profits for the company, and which have no connection with the company's current activities.

In this article an analysis is conducted of the cash conversion cycle in small and medium-sized enterprises from the construction business which have been listed on the NewConnect market for over 12 months.

The cash conversion cycle is the time that passes between the moment that a company pays for purchased materials till it receives money for products sold. The cash conversion cycle is presented by Model 5 (Pluta, 1999, p.42):

$$(C) \text{ KG} = C \text{ KZ} + C \text{ IN} (C) \text{ W} \quad (5)$$

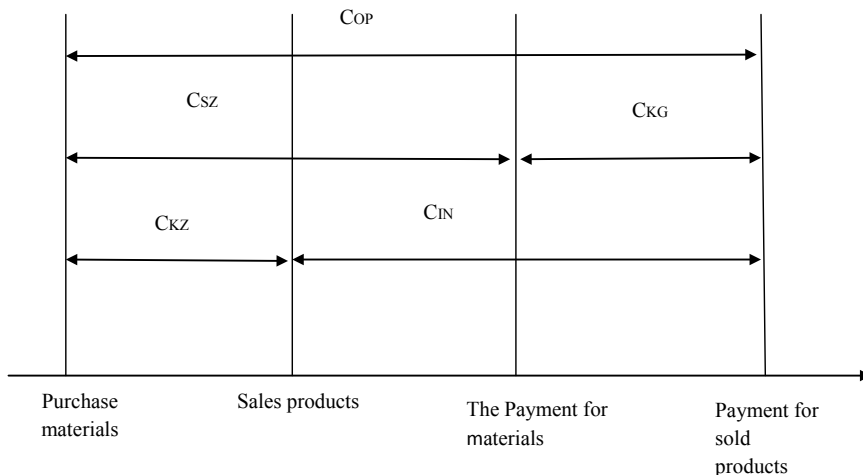
(C)KG-cash conversion cycle expressed in days

(C)KZ-conversion cycle inventories (inventory turnover in days)

(C)IN-collection cycle (accounts receivable turnover in days)

(C)SZ-the cycle of liabilities (Payables turnover days)

This can be represented graphically. The following diagrams depict the operating cycle taking into account the cash conversion cycle in 2 situations:



**Figure 1.** Cash conversion cycle

Source: Pluta W. (1999)

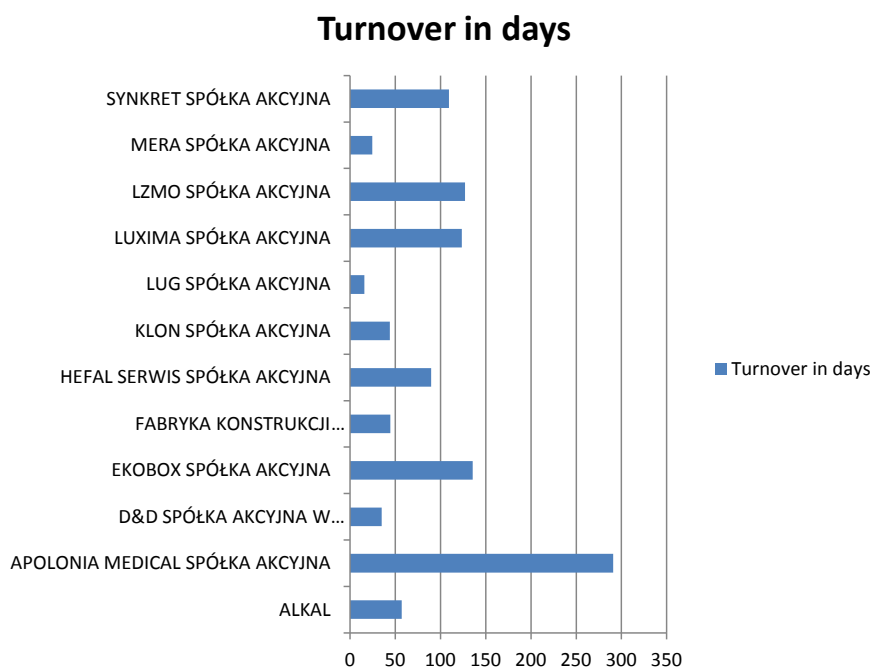
The shorter the cash cycle, the more beneficial it is for the company. A short cash cycle means that the money invested in current assets goes back to the company quickly and can be reused. The length of a cash cycle is significantly varied for different types of production. The cycle index of stocks depends on the company since this specification depends on the production, and trade credit for consumers and credit policy. At the same time it needs to be taken into account that to calculate the cash conversion cycle timely, liabilities should be included. Including total current short-term liabilities together with past due liabilities will lead to erroneous conclusions along with a shortened cash conversion cycle. The length of the cash cycle determines in fact the demand for working capital in the enterprise. There can be various reasons for short cash conversion cycles. They may be due to short stocks and their low conversion cycle, low levels of sales income (selling for cash or for short payment terms) and/or a high level of current liabilities, resulting from a long period of business credit by suppliers. Similarly, a longer cycle may be caused by an extended conversion cycle and larger stock levels, a high level of dues (longer payment terms for customers) and/or a low state of current obligations (Sierpińska & Wędzki, 1997).

A large level of past due obligations may be the cause of a negative cash flow cycle. For example, if the inventory cycle is 30 days, the cash due cycle – 45 days and the cycle of current liabilities 90 days, the cycle of cash levels will be negative (15 days). The cause of this negative cash flow cycle may be, apart from forced commercial credits, the structure of current assets. If there

is a large proportion of short term investments and prepaid expenses in this structure, then short term liabilities will finance these asset components. In terms of negative cash cycle, in practice there is often negative working capital meaning that sources of short-term sources finance fixed assets (Sierpińska & Jachna, 2007). A negative cash cycle is apparently visible in the policy of hypermarkets operating on our market. Current activity is financed with obligations to counterparties.

#### 4. Case study

Figure 2 presents an account of a receivable turnover in days in companies in the construction business listed on the NewConnect market.



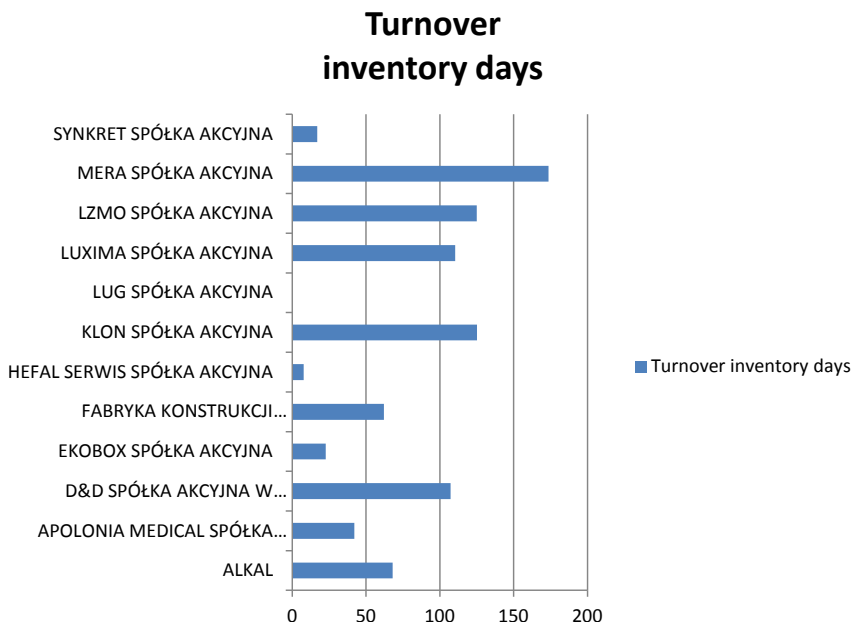
**Figure 2.** An account of a receivable turnover in days in the group of New-Connect companies analyzed for the year 2011

Source: own elaboration based on data from [www.newconnect.pl](http://www.newconnect.pl).

From among the group of companies analyzed, the highest indicator in rotation of accounts receivable belonged to the APOLONIA MEDICA joint stock company. The recovery period in receivables in this company amounted to 289 days. The fastest recovery charges were recorded at LUG joint stock

company. The average life of receivables with respect to the group accounted for 91 days, the average value (median) was indicated to be 73 days.

Figure 3 shows the inventory turnover in days in companies in the construction business listed on the NewConnect market.



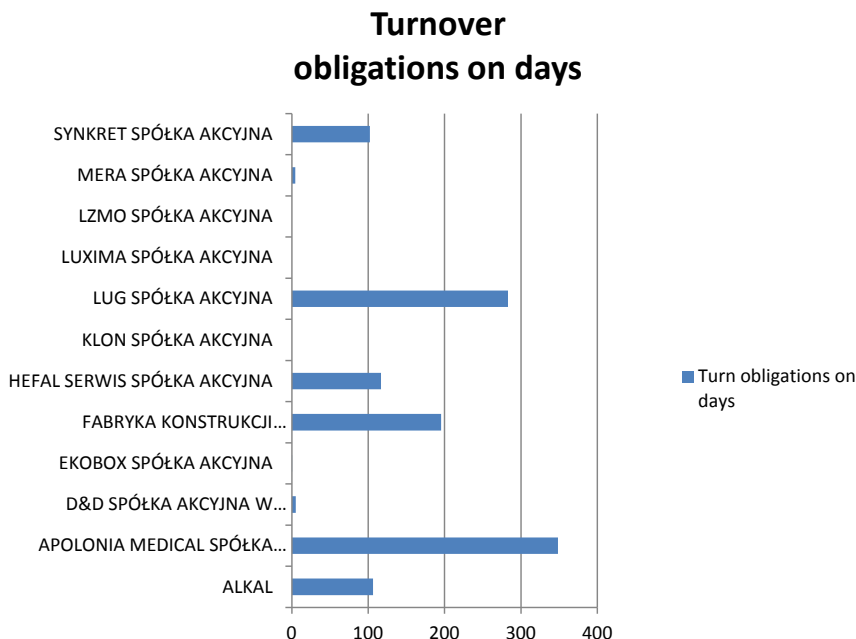
**Figure 3.** Inventory turnover in days in the group of NewConnect companies analyzed for the year 2011

Source: own elaboration based on data [www.newconnet.pl](http://www.newconnet.pl).

From among the group of companies analyzed the largest rotation of stock was recorded in MERA joint stock company meaning the company renews its stocks every 174 days. The lowest stock turnover was recorded in LUG joint stock company – the period amounted to 0 because it could be an internal company policy. The company does not have stocks. The average renewal period in the group amounted to 72 days, the average value (median) indicated that every 65 days companies renewed stocks.

Figure 4 shows the rotation indicator on commitments in the construction sector of companies noted on the NewConnect market.





**Figure 4.** The rotation rate of the obligations in the group of NewConnect companies for the year 2011

Source: own elaboration based on data [www.newconnet.pl](http://www.newconnet.pl).

From among the group, the company with the largest rotation of commitments was found to be in APOLONIA MEDICAL joint stock company. Here the average time for payment of commitments amounted to 349 days. This means that the longer the time, the smaller the needs are for working capital. The lowest rate of rotation of the obligations at the level of 0 days were recorded by 4 companies: EKOBOX Shelf, MAPLE Joint-stock company, LUXIMA Joint-stock company and LZMO Joint-stock company. This means that these companies regulate their obligations immediately without procrastination. The average in the rotation period in the group amounted to 97 days, the average value (median) amounted to 54 days which means that, on average, companies in the construction industry settle their obligations after this period passes.

## 5. Conclusions

Table 1 presents the overall results of the group of companies from the construction sector listed on the NewConnect market.

**Table 1.** The results of a comprehensive survey of companies from the construction sector listed on the NewConnect market for the year 2011

Company	The rotation indicator accounts receivable in days	The rotation indicator the obligations on	The rotation indicator stocks in days	Market cycle cash
ALKAL	57	106	68	19
APOLONIA MEDICAL JOINT-STOCK COMPANY	291	349	42	-16
D & D JOINT STOCK COMPANY in the BANKRUPTCY of SYSTEMIC SCLEROSIS	35	5	107	137
EKOBOX JOINT-STOCK COMPANY	136	0	23	158
TIMBER FACTORY JOINT-STOCK COMPANY	44	195	62	-89
HEFAL SERVICE JOINT STOCK COMPANY	90	117	8	-19
A CLONE OF THE JOINT-STOCK COMPANY	44	0	125	169
LUG JOINT-STOCK COMPANY	16	283	0	-267
LUXIMA JOINT-STOCK COMPANY	123	0	110	234
LZMO JOINT-STOCK COMPANY	127	0	125	252
MAYOR OF JOINT-STOCK COMPANY	24	4	174	194
SYNKRET JOINT-STOCK COMPANY	109	102	17	24
<b>The Average</b>	<b>91</b>	<b>97</b>	<b>72</b>	<b>66</b>
<b>The Median</b>	<b>73</b>	<b>54</b>	<b>65</b>	<b>80</b>

Source: own elaboration based on data [www.newconnect.pl](http://www.newconnect.pl).

The average accounts receivable turnover in the group amounted to 91 days and was about 6 days less than rotation. This means that, in the group of construction sector companies listed on NewConnect, the receivables collection period was shorter than the period due date. However, a longer period of inventory turnover in days, which amounted to 72 days, makes it necessary to finance the production cycle in the test companies through the use of external financing and long-term credit other than short commercials. In the group it was equity and short-term bank loans.

