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THE ANALYSIS OF BARRIERS TO KNOWLEDGE MANAGEMENT

Summary

The subject of this article is to highlight the need for cooperation and exchange of knowledge among communities of the organization to develop and achieve competitive advantage in the market. On the other hand, research indicates that cooperation is not always the case, so it is worth considering why this is happening. An important part of this article is to present the latest results of research carried out under the EU project entitled Knowledge Management System Model for Enterprise. An analysis of barriers to knowledge management. A tool for analysis of barriers to knowledge management in the company (Model Personnel System Adaptation of Enterprises to the Economy of Structural Change, financed by the European Social Fund, Warsaw - Gdańsk 2008).

1. Introduction

The success of contemporary organizations, especially those operating in competitive markets, depends on their investment in knowledge capital, such as: staff trainings, development of IT infrastructure and software, brand creation, research (for example on new patents), copyrights, breakthrough products (process innovations) or global customer base. Each enterprise possesses some unique knowledge, skills, values and solutions, which can be transformed into market value. Knowledge capital helps them achieve competitive advantage, increased productivity and market value, and the ability to manage them is becoming a necessity. Social, economic and technological changes related to new information and communication technologies and growing use of computers in social and economic processes are often labeled “the third industrial revolution” or knowledge-based economy. The main resource of knowledge-based economy is endless, difficult to quantify, easy to accumulate knowledge and technologies which allow the company instant differentiation of its offer and matching it to people’s needs.

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Historians point out that contemporary discrepancies in productivity and economic growth between various countries are no longer connected with access to natural resources, but with the ability to improve the quality of human capital and new production factors, especially the ability to create new knowledge and ideas and to implement them in economic practice. Currently new knowledge is identified with innovation resulting from interactive learning. Innovations originate in teams, not in isolation, therefore it is vital to provide employees and companies with the possibility of cooperation, consisting in broad exchange of knowledge and experience. Taking the above into account, the purpose of this article is to draw readers' attention to the necessity of cooperation and exchange of knowledge within the community of a given organization to enable its development and achievement of competitive edge. On the other hand, research shows that such cooperation does not always take place, so it is worth considering why this is happening. An important element of this paper is presentation of the latest results of research conducted within the EU project called Model Knowledge-Management System in an Enterprise. Analysis of barriers to knowledge management. Tools for conducting the analysis of barriers to knowledge management in an enterprise (Warszawa – Gdańsk 2008)

2. Knowledge and its management in an enterprise

An important role in defining knowledge is its context. It is determined by organizational culture, language, visual symbols, beliefs and behaviors. When knowledge is passed to another person – its transfer and assimilation are affected by the experience of the receiver, prior to this knowledge. If the receiver cannot interpret knowledge, it becomes worthless. Therefore, before being interpreted by a person, knowledge is only information which can potentially become knowledge. A list of situations in which a person thoughtlessly accepts information is presented below. It happens when^[1]:

- information is obtained from an authority;
- the announcement is made in form of categorical formulations;
- the receiver considers information unessential;
- the receiver prematurely attaches some meaning to the information and does not want to change it.

These situations and thoughtless reception of information which does not create new knowledge, restrict human capabilities, conform human behavior and limit perception and consideration of contexts. Therefore, vital influence

1 Z. Pietrański, Mądrość, czyli świetne wyposażenie umysłu, Scholar, Warszawa 2001, pp. 147-158.

on maintaining or dropping critical attitude to knowledge is exerted by the social dimension, forcing rigidity and conventionality of opinions.

Knowledge helps us understand the reality around us. It exists in specific cultural, organizational and individual “background”. If this is so, then knowledge will consist of various observations, intuition, created assumptions, opinions and even prejudices. T.H. Davenport and L. Prusak^[2] similarly interpret knowledge as a stream of experiences, values, contextual information and expertise, which constitute foundation for the evaluation and implementation of new experiences. Knowledge originates in the heads of people (employees) and is contained in organizational procedures, processes, products and norms. This definition emphasizes dynamic nature of knowledge understood as a result of knowledge production and as a process of implementing new experience and information. However, authors do not explain how knowledge differs from information and how values and information are created in our mind. Moreover, they refer to the knowledge as value, experience and particular context on the basis of which knowledge is interpreted, without taking into account the relations between them. It is not clear, either, how knowledge should be located in an organization and in what form to make it possible for people to use it.

From the perspective of knowledge creation, it is vital to define types of knowledge and possibilities of assimilating it. It is impossible to describe all kinds of knowledge, however, the most exposed division of knowledge is that into explicit and tacit types. Table 1 lists knowledge “dichotomies” which could be found in specialist literature:

2 T.H. Davenport, L. Prusak, Working Knowledge, Harvard University Press, Cambridge 1998, p. 5.

Table 1. Review of knowledge types

Knowledge types and dichotomy	
Explicite (clear, accessible) Codified Objective Verbal General Useful Esoteric (secret) Current Private Theoretical Descriptive Declarative Scientific Creative (heuristic) Individual Internal Abstract Literal	Tacit (silent, quiet, closed, secret, inexplicable) Un-codified Subjective Non-verbal Specialist (expert) Useless Exoteric (popular) Dated Public Practical Applied Procedural Casual Repetitive Collective External Specific Figurative

Source: own elaboration

Special attention should be paid to the division into explicite and tacit knowledge^[3]. Explicite knowledge is independent of a person, thus more objective than tacit knowledge, whose subjective character results from the person's experiences. It contains a thought component which influences the way in which we perceive the surrounding world. Tacit knowledge cannot be formalized, documented or communicated to others in the same way as explicite knowledge, for example with information tools, such as Intranet, memos, company documentation or recorded procedures. Tacit knowledge cannot be codified, but in spite of that, it exerts greater influence on creating new knowledge and innovations. If we take into account associations, analogies, metaphors, creating thought models and ability to solve problems – they are constructed first in the person's mind and then, with varying degree of success, become the subject of communication (message).

It is worth taking a closer look at the definitions of “knowledge management”, leaving aside the possibility of managing something which is not material in its original form. According to D.J. Skyrme^[4] knowledge management is determination and systematic management of the knowledge that is essential for an organization, and related processes of managing, collecting, organizing, diffusing, applying and exploiting performed in order to reach company objectives. Similar definition of knowledge management is provided by KPMG^[5] - these are

3 M. Polanyi, *The Tacit Dimension*, Routledge&Kegan Paul, London 1966 and I. Nonaka, H. Takeuchi, *The Knowledge-Creating Company*, Oxford University Press, Oxford, 1995. Polish edition Poltex, Warszawa 2000.

4 D.J. Skyrme, *Knowledge Creation. Creating Collaborative Enterprise*, Oxford 1999, p. 39.

5 KPMG, Research Report 2000, p.6.

systematic and organized attempts at using knowledge in an organization in order to improve the results of its activities.

Undoubtedly, knowledge management is a process consisting of particular stages. Knowledge management