The sector of small and medium-sized enterprises is crucial for the economic development of our country. In recent years, legal and administrative arrangements for the functioning of enterprises have been significantly

improved as reflected in the international rankings and in the current activities of the companies. After 2009, a year of declined earnings in small and medium-sized businesses and one that saw a slight increase in large ones, these results testify to the improved condition of these entities. Since 2003 turnover in the business sector has increased by more than two-thirds (69%), and in SMEs by a half (52,3%). However, this improvement meant the yearly average rate of revenue growth in the years 2003-2009 (6.8%) was only in terms of small businesses. Large companies in 2010, with an increase in the annual average result aligned 2003 – 2009, and micro-and medium-sized businesses have clearly obtained worse results.

On the basis of the study by the author of the presented paper concerning the marketing cycle of cash in small and medium-sized enterprises, it can be concluded that the average cycle amounted to 66 days. According to the author, factors affecting positive cash turnover ratio are: an extended period of recovery and stock market cycle in relation to the shorter maturity period. The author exposes the structure of the trading cycle, for conservative cash functions in the test group. From among the group of 12 companies, four of them experienced a negative market cycle. The first company was AOLONIA in which a short period of inventory turnover and a fast period of payment settlement resulted in a quick conversion of cash and the same negative cycle of circulation of cash. In the case of Wooden Structures Factory the situation was the same, although the company had a very quick recovery period which was determined by a restrictive credit policy with respect to its contractors. The company HEFAL had a very short life cycle inventory turnover and a very well planned inventory management, which led to a negative cycle of the circulation of cash. LUG company probably had very good commercial credit terms. However, the length of period financed with commercial credit may be misleading and put forth the question as to internal transactions within the capital group.

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# INVESTMENT ATTRACTIVENESS OF CONVERTIBLE BONDS TRADED ON THE CATALYST MARKET

**Anna Rybka\***

## **Abstract**

*This paper reflects on the characteristics of convertible bonds as a source of financing for the issuer and as a form of capital investment. The author presents certain factors that influence the investment attractiveness of convertible bonds and indicates opportunities that result from the investor's rights incorporated into these hybrid instruments. The empirical part of the paper contains an analysis of particular features of convertible bonds that are traded on the Catalyst market.*

**Keywords:** *convertible bonds, conversion price, conversion date, conversion premium, Catalyst market.*

## **1. Introduction**

Development of capital and money markets implies the growth of importance of debt instruments. These are used as a source of financing for companies and as a form of capital investments. It is observed that new products appear on the debt market that increasingly meet issuers' requirements and are more attractive for their owners. What has been growing especially dynamically is the corporate bonds market. Corporate bonds are a good source of capital for companies that have limited credit worthiness or do not want to be dependent on one particular business partner.

Among all of the corporate bonds available in a debt market, it is convertible bonds that play a very important role. These are hybrid instruments that combine features of debt and stockholders' equity. Due to their specific structure, convertible bonds offer flexible financing for issuers and an alternative to standard coupon bonds for investors.

The aim of this article is to identify certain factors that decide on the investment attractiveness of convertible bonds from the bondholder perspective and to evaluate these factors for convertibles traded on the Catalyst market.

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The thesis of this work is that the features of convertible bonds traded on the Catalyst market do not allow the investor to fully profit from owner's rights incorporated into the bonds.

The first part of this article deals with the structure of convertible bonds and the role these instruments play as a source of capital for companies. The second part focuses on the features that influence the investment attractiveness of convertible bonds and shows some indicators of conversion's profitability for bond's owner. The third part contains the evaluation of the investment attractiveness of convertibles traded on the Catalyst market. The analysis is based on all series of convertible bonds available on the market on 31 December, 2012.

## **2. Specification of convertible bonds**

Convertible bonds are a specific type of debt instruments. Apart from all features that are typical to standard coupon bonds, these give the investor the right to convert the instruments into the issuers' common shares. M. Poślad, S. Thiel and T. Zwoliński (2006) define convertible bonds as financial instruments that allow the owner to acquire company shares in exchange for the bond's liability. In literature, a conversion right is often identified as the call option, e.g. M. Sierpińska and T. Jachna (2007) note that convertibles can be presented as standard coupon bonds that are being sold with a call option for the issuer's shares (with the exception that this option cannot be sold separately). In Poland the issue of convertible bonds is regulated by the Bonds Act of June 29, 1995 (Dz. U. 1995 Nr 83 poz. 420 ze zm.). According to art. 20, paragraph 1 of the Act, "if this is allowed by the Articles of Association, the company can issue convertible bonds that entitle the owner to acquire company shares in exchange for these bonds".

Because of the conversion option that is an additional owner's right when compared with a standard coupon bond, the convertible bond is characterized by the specific quantities and features. Among these worth noting are (Bień, 2001):

- conversion ratio,
- conversion price,
- conversion date.

The conversion ratio specifies a number of shares of the underlying stock for which the convertible bond can be exchanged when the conversion is effected. The conversion price is the quotient of the bond's face value and conversion ratio. What should be emphasized is that both features are secured against stock dilution. In the case of a split or the issue of a new series of shares, the conversion ratio and the conversion price values are adjusted

accordingly. Calculations of new parameters are defined in the information documents of convertible bonds (Antkiewicz, 2009).

The conversion date informs when the owner of the bond is allowed to convert it into shares. The issuer can define several conversion dates, e.g. on certain days, certain time periods or on the day of maturity. However, according to the Bonds Act, it is forbidden to set the conversion date after the maturity day.

Specification of the features mentioned above in information documents of convertibles is the obligation imposed by Polish legislation directly. According to art. 20, paragraph 4 of the Bond Act “the issuer of convertible bonds is obliged to include details in the information document concerning the following features:

- dates when conversion is permissible,
- method for calculating conversion figures of bonds into shares (...).”

From the issuer’s perspective, convertible bonds are above all a source of financing. The main criterion for capital classification is its origin. Here, two major sources can be identified: internal and external (Iwin-Garzyńska, 2011). Internal capital can come from retained earnings, amortization allowance or decrease in asset value. Hence, these are the financial resources earned or retained by company. The source of external financing are individuals and business entities in a company’s environment. External capital has two basic forms: equity and debt. Internal financing depends on the legal and organizational type of a company. This could be some form of contribution from stakeholders, partners or shareholders. For a public limited company this is the share capital gained from the shares’ issue. Financing by debt is performed through various financial instruments (in a capital market, money market or financial service market), in a commodities market and other specific forms (e.g. leasing).

The choice of the source of capital and determination of capital structure (in terms of proportion between equity and debt) is one of the most significant challenge for managers of a company (Duliniec, 2011). In particular, there are no standardized solutions of how the optimal capital structure should look because both sources of financing have their own advantages and disadvantages.

Convertible bonds are instruments that combine features of debt and stockholders’ equity. Their basic advantage is the possibility to simultaneously manage all negative aspects of both sources of capital (Marszałek, 2008). For the purpose of further analysis, Table 1 illustrates the advantages and disadvantages of financing by debt and equity. Since the structure of convertible bonds is a combination of standard coupon bond and share, data in the table focuses on these two sources of capital.

**Table 1.** Advantages and disadvantages of the issue of bonds and shares as a source of capital in a company

	<b>Advantages</b>	<b>Disadvantages</b>
BONDS ISSUE	<ul style="list-style-type: none"> <li>• the possibility of obtaining a large quantities of cash from many creditors for a longer time period;</li> <li>• no dispersion of the ownership;</li> <li>• the possibility of benefiting from a tax shelter;</li> <li>• a generally, lower cost of capital when compared to the issue of shares.</li> </ul>	<ul style="list-style-type: none"> <li>• the generation of cash payments (regular coupon payments);</li> <li>• the necessity to meet all requirements with respect to the bonds' issue that are imposed by Polish law;</li> <li>• profits occur usually only when the volume of the issue is large.</li> </ul>
SHARES ISSUE	<ul style="list-style-type: none"> <li>• no regular cash payments to the shareholders (apart from any dividends);</li> <li>• a positive influence on financial liquidity;</li> <li>• protection for the company's creditors.</li> </ul>	<ul style="list-style-type: none"> <li>• changes in company's ownership structure;</li> <li>• current shareholders lose some part of the future profits;</li> <li>• a relatively longer period of time is needed for preparing of the share issue;</li> <li>• an increase in the supply of shares supply in the stock market may cause the share value to fall.</li> </ul>

Source: compiled by A. Rybka, based on: J. Ostaszewski, T. Ciciorko (2005).

An analysis of the information contained in Table 1 leads to the conclusion that a share issue is characterised by features that are not observed for financing by debt. Similarly, there is a noticeable inverse dependence. So convertible bonds that combine features of bonds and of shares enable the company to take advantage of both sources of financing while simultaneously limiting the number of undesired consequences to the company's financial standing. The issue of convertible bonds can be especially beneficial when shareholders do not want to raise any capital at that specific time, while being aware of the possibility of a necessity in future (Ostaszewski and Ciciorko, 2005). Such a situation may occur in a bear market when the valuation of a company is low and there is a risk that the issue of new shares would fail. In these circumstances the issue of convertible bonds postpones raising the company's capital up to the time of the potential conversion. Hence, compared with the issue of shares, earnings per shares do not decrease. At the same time the company can invest the financial resources obtained from the purchasers of convertible bonds starting from early moments of the issue.

The issue of convertible bonds, as opposed to shares, does not imply the immediate dispersion of the company's ownership. Until the conversion date, the owner of the bond is just a company's creditor without voting rights at the annual general meeting.



The company may benefit from a tax shelter as well. The costs in terms of interest decreases the level of taxation while at the same time leading to lower taxes owed. The result is that the effective cost of the debt is lower. What should be emphasized here is that for a share issue the dividend is paid from the net profit just after taxation.

It is also worth mentioning that convertible bonds are usually a very flexible source of financing. The issuer has a significant influence on the how the bond's offer is designed and can fit the maturity day and conversion dates to his own needs and to the purposes of the issue.

It would be incorrect and misleading to consider convertible bonds as instruments that are appropriate only for the companies with weak financial standing that might have difficulties in issuing shares. S. Antkiewicz (2009) also does not agree with this statement. He gives examples of companies whose financial standing was excellent at the moment of a convertible bonds issue and would have been able to issue new shares without major risks.

In light of the advantages of financing by convertible bonds, literature often presents these instruments as tools for decreasing capital costs in a company. It is not the aim of this paper to investigate such cases. However in further areas of this work the author discusses the possibilities of decreasing payments by using the appropriate parameters of the convertible bonds.

## **2. Factors that influence the investment attractiveness of convertible bonds**

While assessing the investment attractiveness of convertible bonds, investors take into account many various factors. Among them are security of the capital allocation (credit risk), yield to maturity, profitability and the maturity date. What is also meaningful is the size of the turnover on the stock market and the ease in selling the instrument.

Convertible bonds, due to their specific structure, combine advantages of investing in capital instruments (shares) and debt instruments (bonds). Thus they seem to be an interesting option for investors that require stable profits but do not want to abandon the chance of additional premiums during a bull market.

Financial resources invested in convertible bonds, similarly to standard bonds, are protected by a legal agreement. This guarantees that the bondholder will be receiving periodic coupon payments and the promised amount of money on the maturity day (with the exception of the zero-coupon bonds).

The conversion option that is incorporated into convertible bonds allows the investor the possibility of additional profits. The option is performed when this pays off for the bondholder. The indicator dictating the profitability of the

conversion is the conversion value (parity). It indicates the market value of the underlying shares that the bondholder can receive in exchange for the bond. The parity is calculated depending on the conversion ratio and stock price on the conversion date. This is a floating value and it increases together with the increase in the stock price and decreases when stock prices fall.

The conversion is profitable for the bondholder when the parity is higher than the market value of the bond. The difference between the price of the bond and the parity is called a conversion premium. Its negative value indicates that the bondholder will generate profits from the conversion.

In practice, what indicates whether the conversion is profitable, is the so called market price of conversion. This is calculated as a quotient of the market value of the bond and the conversion ratio. It indicates how much in fact an investor pays for one share while acquiring it in exchange for the bond. The bondholder profits from the conversion when the market price of the conversion is lower than the current stock price.

The probability of a profitable conversion depends mainly on the features and parameters of the convertible bond. Here, a really significant role is played by the conversion price. The majority of convertible bonds are issued with a positive conversion premium which means that the conversion price is set at a higher level than the current stock price. Only when an increase in stock price occurs, increasing the parity value, does the bondholder profit from the conversion. Hence, the higher the conversion price is, the larger the increase in stock price is required to enable the investor to convert his bond with a premium.

An inverse dependence is observed between the probability of a profitable conversion and the conversion ratio. The higher the number of shares of an underlying stock, the more likely a profitable conversion will take place. This results from the fact that the higher value of the conversion ratio indicates larger changes in the conversion value, even when changes in stock value are minimal.

The probability of a profitable conversion is also determined by the maturity date and conversion date. The longer the time to maturity, the bigger the chance that the stock value (and the market price of conversion at the same time) will reach the level that guarantees profits from a conversion. Even when the conversion price is relatively low and the stock value is growing, too short a time to maturity may mean an insufficient period allowed to reach the required parity value. Similarly, many conversion dates available for bondholders imply a higher probability that on any one particular date a profitable conversion may be possible.

J. Marszałek (2010) notes that conversion price and conversion dates can strengthen each other, reduce or be substitutable. A high conversion price

and short time to maturity mean that a conversion becomes less probable. A bondholder has a greater probability of profiting from a conversion when either conversion price is high, but bond “lifetime” is long or when time to maturity is short, but conversion price is close to the current stock price. A profitable conversion is most probable when the conversion price is low, time to maturity is relatively far and there are many conversion dates available for the bondholder.

By increasing the attractiveness of convertible bonds the issuer lowers the conversion rate (Nelken, 2000). This means that the perspective of future profits from the conversion means that the investor must be willing to accept lower interest payments. Hence, the bondholder resigns from the current cash inflows and hopes to earn more when the conversion goes into effect. J. Marszałek (2010), while investigating the rate of convertible bonds, analysed the instruments traded on the Stuttgart Stock Exchange – one of the most significant stock markets in Germany specializing in hybrid instruments. He noted that, apart from one exception, in the cases of every emission analysed the interest rate for convertible bonds was lower or significantly lower than the standard bond rate issued by the same company.

A lower convertible bond rate, although acceptable for the investor, decreases the investment attractiveness of convertible bonds. Even when bond’s features are set at the level that makes the profitable conversion more probable, an investor is not guaranteed that the conversion will take place. That is why, apart from the standard payments, issuers often offer to bondholders an additional payment – with no conversion premium. This is cash inflow set as a certain percentage of the bond’s face value that is paid to investor on the maturity day in the case a conversion did not occur. Hence, from the bondholder’s perspective, no conversion premium is a kind of a compensation for a lower payments.

What can be also incorporated into the convertible bond is a call provision. This gives the issuer the right to buy back a bond before its maturity day. This option aims to hedge the issuer from undesired changes in stock prices. On the other hand, such an option limits inventor’s right to the conversion and leads to the danger that the conversion will not be effected in the case when it is preceded by the buy back. This means that in the case that the convertible bond is callable, investors should expect a higher yield to maturity at a higher conversion rate.

These are not the only features of convertibles that have an influence on the conversion’s probability. The volatility of the share price is of vital importance here as well. The higher the volatility is, the more probable the stock price will exceed the market price of conversion making conversion profitable. From this point of view, the state of the market and investors’ expectations for future

trends in shares price are significant. Also worth mentioning is that investors' expectations of future share prices have an impact on the lowest rate they are willing to accept.

For the bondholder who invests his financial resources into convertibles, liquidity in turnover or, in other words, the possibility to buy or sell the instrument (at the current market price) easily and immediately, has specific meaning. In Poland, liquidity in the turnover of convertibles is definitely not perfect. One reason for this is that the primary market of convertible bonds is often dominated by hedging funds and asset management companies (Antkiewicz, 2009). However, what should be emphasized here, is that a low level of liquidity is characteristic of the whole corporate bonds market in Poland. At this phase of market growth the investor must be aware that it is almost impossible to get out of his investment quickly without some loss in terms of interest.

### **3. Analysis of the certain convertible bonds traded on the Catalyst market**

In September 2009 the Warsaw Stock Exchange officially launched the market for debt instruments – a platform where treasury bonds, municipal bonds, corporate bonds, co-operative bonds and covered bonds are traded. Before the Catalyst had been established, bonds were traded mainly on the interbank market and to a very limited extend in a regulated market: the Warsaw Stock Exchange and over the counter (e.g. BondSpot). Moreover, the regulated market was dominated by treasury bonds. Corporate bonds accounted for only a small percentage of the whole turnover.

The main goal of setting up a Catalyst market was to create a platform for the trading of debt instruments, where investors could allocate their capital and issuers could source financing for further growth and investments. It was also a response to the increasing need for capital from entrepreneurs in a situation where the availability of bank credit was limited (Raport Catalyst – podsumowanie rozwoju, 2013).

Among many advantages of introducing instruments to the official market are market valuation and improvement of the issuer's image. While offering instruments on the Catalyst market, the issuer becomes less anonymous, while at the same time becoming more recognizable and appreciated by the investors. What is more, by fulfilling all disclosure obligations, the issuer builds its credibility. When entering a Catalyst market, the issuer should take into account both the costs and the risk that are associated with it. Among them are the costs of the issue and initiating the action as well as costs incurred in fulfilment of obligations. Apart from that, the issuer should be aware of

reputational damage in the case the conditions of the issue agreement are broken, (e.g. late payments or a buy-back).

From the investor's perspective, the Catalyst market has become an interesting alternative to the shares market. This could especially be observed at the time of the bear market when investors' preferences changed and were geared towards safer investments (Raport Catalyst – podsumowanie rozwoju, 2013). Hence, the Catalyst market created an opportunity to widen diversification in investment portfolios and it made transactions faster and easier to perform.

Various financial instruments being traded on the Catalyst market include convertible bonds. Yet, participation of these hybrids in the market is not significant. By the end of 2012, convertible bonds accounted for only 1,54% of the all bonds series traded on the Catalyst market (Raport Catalyst – podsumowanie rozwoju, 2013). Table 2 shows some basic information concerning these series.

**Table 2.** Convertible bonds traded on the Catalyst market (data of 31 December, 2012)

Issuer	Sector	Market of the bonds trade	Market of the shares trade	Value of the issue [pln]
Gant Development	Developers	GPW ASO BS ASO	GPW Main Market	26 000 000
Marvipol	Developers	GPW ASO BS ASO	GPW Main Market	39 400 000
Marvipol	Developers	GPW ASO BS ASO	GPW Main Market	30 791 000
MCI Management	Finance – others	GPW ASO BS ASO	GPW Main Market	50 000 000
Mera	Construction	GPW ASO	NewConnect	758 500
Rubicon Partners	Finanse i inne	GPW ASO BS ASO	GPW Main Market	32 000 000
Warimpex Finanz und Beteiligungs	Developers	BS ASO	GPW Main Market	66 250 000

Source: compiled by A. Rybka, based on: *Raport Catalyst – podsumowanie rozwoju (2013)*.

By the end of 2012 there were seven series of convertible bonds being traded on the Catalyst market. These were issued by six different public limited companies (two series were issued by Marvipol). Among the issuers there were four developers, two companies from financial sector and one construction company. Shares of five of these issuers were traded on the main market on Warsaw Stock Exchange. The exception was Mera company as its shares were offered on Newconnect. This means that the issuers of convertible bonds

belong to the majority of companies with high capitalization and that meet all the disclosure criteria that are imposed by the GPW. It is also worth noting that all mentioned convertibles were traded in an alternative system – one that required only the preparation and drawing up of an information document. This document, contrary to the document required to offer instruments on a regulated market, does not require the authorization of the Polish Financial Supervisory Authority (Obligacje Korporacyjne na Catalyst, 2011).

Table 3 displays information concerning features and quantities of the previously mentioned convertible bonds. These data will be used for further analysis.

**Table 3.** Certain features of the convertible bonds

Issuer	Stock price at the moment of bond issue [pln]	Conversion price [pln]	Date of the issue	Maturity date	Time to maturity [years]	Conversion dates
Gant Development	19,55	25,00	30/09/2010	28/03/2013	2,5	30/03/2011 29/09/2011 30/03/2012 28/09/2012 28/03/2013
Marvipol	15,00	12,80	29/06/2010	29/06/2013	3	29/12/2010 29/06/2011 29/12/2011 29/06/2012 29/12/2012 29/06/2013
Marvipol	8,56	11,00 12,00 13,00	16/09/2010	16/09/2013	3	16/03/2011 16/09/2011 16/03/2012 16/09/2012 16/03/2013 16/09/2013
MCI Management	5,00	6,25	11/09/2009	11/09/2012	3	20th business day of each even month starting from 20/02/2010
Mera	4,09	5,00	22/04/2010	23/04/2012	2	23/04/2012
Rubicon Partners	1,25	1,60	26/04/2011	26/04/2013	2	26/04/2013
Warimpex Finanz und Beteiligungs	10,33	12,79	6/05/2011	6/05/2014	3	each business day up to the maturity

Source: compiled by A. Rybka, based on the information documents of the convertible bonds.

In six out of the seven investigated cases, at the moment of the bond's issue, the issuer's stock price was lower than the conversion price. Hence, for the investor to generate profits from the conversion, an increase in market valuation of the stocks was required. The only exception were Marvipol's bonds that were issued in 2010. Here, the conversion price was set at 12,80 pln, while the stock price was 15 pln. In this situation, the investor would profit from the potential conversion even at the moment of issue.

What should be also investigated are dates to maturity of the mentioned convertibles. According the market statistics, the average time to maturity of all corporate bonds traded on Catalyst is 2,3 years (Raport Catalyst – podsumowanie rozwoju, 2013). Taking into account information presented in Table 3, the time to maturity of five out of the seven convertible bonds was longer than the average.

From the investor's perspective, a relatively long time to maturity of convertible bonds makes a profitable conversion much more probable. The bondholder can expect that there will be enough time for conversion value to exceed convertible bond's price. Less probable, when taking into account time to maturity, was the conversion of the bonds issued by Mera and Rubicon Partners. A profitable conversion could occur only when there was an increase in stock prices of 22% (within two years) and 28% (within one year) respectively.

The probability of a conversion is also affected by the conversion dates that are available to the investor. The most flexible in this case are bonds issued by Waripex Finanz und Beteiligungs. Investors are allowed to convert their instruments every business day up to the maturity date. Taking into account that time to maturity for Warimpex's bonds is three years, the chances of stock prices exceeding market price of conversion are optimistic. Similarly, there were several conversion dates set for bonds issued by MCI Management. These could be converted on each 20th business day of the even month, starting from February 20, 2010. In light of the fact that the instruments would mature in three years' time, the probability that investor would have profited was high.

Less probable was that a profitable conversion could be expected by bondholders of the instruments offered by Gant Development and Marvipol. In spite of relatively long maturity dates (2,5 and 3 years respectively), it was possible to convert bonds only on a few business days. The smallest chances for a profitable conversion could be observed by purchasers of bonds issued by Mera and Rubicon Partners. With their short, two year lifetime, these bonds could be converted into shares only on the maturity day.

For all of the above mentioned convertibles, these instruments were converted into shares after submission of an application by investors on certain days before conversion dates. In practise it means that the investor

made a decision whether to convert his bonds a few (over a dozen) days before the conversion date. Hence, the profitability of the conversion was calculated based on stock and bond prices from the period that preceded the conversion date. Although this period was usually a few days long, there was a risk that parity, which was higher than the bond's price at the moment of the application's submission, would change on the final day of the conversion in an undesirable way for the investor. Similarly, it is possible, that a conversion that did not pay off at the moment of investor's decision to resign from the option, would be profitable on the final conversion date as a result of further changes in stock or bonds prices.

Taking into account this risk, it was established as to whether for these bonds such undesirable changes in value of instruments actually took place. As it turned out, sudden fluctuations did not in fact occur in any of the cases. Hence, Table 4, which will be used for the further analysis of the conversion profitability for investor, presents market data only from the particular conversion dates that were set in the information documents.

**Table 4.** Stock prices and the market price of conversion on the conversion date

Issuer	Conversion dates	Stock price on the conversion date [pln]	Market price of conversion [pln]
Gant Development	30/03/2011	14,00	25,25
	29/09/2011	7,40	24,74
	30/03/2012	8,17	24,99
	28/09/2012	3,78	24,70
	28/03/2013	1,82	22,40
Marvipol	29/12/2010	10,59	12,83
	29/06/2011	9,44	13,08
	29/12/2011	8,90	12,88
	29/06/2012	10,25	12,98
	29/12/2012	9,6	12,08
Marvipol	16/03/2011	9,00	no turnover of the convertible bonds
	16/09/2011	8,56	
	16/03/2012	9,50	
	16/09/2012	10,20	
	16/03/2013	7,25	
MCI Management	16/09/2013	-	no transactions made on the bonds
	20th business day of each even month starting from 20/02/2010	-	
		-	
		-	
		-	
Mera	23/04/2012	2,05	5,00
Rubicon Parnters	26/04/2013	-	no transactions made on the bonds
Warimpex Finanz und Beteiligungs	each business day up to the maturity	-	no transactions made on the bonds

Source: compiled by A. Rybka, based on the stock exchange data [www.gpw.pl and www.catalyst.pl].



Data presented in the Table 4 allows for the comparison of stock price and market price of conversion for the convertible bonds issued by three companies: Gant Development, Marvipol and Mera. It can be observed that in each case the conversion did not bring any profits to the investor. The real price of shares that the bondholder had to pay while performing the option exceeded the current stock price. In fact resigning from a conversion was more profitable for the investor.

It should be also emphasized the turnover of the three out of the seven mentioned series was zero. This refers to the instruments issued by MCI Management, Rubicon Partners and Warimpex Finanz und Beteiligungs. From the time the bonds were offered, there were not any transactions made concerning these instruments. This renders it impossible to calculate the market price of conversion and proves there was very low market liquidity at the same time, a fact confirmed by the values of the transactions made on the remaining instruments. The turnover value of Mera's bonds over the whole period these instruments were traded on Catalyst, was only 120,000.00 pln. For two series of Marvipol's bonds it was 5,6 million and 327,000.00 pln respectively (starting from the first offering up to the one before the last conversion date). The transaction of the largest value was observed for the bonds issued by Gant Development at 18,4 million pln (own calculations based on the market data).

Taking into account a low turnover and no chances for a profitable conversion it can be stated that the so-mentioned convertibles have the same characteristics as the standard coupon bonds. As a result of this, it is mainly a standard coupon rate that decides the instrument's yield to maturity. At the same time, it should be emphasized that a company, by issuing convertible bonds, can decrease the coupon rate. Table 5 presents a comparison of the coupon rate of standard bonds to convertibles. For the purpose of this analysis a series of standard bonds issued at the similar time as the convertibles were used.

Worth noting to start with is that the rates of the majority of convertible bonds is based on the WIBOR 3M or WIBOR 6M rate (the same for the standard bonds). Thus any risks connected with rates is the responsibility of the issuer. This solution is safe for the investors but it also discourages them from the selling the bonds in a secondary market, while at the same time is a cause of a low turnover rate.

It is worth emphasizing that for bonds with a floating rate, a margin above the WIBOR rate is in the most cases lower than the margin for the standard bonds. Keeping in mind a low probability of the conversion, such a dependence decreases the investment attractiveness of the instruments. However, for the purpose of the full analysis, all investor's right that are incorporated into convertibles must be investigated.

Convertible bonds issued by Gant Development, despite the lower coupon rate, guarantee the investor a premium without conversion that compensates the lower payments. Such a premium was also included in one of the convertible bond series issued by Marvipol. At the same time the second bond series of this issuer, that was free of additional payment in case the conversions is not effected, had a higher rate.

Rates for convertibles and standard bonds issued by Mera are set on the similar level. Moreover, the standard bonds of this issuer have a call provision incorporated. This makes the risk of reinvestment higher but at the same time, in case of the earlier buy-back, it awards an additional payment to the bondholder (approx. 0,5% of the bond's face value).

Less attractive, from the investor's perspective compared with standard bonds, are convertibles issued by MCI Management. Despite the similar (but not higher) rates, there is a call provision incorporated into the convertible bond. This option could be activated in a situation where after the day of the bonds issue, the stock price exceeded the conversion price by 50% at least one time, one year before the maturity day at the earliest. By including a call provision, the issuer shielded himself from the selling of shares at a price considerably lower than market value. At the same time the issuer made it less probable that the bondholder would profit from the provision.

The instruments issued without additional options and with lower coupon payments when compared with the standard bonds were convertibles offered by Rubikon Partners NFI. Assuming that the conversion did not occur, the yield to maturity of these instruments was the lowest of all the above mentioned bonds issued by the company.

The only company that issued fixed-rate convertible bonds was Warimpex Fianz und Beteiligungs. However, it is difficult to assess the attractiveness of these instruments because of the lack of the information regarding standard bonds offered by the company.

It is also worth mentioning that the issues of convertible bonds, similarly to standard coupon bonds, were unsecured.

**Table 5.** Comparison between coupon rates of the convertible bonds and the certain standard bonds

Issuer	Type of bond	Issue date	Coupon rate	No conversion premium	Security
Gant Development	standard	29/03/2010	WIBOR 3M + 6,5%		No
		27/05/2010	WIBOR 3M + 4,5%		No
		02/07/2010	WIBOR 6M + 4%		yes (real estate)
		06/09/2010	WIBOR 3M + 6,5%		No
		23/12/2010	WIBOR 3M + 6 %		No
		05/05/2011	WIBOR 3M + 6,5%		No
	convertible	30/09/2010	WIBOR 6M + 4%	6,25%	no
Marvipol	standard	01/09/2010	WIBOR 3M + 5,8%		No
		29/10/2010	WIBOR 3M + 5,7%		
		06/12/2010	9,45%		yes (financial stoppage)
		13/12/2010	9,45%		yes (financial stoppage)
		04/01/2011	9,45%		yes (financial stoppage)
		08/04/2011	WIBOR 3M + 5,9%		No
	convertible	29/06/2010	WIBOR 3M + 3%	6%	No
	16/09/2011	WIBOR3M + 4,29%		No	
MCI Management	standard	01/07/2010	WIBOR 6M +4,75%		No
	convertible	11/09/2009	WIBOR 6M + 4%	call provisions	No
Mera	convertible	22/04/2010	WIBOR 3M + 8%		No
	standard	17/06/2011	WIBOR 3M + 7,5%	call provisions	No
		6/12/2011	WIBOR 3M + 8%	call provisions	No
Rubikon Partners NFI	standard	15/09/2010	WIBOR 6M + 7%		No
		16/09/2011	WIBOR 6M + 8%		No
	convertible	26/04/2011	WIBOR 6M + 6%		No
Warimpex Fianz und Beteiligungs	convertible	29/04/2011	8,5%		

Source: compiled by A. Rybka, based on the information documents of he convertible bonds.

#### 4. Conclusions

Convertible bonds are an interesting option for growing companies and for capital holders who are looking for alternative opportunities to invest their financial resources. Because of the specific structure of these instruments, investors are willing to resign from the current cash inflows in hope of increased earnings after bonds are converted into shares. An analysis of instruments traded on the Catalyst market leads us to believe that the Polish bond market does not allow investors to fully profit from the additional rights incorporated into convertible bonds.

One of the reasons for this seem to be relatively high conversion prices of the convertibles when compared to stock prices,. With conversion prices set at such a level, reaching a profitable conversion, which requires a significant increase in stock prices, is highly unlikely. For these bonds where it was possible to compare stock prices with the market price of conversion, the investor was unable to generate any profits in any of the cases.

At the same time, the analysis of the seven bonds' series does not fully prove that coupon rates of convertible bonds are relatively lower than the respective rates offered by standard bonds. A few examples can be cited where a lower margin above the WBOR rate was recompensed by a no-conversion premium. Moreover, the differences that occur between coupon rates are small and fluctuate between 0,5 – 2 percentage points. From the investor's perspective, no differences in yield to maturity between standard and convertible bonds and a small probability of conversion are undesirable. In addition such characteristics make convertible bonds degenerate to the level of standard coupon bonds.

What is still far from ideal is the turnover liquidity of convertible bonds. Minimal activity on the market means the investor tends to hold instruments up to the maturity date.

It must be emphasized that in choosing convertible bonds for analysis, certain market factors were not taken into account nor was the issuer's debt structure. Moreover, while analysing the features of convertible bonds it must be understood that these parameters are a reflection of the issuer's policy concerning its capital structure. By choosing certain conversion prices and the conversion dates, the company influences the probability of future conversion while at the same time deciding whether to buy back the bonds or to raise the company's capital.

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# TAX RISK MANAGEMENT IN THE AREA OF TRANSFER PRICING

**Marcin Jamróży\***

## **Abstract**

*This paper aims to analyze the tax risk related to transfer pricing and methods of reducing it by Polish enterprises. Effective risk management requires identifying risk areas, quantifying the risk, as well as proper application of procedures that enable the reduction or an elimination of risk exposure. Creating or using adequate tax documentation, advance pricing agreements or internal transfer pricing procedures are the most important means of managing transfer pricing risk by Polish enterprises.*

**Keywords:** *tax risk, tax risk management, transfer pricing, tax documentation, transfer pricing procedures*

## **1. Introduction**

Transfer pricing policy is gaining importance in the business activity of many entities, especially as far as multinational corporations are concerned. Transfer pricing refers to the pricing arrangements set by international related entities in respect to transactions between them such as the sale of goods, provision of services or the transfer of intellectual property. It has become one of the most important international tax issues facing multinational corporations, whatever their size.

Thus, it is not surprising that entrepreneurs intend to optimize the overall tax burden of a group on the basis of existing regulations. However, each state has a vital interest in taxing the part of income achieved by a group of related entities in their territory under its tax jurisdiction, which results in restrictions imposed on the documentation of transactions between such entities. At the same time, the reduction of transfer pricing risk through tax documentation, advance pricing agreements and tax instructions is becoming increasingly important.

The transfer price is the amount charged by one segment of an organization for a product or service that it supplies to another segment of the same organization (Markham 2005, s. 9). Although it is commonly confused with tax fraud, transfer pricing is a conventional financial and legal instrument

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for companies that facilitates inter-affiliate decisions upon whether to conduct transactions inside or outside a holding. It influences, e.g. profit formation and its distribution (Wyciśłok 2006, s. 6).

The article's purpose is to analyze the tax consequences of transfer pricing in relations between related parties. The emphasis is put on international aspects of transfer pricing and its use by Polish and international companies which can be identified as related entities. A tax adjustment carried out by a state finding itself in danger of reduction of its tax income may lead to international double taxation (from the economic point of view) – the levying of tax on the taxpayer and the related entity. This article presents the means of reducing, or even eliminating such risk, especially through transfer pricing documentation or advance pricing agreements.

## **2. Transfer pricing risk**

The tax problem of transfer pricing is closely related to the process of income transfer, resulting as an effect of establishing prices different from the regular, market ones in business relations between related entities. Owing to their reduced or increased values, the final price for performed services can be used as a tool to exploit differences between tax jurisdictions of states where their business activity is conducted.

The transfer price has a major influence on the final income achieved in each state and as a result, on the tax burden of both related enterprises. Income is usually transferred from the state with lower tax rates. Nevertheless, it is not uncommon to see transfers to countries where the effective rate of taxation is higher. However, regulations concerning the covering of losses for related entities are more liberal, or when losses are foreseen in the upcoming fiscal years. Among companies that can be considered to be 'tax-wise and attractive', we can find entities entitled to tax exemptions ;for example, finding itself in a special economic zone or tax haven. Optimizing activities may involve assigning additional functions to the entity whose income is taxed in a more beneficial way. Such an entity has the justified right to demand higher remuneration, as its range of performances, functions and/or risk was augmented. More profitable functions or processes should be assigned to an entity acting under more beneficial taxation. Also recommended is the allocation of non-profitable or low-income activities, (e.g. research units), within entities based in countries with restrictive tax policy or with high tax rates, but with a developed public aid system, for example, providing support for innovativeness.

Transactions between associated entities may be controlled and reliably valued by the Polish tax administration. A penal tax rate of 50% is applied



to shifted income unless the taxpayer presents adequate tax documentation in compliance with Art. 9a of the Polish Corporate Income Tax Act or Art. 25a of the Polish Personal Income Tax Act. In addition, penal-fiscal sanctions may be imposed on those responsible for transfer pricing policy.

Transfer pricing regulations are anchored in OECD Commentary to Model Tax Convention (“OECD-MC”) and the Transfer Pricing Guidelines for Multinational Enterprises and Tax (“OECD-Guidelines”). OECD regulations pertain to a cost-profit separation within an enterprise operating in different tax jurisdictions and lay down general rules for parent-subsidiary and inter-subsidiary transactions. Art. 7 § 2 of OECD-MC ascertains the fundamental transfer pricing principle – „the functionally separate entity approach”, which creates the legal fiction of the permanent establishment generating profits as if it was a „separate and independent enterprise engaged in the same or similar activities under the same or similar conditions, taking into account the functions performed, assets used and risks assumed”. The use of this approach is the first step to valuation of transfer under “arm’s length principle”. The latter notion is introduced by art. 9 §1 of OECD-MC and is deemed an internationally accepted standard and stipulates that off-market conditions may be adjusted by tax authorities. OECD-Guidelines are another set of rules concerning “entities participating directly or indirectly in the management, control or capital”. In essence, they offer guidance on practical application of the aforesaid principles and focus on the valuation of transaction conducted between multinational, associated entities. They do not, however, establish rules for tax documentation.

Regardless of motivations based purely on taxes, understood as exploiting differences between burden created by various states or settling tax losses, a number of other reasons for income transfer can be enumerated, including:

- Presenting a satisfactory result in financial reports,
- Reduction of insolvent assets with regard to the company in danger of bankruptcy,
- Circumventing restrictions imposed on foreign exchange,
- Reduction of custom duties,
- Reduction of other shareholder’s due dividend.

### **3. Transfer pricing risk mitigation**

Risk management in transfer pricing consists of selecting adequate instruments relevant to enterprises which are exposed to risk. Effective risk management requires identifying the risk areas as well as quantifying the risk, and afterwards proper application of procedures that enable the reduction or an elimination of risk exposure.

It is becoming essential to manage transfer pricing risk through the application of proper management tools, like advance pricing agreements, tax documentation or tax instruction. The main goal of management is to optimize the tax burden while avoiding elevated or economically unjustified tax risk. Appropriate tax management in terms of transfer pricing increases the possibility of success in business and leads to better post-taxation results or reduction of development costs.

Polish law allows tax authorities to employ three basic methods of assessing transactional income: the comparable uncontrolled price method, the resale price method and the cost plus method, and two transactional profit methods (the transactional net margin method and the profit split method). All of them refer to a given transaction with a related entity, with the exception of transactional profit methods, which are based on the global share of income between all related enterprises involved in the transaction. However, transfer pricing methods of income approximation cannot take precedence over the duty to search for the whole truth about legal and economic state of affairs connected with the price of transfer, (e.g. market conditions, bundled deals).

Benchmarking studies have been done by enterprises in order to verify the prices and margins that are applied by related entities. Verification is aimed at checking if the transactions' conditions conform to the conditions of comparable transactions entered by non-related entities. Benchmarking studies are a necessary element of argumentation confirming that the prices established by the taxpayer are in the range of the market prices.

It is also difficult to overestimate the importance of the agreement with an affiliate itself. Such contracts between related entities drafted in accordance with the documentation requirements constitute vital evidence. Benchmarking studies and source evidence that can confirm performance of services are of paramount importance. A coherent and long-term transfer pricing policy established for a group of related enterprises combined with efficient documentation management contribute immensely to the increase of tax safety and the reduction of risk.

On the other hand, flexibility in the planning of transfer pricing policies is needed, in order to achieve the best possible settlement between related parties in accordance with tax laws. By drawing up settlement rules and principles, such as the calculation of prices/margins, specific economic goals have to be met.

### **3.1. Tax documentation**

Creating and using adequate tax documentation is one of the most important means of managing transfer pricing risk. Since Polish Tax Law amendments entered into force in 2001, each taxpayer is obliged to provide

tax documentation concerning transfer pricing. As tax authorities are required to determine the market price of a subject of a transaction on the basis of all available data, it is in the interests of taxpayers to present information indicating what factors and circumstances have been taken into consideration when determining final transfer prices. Information prepared by the taxpayer at the time of determining the transaction price protects the submitting entity from falling victim to using data unavailable to the taxpayer or non-existing at the time the price is determined. Possessing reliable and objective data to support a decision in the choice of a certain method of assessment obliges tax authorities to apply the method adopted by the taxpayer.

Currently binding regulations determine requirements for such documentation to be fulfilled. However, they do not impose any specified form which should be employed. The law stipulates that such documentation shall at minimum consist of:

- the identification of roles of the entities participating in the transaction, taking into account the assets used and the risk taken by them,
- specification of all foreseen costs related to the transaction and the form and payment term,
- the method and manner of calculating the profits and specification of the price of the subject of the transaction,
- a description of the economic strategy and other actions within it if the strategy adopted by the entity has influenced the value of transaction,
- an indication of all relevant factors if the entities participating in the transaction have taken such factors into account for the purpose of determining the value of the subject of the transaction,
- an assessment of the benefits expected by the entity obliged to prepare the documentation, such benefits being connected with the performances in the case of contracts relating to intangible performances (including services).

The aforementioned obligations shall apply to transactions between related entities in which the total amount resulting from the contract, or the total amount of actually paid performances enforceable in the tax year is higher than the equivalent of:

- EUR 100,000 if the value of transaction does not exceed 20 per cent of the initial capital,
- EUR 30,000 in the case of performance of services, sale or making available intangible assets and legal values,
- EUR 50,000 in the rest of cases.

There is no doubt that these rules apply to given transactions with determined related entities, not the total amount of transactions with all related entities. One must remember that the Ordinance of the Minister of Finance (issued under art. 9a of the CIT Law and art. 25a of the PIT Law) determines

a list of tax havens. Transactions in relation to which the payment of sums due as a result of such transaction is made directly or indirectly for the benefit of an entity with place of residence, seat or board of management within tax haven countries are subject to these requirements even when they are concluded between independent enterprises if the total amount exceeds EUR 20,000.

Taking into consideration both Polish national regulations and OECD guidelines, it is obvious that tax documentation is extremely useful and can support taxpayers' interest formidably. Not only does its proper preparation guarantee compliance with the law, but also reduces the risk of being subject to potential penal taxation rates (50% in Poland, in comparison to standard 19% CIT rate). The amount of relevant data is often difficult to determine. Nevertheless, as it can be seen that on the basis of Polish law an exhaustive list of documents regarded as a sufficient minimum for each type of transaction can be enumerated. It should also be pointed out that this list was created bearing in mind the Arm's Length Principle.

Tax documentation should be complete and coherent. First of all, a careful functional analysis needs to be conducted. Its aim is to point out activities, risks and assets relevant from the point of view of a transaction. What is more, it should be accompanied by a cost and market remuneration analysis. They should all comprise of:

- a choice of income calculation method such as one of the methods mentioned in CIT Law stating the reasons for choosing one of the methods and explaining the reasons for rejecting the others as inadequate in the context of a certain transaction. A taxpayer is allowed to apply each of these methods to assess the market level of the transfer price in question. The choice must be based on certain circumstances under which the transaction is carried out. The taxpayer's decision is, according to § 4 pas. 4 of the Transfer Pricing Ordinance, binding for the tax authorities when they assess the price, unless the objectivity and reliability of the provided data is doubtful. The exception to granting priority to one of the methods is when using a particular method is „more appropriate” in the light of the provisions of the Ordinance and the available data and in particular in the case of the analysis of comparability of transactions. Imposing limits on the choice of a certain method usually stems from facts relevant to the transaction, which justify employing a different one,
- an indication of a method used for the calculation of profits by explaining specific application of the chosen method, revealing, for instance, the base cost and means for determining the margin, showing the planned calculation (ex ante) and the one based on already obtained data (ex post),
- a determination of the price of the subject of the transaction if one of the basic methods is initially chosen, together with providing the

grounds on which an invoiced remuneration is based as a consequence of: the calculation method chosen, the margin agreed upon as a result of the determination of the basis for calculating it or an indication of the reasons for price modifications (Jamrozý 2009, s. 40).

The intention to implement „standardized and partially centralized” transfer pricing documentation for associated enterprises in the European Union should also be noted (Resolution of the Council and representatives of the Member States from June 27, 2006 concerning the procedural code on transfer pricing for the enterprises associated within the EU (2006/C 176/01)).

### **3.2. Advance Pricing Agreement (APA)**

An advance pricing agreement is a means of significantly reducing or even eliminating transfer pricing risks. In its basic form it is a formal agreement between a taxpayer and tax authorities determining the method of setting a certain transfer price and usage in order not to violate tax regulations. Such agreements may be unilateral, bilateral or multilateral. In the first case, taxpayers sign an agreement with the tax authorities of one country, and in the second and third with two or more. APA’s in such form are binding in such countries as the UK, France, the Netherlands, Spain and the USA (Ault, Arnold 2010, s. 531). Agreements of this kind can also become binding interpretations of tax authorities as is the case of Germany.

The Tax Code of Poland has already been amended to introduce this institution into the Polish legal system. However, it regulates this matter in a slightly different manner than in aforementioned states. In Poland, the final act is not an agreement between the Polish tax administration and an applicant, but an administrative decision – an advance pricing decision. However, for the consistency of terminology and due to its comparable effect, the abbreviation “APA” will be used in this article. Polish regulations distinguish 3 different types of the APA depending on the related parties applying:

- unilateral domestic APA’s (only for domestic related entities) and unilateral foreign APA’s (for domestic entity related to a foreign entity or two or more domestic entities related to the same foreign entity),
- bilateral,
- multilateral.

As of January 1, 2006 the Minister of Finance has the competence to issue a decision concerning aspects regulated by standard APA’s and binding for tax authorities as far as tax procedures are concerned. Under Polish law only a CIT payer with a place of residence or management located within the territory of Poland or a foreign permanent establishment situated within the territory of Poland, may apply for such a decision. Not only is the APA

applicable to transactions between related parties, but also to relations between a permanent establishment and its head office.

According to the Tax Code (section IIA, articles 20a-20r) during the procedure to acquire such an agreement, it is mandatory to provide:

- a suggested method for determining transfer prices and, in particular, an indication of one of the methods defined in CIT and PIT tax acts,
- a description of the application of the suggested method concerning the transaction subject to the APA and, in particular, an indication of the principles for calculating the transfer price, any financial forecasts on which such calculation is based and analysis of comparable data used during calculating the transfer price,
- a description of circumstances which may affect assessment of the transfer price in question, in particular: type, object and value of the transaction, a description of the transactional course, including analysis of functions, assets and risks of the parties of the transaction, as well as a description of predicted costs to be paid by the parties with regard to the transaction and a description of the economic strategy and other relevant circumstances if they affect the price of the transaction; data concerning the economic situation in the branch of the industry in which the applicant operates including data on transactions concluded by unrelated parties which were used for calculating the transfer price; an organizational and capital structure of the applicant and its related parties who are also parties to the transaction and a description of financial accounting principles employed by the related parties who are also parties to the transaction documents which significantly influence the transaction price and, in particular, texts of agreements, arrangements and other documents indicating intentions of the parties to the transaction,
- the suggested duration of the APA,
- a list of the related parties with whom the transaction will be conducted with their consent and submission of all necessary documents concerning relevant transactions and to provide necessary explanations to the tax authorities.

The aforementioned elements are indispensable for the application to be reviewed. The application itself and accompanying documents must be submitted in Polish. The procedure regulated by the Tax Code guarantees ample means for solving potential uncertainties. Should any arise on the part of taxpayers, they can submit a request for information they require or a discussion meeting. When doubts appear after the APA procedure commences, further meetings can be organized before the final decision is made.

The Minister of Finance has 6 months to issue a decision on a unilateral agreement, 12 months for a bilateral agreement and 18 months for a multilateral agreement. These periods can be extended on the basis of general rules

mentioned in the Tax Code. The period for which the APA in Poland is valid cannot exceed 5 years. The APA may be repeatedly extended for another 5 years under the condition that the criteria used to evaluate such an agreement have not changed and the entity applies to extend the APA period at least 6 months before it expires. However, in case of non-compliance with the conditions agreed on in the published decision, the tax authority states *ex officio* its invalidity with an immediate effect from the date of notification that the original decision on the pricing agreement enters into force.

Signing an advance pricing agreement, which formidably limits the possibility of contesting the accepted price for transactions within multinational enterprises by any tax authorities, is undoubtedly advantageous. It is especially beneficial for companies when it has repetitive, basic and vital transactions that represent a significant share of income as a subject, or in the case of the involvement of intangible assets of high value. Each taxpayer deciding on entering into an advance pricing agreement has to assess the expected benefits and costs, including an agreement submission fee in particular. This fee is generally 1% of the transaction which is the subject of an agreement, with maximal and minimal limits imposed depending on the type of each agreement. In a domestic APA the fee cannot be less than 5.000 PLN and not more than 50.000 PLN. In a foreign unilateral APA the fee cannot be less than 20.000 PLN and not more than 100.000 PLN. In a foreign bilateral/multilateral APA the fee cannot be less than 50.000 PLN and not more than 200.000 PLN. The fee for extending an APA is equal to half of the initial payment for the APA application. More costs concerning the procedure may be imposed on the applicant, e.g. the remuneration of experts and translators, costs of travelling of witnesses, etc.

### **3.3. Tax instruction**

Another means of reducing transfer pricing risk is tax instruction – an internal document which presents procedures with the purpose of optimizing tax burdens arising from transactions involving transfer pricing, while maintaining full tax safety. Its main aims are:

- identification of related entities and entities based at tax havens through constant control of contracts and transactions in terms of characteristics mentioned in the tax law,
- identification of all transaction requiring obligatory tax documentation owing to the fact they exceed thresholds established by the law,
- constant preparation of tax documentation for transactions,
- identification of transactions conducted with related entities in order to provide financial reports.

Tax instruction suited for the need of transfer pricing risk management should in particular provide regulations in the field of:



- responsibility and authorization,
- identification of transactions involving obligatory tax documentation,
- content,
- preparation of tax documentation,
- accounting records of transactions with related entities,
- control procedures,
- form and place of storage of tax documentation.

To prepare tax instruction on transfer pricing policy it is crucial to possess vast knowledge of an enterprise, its structure, as well as nature and course of its transactions. Each instruction should include a description of the full procedure from the moment of identification of a transaction with a related entity, to the complete preparation of transfer pricing documentation.

#### 4. Conclusions

Polish tax regulations oblige taxpayers to establish the terms and conditions of transfer pricing as well as other provisions of related party transactions and pricing in particular, at the arm's length level. Violation of this rule empowers tax authorities to estimate the arm's length value of income and determine the proper amount of tax liability.

Transactions between related entities may be controlled and accurately evaluated. Income is taxed at a 50% tax rate if the taxpayer does not present evidence within 7 days a request for further information is received.

Transfer pricing risks can be effectively mitigated by Polish enterprises. Effective risk management requires identifying the risk areas, quantifying the risk, as well as the proper application of procedures that enable the reduction or elimination of the risk exposure. Creating or using adequate tax documentation, an advance pricing agreement or internal transfer pricing procedures are the most important means of managing transfer pricing risk.

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# THE STRUCTURE OF FOREST TAX IN POLAND

**Beata Pater\***

## **Abstract**

*Since the end of World War II, the number and size of forests covering Poland has been steadily growing. At present, forests cover about 30% of the country. 82.9% of the forests are public, and 17% are private. Since the introduction of the forest tax, and regardless of changes in laws, forest tax is related to liability of the ownership, possession or management of forests. One does not have to be the owner of taxable property. Tax receipts are the largest group among the own revenues of communes in Poland. The highest revenue, especially in the cities, comes from real estate tax. In rural or village communes, forest tax has had quite a large impact on revenues.*

**Keywords:** *forest tax, local tax.*

## **1. Introduction**

The main challenge of political changes in Poland was tax reform. This has had quite an influence not only affecting economic and legal systems, but also political not to mention public awareness of taxation. On the other hand, there has been a change in the management of funds raised from taxes. The degree of freedom public authorities have had in managing and redistributing these resources has also changed. The degree to which public figures can intervene in matters of public income – both household and business – has been limited in the new democratic system, and the expenditure of public funds shall be subject to the criteria of economic rationality. The tax burden has to be a compromise between the interests of society, the economy and the tasks of public authorities. Such attitudes can be achieved if fiscal awareness is developed in society and one that is manifested in the payment of taxes and the perception of the State as a civil society.

The design of a new tax system in the new political reality was necessary also for the sake of restoring local government in Poland. It became essential to provide financial support for the communes which meant financing them – to some extent – from local tax sources. (Owsiak 2005, pp.468 – 470). Income tax revenues are the largest group among own revenues of communes

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in Poland. The highest revenues coming in urban communes from real estate tax. In small rural communities agricultural and forest tax can provide quite satisfactory benefits.

The purpose of this paper is to place the forest tax in the present tax system and to assess its performance in the view of changing legislation in light of increasing forestation in Poland.

## 2. Characteristics of the tax system in Poland

The tax system in each particular country, including the period and form of taxation, comprises various taxes involving certain elements such as tax rates, incentives and exemptions (Szciodrowski 2007). The definition of the tax in Polish legislation is recorded in the Tax Ordinance Act of August 29, 1997. On the basis of Article 6 of the Act, the tax is a public, unpaid, compulsory and non-refundable cash liability toward the State Treasury, county or local government, resulting from tax regulations (Journal of Laws of 1997 No. 137, item 926). Economists use the expanded definition, which emphasizes that the tax is a pecuniary, free of charge, compulsory, non-refundable, general, one-sided provision imposed by the State or other public body under the law. The elements listed in the definition are vital to identify and distinguish taxes from other public charges. The lack of any or its replacement means that this benefit is no longer a tax, but simply a fee. (Podstawka (Ed.) 2010, pp.221).

Elements of tax structure is divided into two groups: *obligatory* tax elements (subject and object of the tax, the tax base, tax rate, tax scale) and *optional* elements, such as subject and object exemptions examination, incentives, tax period, fiscal records, tax return. (Modzelewski (Ed.) 2007).

In literature there are many types of taxes, due to the use of different types of segmentation criteria. Most often they are divided as follows: according to the subject of taxation (income, revenue, wealth, consumption), taking into account the criterion of the tax charged therein relation to the total income of the taxpayer (direct, indirect), and by powers of taxation: the central (government) and local (commune). The latter criterion is defined as a right of the State or a commune to levy taxes, fixing their rates, setting exemptions, revenues collection, as well as the right to decide who the beneficiary will be of revenue from these taxes. If taxes supply the local budgets they are called *local* taxes. In Poland, only communes implement tax revenues. However, if tax revenues feed the State budget, are called *central*. Such a division of taxes to local and central is empowered by the Act of November 13, 2003 on revenues of local governments (Journal of Laws 2003, No. 203, item 1966).

**Table 1.** Classification of taxes

TAX	Central	Local	Direct	Indirect
VAT	x			x
Excise duty	x			x
Gaming	x			x
Personal Income	x		x	
Corporate Income	x		x	
Real Estate		x	x	
Inheritance and Donations		x	x	
Transportation		x	x	
Agricultural		x	x	
Forest		x	x	
On Civil Law Transactions		x	x	
The Tax Deduction Card		x	x	

Source: own study based on (Owsiak 2005) and (Podstawka(Ed.) 2010).

### 3. Forest tax in the tax system

The local tax is the most important area of the socio-economic system. Ever since a new Local Government in Poland came in, these taxes have been subject to small, cosmetic changes. Property taxes, which include real estate tax, agricultural tax and forest tax, was charged to the owned or managed property. Forest tax is a direct tax charged to the communes. In scientific studies forest tax is also indicated as an eco-tax.

In Poland there are only a few taxes that could be considered as eco-taxes. Environmental protection is financed largely from environmental fees founded to support activities in this area with emphasis on investment. There are no taxes in the Polish tax system containing the term ‘eco’, although attempts have been made for its introduction (in 2006 and 2009 – a draft law on an environmental tax on cars to replace the excise duty tax on cars). Like other taxes the eco-tax is a public payment that must be related to the environment, and thus have a positive effect on its condition. At the same time, allocation of funds coming from this tax needn’t be definitely related to environmental protection. If the value of the benefit is disproportionately small for the amount of the tax burden, it is an eco-tax, and when it is a corresponding amount it becomes an eco-fee. Literature gives the definition of eco – tax as a financial burden imposed by public authorities on households and businesses, without providing feedback, which is subject to taxation or the phenomenon that influences negatively on the environment. In Poland

there are four fiscal burdens referring to this definition. These are: the excise duty tax on environmentally damaging consumer goods, transportation tax, agricultural tax and forest tax. The last three are local taxes (Małecki 2011, pp. 79-81).

Forest tax ever since its introduction into the tax system in Poland, was governed by two Acts. The first was the Act of September 28, 1991 on Forests (Journal of Laws No. 101, item. 444), another in the Act of October 30, 2002 on forest tax (Journal of Laws No. 200, item. 1682). In the meantime, in 1997 under Article 1 of the Act of July 4, 1996 amending the law on agricultural tax, the forests, the local taxes and fees as well as on environmental protection (Journal of Laws No. 52, item 286) made changes in the tax structure of the forest, non-forest and forest land for agricultural tax needs. Legislation in force until 2002 imposed the tax on individuals, legal organizational units without legal identities, owners or possessors, State Treasury and communes owners of forests. Tax liability including forests under the management of the State Forests (PGL Lasy Państwa) and being part of the Agricultural Property Stock of the State Treasury (Zasób Własności Rolnej Skarbu Państwa) were to be paid by the State Forests and the Agricultural Property Agency of the State Treasury. In 2003 parties liable to pay tax excluded those who were exempted from the agricultural tax and included the companies without legal identities.

Until the end of 2002 all forests were taxed with the exception of those not related to forest management, land used for recreation centers, building or leisure plots and were excluded from administrative decisions concerning forestry for purposes other than forestry. Since 2003 legislation has declared that the subject of tax specified in the Act are all forests with the exception of those used for performing other economic activities than forestry activities. At the same time, legislation indicates that for the purpose of forest tax, article 1, paragraph 2 of the Forest Tax Act, forest is land classified in the list of land and buildings register as forests. According to article 1, paragraph 3 of the Forest Act, management is an activity belonging to business owners or forest managers for: the arrangement, protection and management of forests, the maintenance and expansion of forest resources and crops, the managing of wild animals, as well as sourcing – with the exception of for purchasing purposes – wood, resin, trees, tree stump grinders, bark, pine needles, animals and forest floor, and the sale of these products in its raw state. Most significant from a tax point of view is the classification of the area – whether it has been classified as a forest in the land and buildings register. When the forest is being used for other activities than forest management, it is charged with a real estate tax. (Podstawka (Ed.), pp. 331).

Initially forest tax exemptions were applied to only four subjects; forests belonging to nature reserves and national parks, areas which are protective

forests, forests with trees up to 40 years of age and the forests were included in the register of monuments. Under the Decree of the Minister of Environment of June 27, 2000 on the publication of the consolidated text of the Forest Act (Journal of Laws No. 59, item 679) the first two objective exemptions are not included. However, in 2003 under article 7 paragraph 1 point 3 the list of exemptions was expanded on ecological grounds.

Since 2003 the level of taxation or forest tax has been dependent on forested surface area as recorded in the register of land and buildings, and measured in hectares. Before the end of 2002 the basis for this tax was the calculation of hectares covered by the prominent species of trees as well as an evaluation of the classes these species, according to a general plan or simplified forest management plan.

By the end of 1996 the forest tax rate for one hectare for the fiscal year for each half-year amounted to the equivalent of 0,125 mł of softwood sawmill wood, calculated as the average selling price of wood obtained by forest districts in the previous six months. In the following years (1997-2002) the tax rate was determined as the cash equivalent for 0,200 mł of wood calculated as the average selling price of wood obtained by the Forest District for the first three quarters of the year preceding the tax year. For protected forests, nature reserves and national parks forests and forests, which do not have the plan or simplified forest management plan, forest tax for 1 ha of forest and forestry land was established on the basis of land records for the fiscal year at a determined rate – the cash equivalent of 0.3 quintals of rye. The average selling price of wood and the average purchase price of rye was stated by GUS President and announced in Monitor Polski 20 days after the end of the third quarter.

Since the beginning of 2003 forest tax of 1 surface ha (according to the land and building register records) has been calculated as the monetary equivalent of 0,220 mł of wood determined on the basis of the average sales price of wood obtained by the Forest Districts for the first three quarters of the year preceding the fiscal year, and published annually by GUS (Polish Central Statistical Office) in Monitor Polski within 20 days after the completion of the third quarter. For protected forests, nature reserves and national parks forests it has been established that the amount of tax is reduced by 50% tax rate.

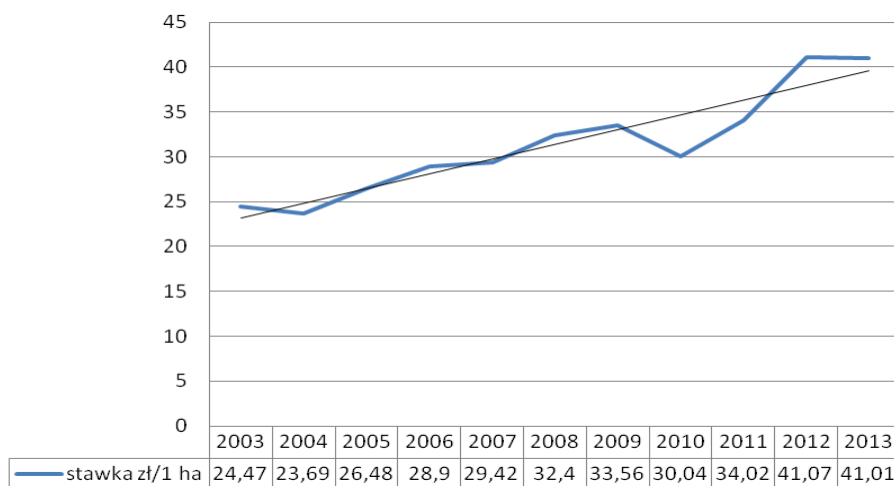
**Table 2.** Forest tax rates in the years 2003-2013

<b>Year</b>	<b>Rate: zł/1 ha</b>	<b>Change yoy in%</b>
2003	24,47	
2004	23,69	-3,19%
2005	26,48	11,78%

2006	28,9	9,14%
2007	29,42	1,80%
2008	32,4	10,13%
2009	33,56	3,58%
2010	30,04	-10,49%
2011	34,02	13,25%
2012	41,07	20,72%
2013	41,01	-0,15%

Source: own study based on GUS press releases.

Average sales prices of wood obtained by the Forest Districts in the years 2002-2012, and consequently tax rates per 1 ha were not stable year-by-year. In 2012, the tax rate increased over 20%. Despite the decline in the years 2004, 2010 and 2013, the graph below shows an upward trend.



**Figure 1.** Forest tax rates between 2003-2013

Source: own study based on GUS press releases.

The commune council, by resolution, may reduce the average sales price of wood, which is the basis for calculating forest tax in the community. The price does not include V.A.T..

In view of the current Act, the entities obligated to pay the forest tax are natural persons and legal organizational units including unincorporated companies owning forests provided that the forest is self-contained, where the obligation to pay forest tax is imposed on the holder of a self-contained, forest



owners, and those owned by the State or local governments. If the forest is jointly owned, or is in the possession of two or more entities, it is the subject of a separate forest taxation and the tax burden jointly and severally liable for all owners or holders. When the one obliged to pay forest tax is a natural person, it shall pay on a quarterly basis, while the legal person – each month. The obligation to provide information on forests and forest tax declaration also applies to taxpayers benefiting from exemptions under the laws on forest tax, including the resolution of the commune council. Tax liability arises on the first day of the month following the month in which the legal title of the forest was in possession of the taxpayer. It expires on the last day of the month in which circumstances justifying the obligation cease to exist.

Under current law subject exemptions include forest stand under 40 years old and forests individually inscribed in the register of monuments and ecological sites. There are also subjective exemptions from this tax including mainly institutions such as:

- Institutions of higher education, higher military academies and colleges, public and private schools, education facilities and teacher training centers, authorities conducting schools, and organizations that manage, operate or use school property,
- institutions of the Polish Academy of Science (PAN) as well as research and development units,
- tax sheltered businesses, organizations engaging in professional forestry activity granted a tax shelter or organizations engaged in professional activity or having been reported to the local authorities in charge, with the exception of forests held by dependent entities other than those with tax shelters or organizations engaged in professional activity.

Due to the exemption for research and development units, communes are entitled to the reimbursement of lost income. However, under the Act of September 9, 2000, the tax on civil law transactions tax authority has the right to give tax relief by postponing payment terms, the distribution of tax in installments or redemption in whole or in part of tax arrears or default interest. The commune council is entitled to introduce other exemptions in a resolution. However, since the beginning of 2003 they may be only objective, referring to the different types of forests (Podstawka (Ed.), pp.333).

#### **4. Forest tax and forest resources in Poland**

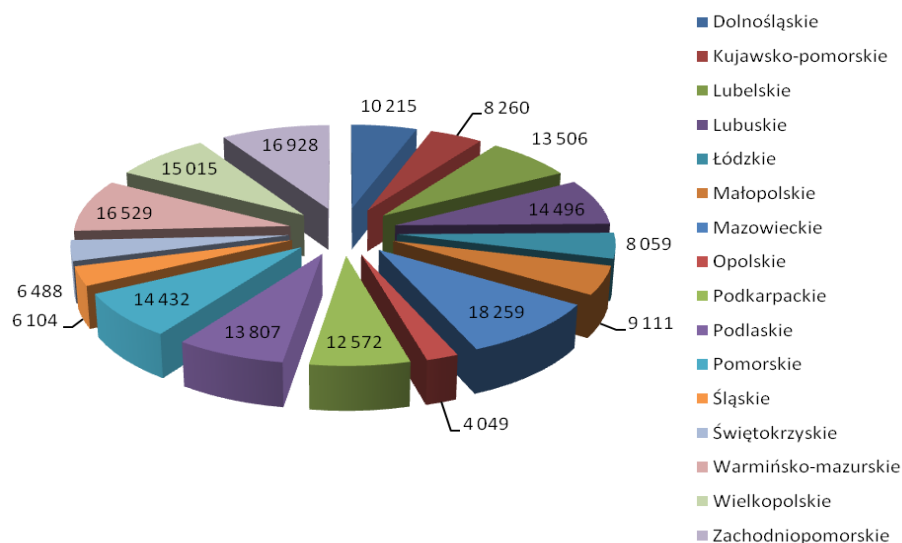
In relation to the expansion of humans, forested areas have been in decline. Significant deforestation associated with Poland's turbulent history took place in the XIX and XX centuries. Even at the end of the XVIII century forest coverage in contemporary Polish border areas was approximately 40%. After

the Second World War losses were so large that in 1946 forests covered only 20.8% of our country. Since the end of the Second World War Polish forests coverage is seeing a steady increase. According to the National Afforestation Program by the year 2020 forests will cover 30% of the country and in 2050 – 33%

In Poland, 82.9% of forests are public, while 17.1% are privately owned. Every year forest coverage is growing and presently sits at 30%. (Leśnictwo 2012).

Poland is very diverse in terms of forest coverage in the context of the administrative division of the Districts. 26.8% of public forests consist of 40 year old trees, and 31.1% in private forests. In the scale of some Districts, forest tax revenues are lower due to forest areas being managed by national parks, nature reserves and forests which are protected or exempt. Protected forests, according to article 15 of the Law on forests, are forests with the following elements: protecting the soil from washing away or sterilization, containment of landslides – protecting groundwater resources and surface waters, regulating relations in the basin, limiting the emergence and spread of volatile sands. Protected forests are seeded areas and animal reserves or areas of foliage protected on a permanent basis because of previous destruction by industry. They are important from a natural and scientific point of view, and have particular importance in the security and defense of the State. They are located within the administrative boundaries of cities just 10 km from the border of cities with a population of over 50 thousand residents, and are also situated in health resort areas under the Act on health resorts.

State-owned forest have been classified as protected forests at the request of the CEO of State Forests and supported by the minister of the environment. Forests which are not owned by the State Treasury can be declared protected forests by the mayor after consultation with the owner and with the agreement of the commune board. Such a decision must also specify the boundaries of a protected forest.



**Figure 2.** Communes' budget revenue (including income of the state cities with Poviat status communes) for forest tax by Districts in 2011 (in thousand zł)

Source: own study based on the (Leśnictwo 2012, GUS, Warszawa 2013).

Due to the varying ages of forests and tax exemptions the amount of revenue generated by the forest areas in different Districts does not arise directly from the multiplication of the forest area and the tax rate applicable in that tax year. Tax revenues for the Districts that have the highest income from the forest tax and its forested areas is shown in the following table.

**Table 3.** Income from forest tax in relation to forest area by District in 2011

District	Order of the amount of forest tax	Order of forest cover	forest area (thousands of hectares)
Mazowieckie	1	15	810,2
Zachodniopomorskie	2	4	808,3
Warmińsko-Mazurskie	3	6	743,5
Wielkopolskie	4	12	765,3
Lubuskie	5	1	686
Pomorskie	6	3	663,4
Podlaskie	7	7	617,3
Lubelskie	8	14	579,4
Podkarpackie	9	2	671,6
Dolnośląskie	10	8	590

Małopolskie	11	9	434,7
Kujawsko-Pomorskie	12	13	420,2
Łódzkie	13	16	384
Świętokrzyskie	14	10	327,8
Śląskie	15	5	392,1
Opolskie	16	11	249,5

Source: own study based on the [Leśnictwo 2012, GUS, Warszawa 2012].

The largest forest tax payer in the country manages the majority of forests, State owned National Forests, which in 2011 paid into the budgets of communes nearly 140 million zł in forest tax. It is worth noting that in the same tax year National Forest achieved revenues from the sale of wood worth almost 6.61 billion zł.

**Table 4.** Sizes of forested areas in Poland and forestry tax revenues in 2011

District	Forest area (thousands of hectares)	Managed by National Forests (thousands of hectares)	Managed by National Parks (thousands of hectares)
POLAND	9143,3	7076,6	183,9
Dolnośląskie	590	550,2	9,7
Kujawsko-pomorskie	420,2	366,8	-
Lubelskie	579,4	323,3	12
Lubuskie	686	666,3	4,6
Łódzkie	384	246,3	0,1
Małopolskie	434,7	199	27,1
Mazowieckie	810,2	417,5	26,9
Opolskie	249,5	232	-
Podkarpackie	671,6	486,8	40,2
Podlaskie	617,3	380	32,7
Pomorskie	663,4	571,8	9,8
Śląskie	392,1	302,5	-
Świętokrzyskie	327,8	223,8	7,1
Warmińsko-mazurskie	743,5	680,7	-
Wielkopolskie	765,3	661,5	4,9
Zachodniopomorskie	808,3	768,2	8,9
Forest tax (in thousand zł)	187 831	139 317,8 <sup>a</sup>	3 128,139 <sup>b</sup>

<sup>a</sup> (Generalna Dyrekcja Lasów Państwowych 2012)

<sup>b</sup> estimated value (area x tax rate)

Source: Leśnictwo 2012, GUS, Warszawa 2013.

## 5. Conclusions

Following the establishment of the forest tax, it became clear that legislation – from the beginning of the introduction of the forest tax and regardless of changes in laws – attached tax liability to ownership, possession or management of forests so as they would be liable for the forest tax; meaning you do not have to be the owner of the taxable property to be liable. The Forest Tax Act does not allow for changes in consideration of the person or the taxpayer and the tax does not depend on its material conditions. It will also not be taken into account whether taxed forest generates income. Communes located in conservation areas would like to receive from the State some form of compensation for the loss of tax revenues. The amount of this compensation is estimated on up to 1 billion zł per year. One idea that has emerged is to raise forest tax rates to cover the communes' legal costs. This means that the existing rate would have to rise from about 40 zł to more than 110 zł per hectare of forest. Forest owners are opposed to this idea [Bartman 2012]. Currently a project is underway to organize grants or subsidies which are a kind of eco-“janosikowe”.

Although forest tax does not seem to bring in a significant income to communes, it is a relatively stable and certain income.

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# DETERMINING AND IDENTIFYING FINANCIAL RISKS FOR COMPANIES

**Katarzyna Strojny\***

## **Abstract**

*Bankruptcy is a process registered in the operation of the free market economy. The basis for this phenomenon is very complex and it possesses economic, legal, and even social repercussions. With the recent financial crisis and the problems of many businesses in our country, it is certainly unfortunately that the issue of bankruptcy is still current and present in the present reality. With regard to the consequences of this phenomenon being of not only an economic nature but above all of a social one, it's worth looking to a rapid assessment of a company's financial problems, which a financial unit by unit analysis would give. This paper aims at showing the economic issues related to the financial risk of a company as well as attempting to form models for forecasting bankruptcy in individual cases in current Polish conditions.*

**Keywords:** *bankruptcy, company's financial risk, early-warning models*

## **1. Introduction**

The tumultuous changes, which we are witnessing, indicate that the threat of bankruptcy and financial issues of unit are still current. In our country, topics related to financial problems and bankruptcy appeared only with the social-economic changes and the advent of the market economy. The Course literature stresses that bankruptcy is a natural process of cleaning the market out of economically inefficient enterprises which disappear from economic life as they are not able to meet the demands of competition. It seems that the problems relating to financial risk and bankruptcy make it difficult to keep to these issues indifferent. The bankruptcy of a trader causes many adverse consequences not only to a bankrupt, but also to those who are associated with him. Suppliers of goods and services may be uncertain as to the payment of the money owed to them, lenders are exposed to loss their claims. Customers of a potential bankrupt may be in threat of lack of regular supplies of goods, services and materials used in a production process. This in turn, may result in problems with the implementation of agreements with their contractors. The presented situation makes the assessment of a financial standing of

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a company and the assessment of a risk of its bankruptcy, an important part of risk assessment activities and economic life in the present reality.

The article is intended to show economic aspects related to bankruptcy of an enterprise, a statistical presentation of the recognition of this phenomenon and a presentation of examples of early warning models against bankruptcy used in Polish conditions.

## **2. Financial threat of a unit – economic dimension**

Economic considerations relating to bankruptcy are associated with the life cycle of a unit (Sokół, 2011, pp. 213-234). The classic life cycle of an enterprise consists of three main stages: the growth, the maturity and the decline. In the growth phase, a company enters the market, and therefore there is a great need for capital in the form of cash. A company expands its distribution channels, tries to achieve profitability and thus has problems with financial liquidity. After reaching relative financial stability and with a stable situation in the market, investment needs begin to appear. However, in connection with low financial liquidity, they are unlikely to be satisfied. After entering the market and gaining clients a company advances into the maturity phase where it has a fixed income and profits, and acceptable financial liquidity. The maturity phase lasts until a decline in revenues and first financial problems with profitability and liquidity appear. A company then passes into the decline phase. Although a deterioration of the financial situation in each company has an individual character, there are 4 characteristic elements of the decline of a company, namely: the crisis, the threat of bankruptcy, insolvency and ineligibility for bankruptcy (Holda, 2006, pp 53-86). At the time of the crisis, the Board may take measures leading to a restructuring of a company. However, sometimes crisis signals are underestimated. In a situation when there is no a response to the emerging crisis, problems in a company will deepen driving it into the second part of the end-stage phase. At this point, there are real threats that may lead to the collapse of a company. The next stage is mainly caused by the lack of reaction to bankruptcy problems in the I and II end-stage phases. The last stage is the loss of eligibility for bankruptcy. This simply means that a company lacks the ability to carry out insolvency proceedings, because the associated costs are too high in relation to the assets a company possesses. Bankruptcy for some is the end of a company, while for others it is a second chance. In fact, there is still some room for acting. We can continue running a company, carrying out activities related to its restructuring, conclude an arrangement with creditors or liquidate a company without taking any actions.



Financial risk-related problems do not appear suddenly. There are often indicators to be seen well in advance. Noticing and not ignoring this threat is important for many reasons, but first and foremost it is relevant for owners and the management of the company. Concerns about a company's economic situation should arise if even only to be able to cover costs caused by the unfavorable situation. Typical costs associated with the deterioration of the economic situation of a company have been presented in table 1.

**Table 1.** The concept of costs associated with the bankruptcy of a firm

Criterion of cost sharing	The level of analysis: micro-economic
	The costs of bankruptcy
1	2
<b>1. Time horizon</b>	
a) generated before the bankruptcy (financial difficulties)	<p><b>Direct:</b></p> <ul style="list-style-type: none"> <li>-additional administrative and legal expenses,</li> <li>-additional costs in connection with delays in paying financial commitments,</li> <li>-the cost of the valuation of the property as security,</li> <li>-the costs of changing and renegotiation of contracts.</li> </ul> <p><b>Indirect:</b></p> <ul style="list-style-type: none"> <li>- managers of a company threatened with bankruptcy can take measures to allow them to survive short time, however, they are adverse effects from the point of view of a company's value,</li> <li>-both customers and suppliers at the time of obtaining the information about a bad financial situation of a company may take action to limit their risks,</li> <li>-the Agency's costs associated with the conflict between shareholders and creditors: the costs of lost effectiveness and costs of supervision by creditors,</li> <li>-the costs of contracts arising from changes of investment risks</li> <li>-loss of sales and profits,</li> <li>-lowering the standards of working conditions of employees,</li> </ul>
(b) generated during insolvency proceedings	<ul style="list-style-type: none"> <li>-disputes between creditors may impede the sale of assets, which decreases its value;</li> <li>-preparatory costs (legal proceedings)</li> <li>-the costs of the insolvency proceedings (salary for the trustee and his staff, the costs of notices and announcements, the costs associated with the liquidation of assets; the cost of valuation and auction of property, the cost of activities costs under public law)</li> </ul>
(c) arising after the liquidation of assets or the conclusion of an arrangement with creditors	-borne by creditors as a result of the postponement of the deadline for payment of claims or redemption of debt

<b>2. Type of conduct</b>	
(a) bankruptcy liquidation	The costs of the remuneration for trustee and persons acting on his behalf, the cost of notices and announcements, the costs associated with the liquidation of assets (costs of salary for employees, including severance pay, the costs of valuation and liquidation of assets, the other public legal costs)
(b) reorganisation proceedings	-the costs following the creditors
<b>3. The approach from an accounting point of view</b>	
(a) accounting	It should be noted that in the accounting records there are no solutions for the costs of bankruptcy. Despite the fact that the introduction of an additional set of accounts, for example the costs of the bankruptcy, would be within the limits of the laws in force at the balance sheet, in practice it often simply duplicates a standard chart of accounts adjusting it only to enterprise needs.

Source: Boratyńska K. (2009).

As previously mentioned symptoms of deteriorating financial situation of the entity are *visible* in advance. Literature on this subject stands out for its macro-economic factors (external), which can be divided into three categories depending on their scale (Pałczyńska-Gościński, 2001, pp. 14-24).

- the causes associated with the situation of the sector of the economy or industries in which work units such as: intense competition in the industry, strong competition from importers at the sales market the products of the company concerned, difficulties in complying with the growing demands of the market, the strong concentration of the capital of competing companies,
- the causes resulting from the overall situation of the wide surroundings of the entity: change in the economic or political system of the state, recession, inflation, changes in interest rates, exchange rates, fuel prices, random events, the need for implementation of new methods of operation and deep restructuring in connection with Poland opening up to foreign investment, frequent and unexpected changes in business law and tax legislation,
- the causes resulting from the global situation: unfavorable trade policy of developed countries, political and economic developments in other countries.

The other causes result from the internal situation of the unit, and they are such phenomena as:

- implementation of too large investment projects,
- financial decisions leading to too much debt,
- operational activities over financial opportunities,
- inadequate financial control of concluded contracts,
- adverse changes in the contractual agreements,

- difficulties in supervising geographically widespread transactions,
- failure or ineffectiveness of measures to eliminate loss-making projects,
- internal conflicts and lack of ability to solve them.

Among the internal reasons which may affect a company and cause threat to continuing its activity, one can also mention: no improvement of own products; creation of apparent news, persistence of outdated products on the market in relation to modern trends, inefficient distribution, disregarding of the importance of presales and post-sales services, inadequate techniques for maintaining and improving the quality of goods and services, inconsistencies in creating and perpetuating the image of a company, and lack of market research. Another issue is incorrect and unreliable data derived from accounting and financial departments in a company. The problem may also prove to be a fraud and manipulation of accounting financial data company (Hołda & Nowak, 2001).

In the light of the seriousness of the symptoms of the deteriorating situation of an enterprise, it is worth mentioning empirical data on this issue. Administrative studies carried out on the causes of bankruptcy (Szczerba, 2007, pp. 37-58) show that one of the most important reasons is the size of the company – expressed in the number of employed workers. An increase in the number of employees means that there will be a growing amount of commitments in respect to salaries, contributions to Social Security, or public-legal obligations. In the opinion of respondents, location was of vital importance for companies and services. Important factors were also weakness in management, negative financial results, high debt, overdue obligations, erroneous strategy, the lack of adequate financial controls, poor financial management, a high leverage financial ratio, the demand for credits and loans, and creative accounting. The structure of causes of bankruptcy according to indications by trustees and judicial supervisors is as follows: internal factors in operational sphere – 22%, internal factors in the financial sphere – 20%, 13% of the indications refer to internal organization of a company, capital causes – 13%, reasons arising from economic policy – 10%, market and social causes – 9%, improperly carried out privatization – 9%, while in the opinion of the 5% of respondents incorrectly carried out mergers/acquisitions are also among the causes of the failures.

### **3. Bankruptcy in Poland in terms of statistical data**

This part of the work presents the statistical coverage of bankruptcy issues in our country. How the following figures show, the problem of bankruptcy in Poland is not an issue that can be ignored. In this part of the work describes the statistical coverage of the bankruptcy issues in our country. How bankruptcy

figures in Poland is not an issue that can be ignored. Bankruptcies in the Polish courts in year 1990 -2009 are presented in Tab. 2

**Table 2.** Bankruptcies in the Polish courts in the years 1990-2009

Year	Complex applications	Taken Care Of			Remaining for future consideration
		Total	Acknowledged in whole or in part	Rejected	
1990	149	59	28	25	112
1991	1250	656	297	166	706
1992	3661	2155	812	641	2227
1993	5429	4324	864	1400	3226
1994	4193	4056	788	1141	3387
1995	2992	3246	721	1013	3213
1996	2710	3214	796	869	2776
1997	2368	2531	679	680	2840
1998	2667	2793	724	655	2729
1999	3149	2986	710	766	2933
2000	4442	3908	876	882	3467
2001	6421	5499	905	1200	4387
2002	6814	5456	1141	1388	4749
2003 to 30.09	5736	6928	-	-	3538
2003 from 01.10	4105	2478	-	-	1627
2004	10794	9012	-	-	3213
2005	11173	11966	-	-	3,127
2006	9755	11156	-	-	4342
2007	7135	7670	-	-	3671
2008	6854	7465	-	-	3041
2009	8638	8179	-	-	3501

\*bankruptcy and reorganization including source: Dec P. (2011).

Bankruptcy statistics for the years 1990-2009 show that this issue arose in Poland immediately after the introduction of the market economy. According to the data presented there was a rapid increase in bankruptcy in the years 1991-1993. A decline in the number of bankruptcies took place in our country in the period of 1994 to 1997. During the years following between 1998 and 2003 there was a second wave of the growth. The years 2004-2009 involve data relating to insolvency and recovery proceedings together (in accordance

with the new law). Hence, it is difficult to refer only to earlier years, because these figures are not comparable. The year 2009 shows another increase in proceedings carried out and corrective action in relation to previous years. An analysis carried out in the various districts shows that the distribution of bankruptcies is uneven and depends on the level of development of the region. Bankruptcy figures according to industry is presented in Table 3.

**Table 3.** Bankruptcy figures according to industries

Branch	2007	2008	2009	2010	2011
Production	173	168	277	250	211
Building & Construction	49	59	82	98	107
Wholesale	89	63	138	107	115
Retail	18	20	30	25	46
Transport and storage	22	15	52	40	143
Activities linked to the real estate market	9	6	14	12	28
Other	87	71	80	108	114

source: own elaboration based on [www.coface.pl](http://www.coface.pl).

Analysis of bankruptcies indicates that in the presented years most cases of insolvency took place in the production sector, while trading took second place among industries. The construction branch is another industry that for years has been at the forefront with the highest number of failing companies. In turn, when considering bankruptcy from the legal point of view, most bankrupts happen among the companies with limited liability.

#### 4. Early-warning Models used in Polish conditions

Issues related to financial risk of a company have motivated scientists to start searching for a synthetic measure which would quickly and clearly provide company management with information about its financial situation in order to avoid the threat of bankruptcy.

A construction of the synthetic model consists of several stages. (Prusak, 2005 pp. 10-45) Currently a popular approach is the view that at the initial stage of the construction of the model, you must think about what purpose it will serve. The next step is to define a company, which is threatened with collapse according to the analysis carried out. Literature on the subject suggests that it may be a company which has filed for bankruptcy or where receiverships have already stepped in. For banks a sufficient premise may prove to be no regular payment of installments. Companies in good financial

standing are often chosen to undergo the expert method. The next stage is to try and choose a teaching sample used in the construction of the model. At this stage you need to answer the question whether the model is to have a universal character or if it is to be built for a specific branch of the industry. The size of a teaching sample will differ depending on this. The selection criterion for the study sample is mainly a balance sheet total or sales revenue. The next step is the selection of explanatory variables. Actually speaking, most commonly various financial ratios are used, although the need to apply other measures is also encouraged such as the quality of business management, the situation in the sector, or the overall economic situation. The most popular models used to assess the financial situation of entities are discriminatory models, which can be divided into the following groups: models based on comparing financial ratios (now rarely used because their performance is relatively low), linear models based on discriminatory functions. A one-dimensional discriminant function is to perform the classification of objects based on only one explanatory variable. It involves the selection of expert measures that should contribute to differentiating between the test groups. A multidimensional discriminant function provides a classification of objects by using several explanatory variables. Logit models in turn take the form of a binomial (bankrupt, not bankrupt) or polynomial (bankrupt, a company with a satisfactory financial standing, a good company). In the case of the binomial models a bankrupt is assigned the value 0, while a company with a good financial standing is assigned the number 1. The Logit function value, calculated with the use of financial ratios, is in the range (0,1). Depending on whether the function, for the test object, accepts a value closer to 0 or 1 the probability of bankruptcy will decrease or increase. In the case of the above-mentioned polynomial models a bankrupt is respectively attributed to the number 1, a company with a satisfactory financial condition to the number 2, and a good company to the number 3. In literature on the subject also known are probit models. Using a model, estimating the company's financial risk is also associated with the concept of border point. The object will be classified in relation to this point. It is the value of the corresponding function or the output value generated by the model, which will allow differentiation between a company at risk of bankruptcy from a company in good financial condition. In the case of such models as a multivariate linear discriminant function, assuming that the function has a normal distribution, the border point may be designated by using the average value of the function-score for bankrupts and non-bankrupts. Then the tested company will be classified as a bankrupt when the value of the discriminatory function is lower than the value of the border point. On the other hand it will be classified as a company in good financial condition when the resulting value is higher than the border point. In the case

of a linear discriminant function the value of the border point is 0. A similar procedure can be applied in the case of such techniques as the probit or logit analysis. These methods of analysis generate the value of the function z-score in the range  $\langle 0,1 \rangle$ .

The first successful test of financial conditions using the synthetic measure was conducted in 1932, by P.J. Fritz Patrick, but the precursor to this approach and the creator of the first synthetic indicator of a financial condition of a company is believed to be Edward Altman. (Skoczylas & Waśniewski, 2004)

In Poland, the pioneers in this field were M. Pogodzińska and S. Sojak. (Pogodzińska & Sojak, 1995). The tested trial consisted of 10 companies coming from the Wrocław area. These companies were not homogeneous in terms of industry and represented the following sectors: industrial, commercial, agricultural, and construction. The assessment of a financial situation of the companies was based on two variables – the quick indicator of liquidity and the gross profit margin. The multidimensional linear discriminant function had the following form:

$$Y = 0,644741 * X_1 + 0,912304 * X_2 \text{ where:}$$

$X_1$  = (current assets-inventory)/short term liabilities

$X_2$  = the gross result/sales income

The border point = 0; intermediate zone  $\langle -0,454; 0,090 \rangle$  efficiency of the model at the border point = 0 was 92% a year before the filing for bankruptcy.

Research in the field of financial analysis as well as the search for a synthetic model used in the prediction of bankruptcy was continued by D. Wędzki (Wędzki, 2004, pp. 478-480), who carried out tests on a sample of 80 companies. Half of them were classified as firms in a good financial condition and the other half as bankrupts. During the test, companies which represented various sectors of industry were combined in pairs. In his research the author estimated 8 binomial logit models using from 2 to 8 indicators. When the classification function value exceeded 0.5 a unit was classified as a bankrupt company, below this value it was classified as a company in good financial condition. According to the author the best model from those estimated in the tests was the following function:

$$Y = -4 * X_1 + 2 * X_2 + 11,441X_3 - 4 \text{ where:}$$

$X_1$  = (current assets + active accruals)/(short-term liabilities and special funds + accruals and deferred income)

$X_2$  = interest payable/(result on economic activity + interest payable)

$X_3$  = (reserves + long-term liabilities + short-term liabilities – special funds + accruals and deferred income) / balance-sheet total.

The efficiency of the overall model was 77.5%.

D. Hadasik presented 9 models built by using the multidimensional linear discriminatory analysis. The structure of the investigated companies was diverse, and included state-owned enterprises, limited liability companies, joint stock companies and cooperatives. The tested companies submitted an application for bankruptcy in the years 1991 to 1997 in regional courts in Poznan, Pila and Leszno. In the construction of models the following groups of indicators were used: liquidity ratios, debt ratios, performance and profitability indicators.

For example, Model 1 built by D. Hadasik (Hadasik, 1998, pp. 133-175) took the form of:

$$Y = -2, X_1 + X_2 * 0,001411478 * 50761 + 0,00925162 * X_3 + 0,0233545 * X_4 + P \text{ where:}$$

X 1 = total liabilities/total assets

X 2 = receivables 365/sales revenue

X 3 = stock \* 365/sales revenue

X 4 = the net result/stocks

P = constant = 2, 60839, The border point = 0

An issue related to forecasting bankruptcy was dealt with within the framework of research conducted by the Institute of Economic Sciences of the Polish Academy of Sciences. (Pieńkowska, 2004, pp.4-7) As a part of the research 7 models were estimated with the use of a multidimensional discriminant analysis. Statistical material used in the study consisted of 80 companies listed on the WSE. 40 of them were at risk of bankruptcy, while the remaining 40 were in good financial condition. These companies represented a variety of sectors: production, services and trade. The estimated models classify a unit to a group of companies at risk of bankruptcy at the moment when the value is less than 0.

Sample model rated at ECI MR. is as follows:

$$Y = X_1 + X_2 * 3,566 * 9,498 + 2,903 * X_3 + 0,452 * X_4 + P \text{ where:}$$

X 1 = operating result/total assets

X 2 = value of equity/total assets

X 3 = net profit + depreciation/total liabilities

X 4 = current assets/short-term liabilities

P = constant = -1,658

The interest in the problem was also presented in the „Accounting” No. 5/2001 by A. Hołda in an article entitled , *Forecasting bankruptcy of a unit in the Polish economy using the discriminant ZH function*. The studies included 80 companies – half went bankrupt, while the other half were not affected by bankruptcy. The tested group was chosen on the basis of the EKD. The model proposed by the author is as follows in Table 4:



**Table 4. A. Model Hołdy**

<b>Variables</b>	<b>Mark</b>	<b>Weight</b>
<b>X 1</b>	current assets/short-term liabilities	+ 0,681
<b>X 2%</b>	total assets/total liabilities	-0,0196
<b>X 3%</b>	net income/total assets (average value)	0,00969
<b>X 4 days</b>	the average state of short-term liabilities/(cost of sales of products, goods and materials + SG + general overhead costs) x (360)	+ 0,000672
<b>X 5 in times</b>	revenue from sales/total assets (average value)	+ 0,157
<b>constant</b>		+ 0,605
The border point = 0 intermediate Zone (-0,3; 0,1), the efficiency of the model a 92.5%		
The efficiency of the model of 92.5%		

Source: A. Hołda (2001).

To summarize the issues related to the construction of models of business failure (Prusak, 2005, pp. 10-45) in our country we can indicate several characteristics: the tested group in most cases consisted of less than 100 units, in most studies balanced samples were used, financial information came from financial statements available a year or two years before filing for bankruptcy, non-homogeneous criteria was used for qualifying a company as a bankrupt (bankruptcy, liquidation because of poor financial status of the company, the initiation of agreement proceedings, bank agreement, opinion of bank experts), research carried out in Poland was not conducted on homogeneous enterprise groups, most commonly used were indicators of liquidity, profitability and those describing assets and capital structure of the company, mostly linear multi-dimensional discriminant analysis was used, the models enabled the qualifying of a company certainly reaching 90%, (including also models not mentioned in the work).

## 5. Conclusions

The problem of forecasting a company bankruptcy is a matter in the interest of many researchers. Course literature indicates that the most important advantage in terms of risk prediction models in Poland is their relatively high financial effectiveness, especially one year before filing for bankruptcy. The use of statistical models ensures proper quality in testing and is definitely better than the intuitive approach. (Prusak, 2010 pp. 45-48) Statistical models give an ability to change the approach to risk assessment by investors and also allow researchers to create a native pattern of bankruptcy adapted to Polish socio-economic realities.

According to the author of the article, the use of early warning models before the financial threat of a unit gives a chance to detect problems and modify the errors sufficiently in advance, and what is most important, provides an opportunity for moving a threatened company out of the crisis with the good will of its management. The author argues that bankruptcy is merely a natural regulator that eliminates the market out of economically little-effective units. Such a position is mainly the fact that the costs borne by the public in the case of the bankruptcy of enterprises are very high. According to the author, we should limit the possibility of such a phenomenon, and not treat it as a natural effect of the operation of a free market economy.

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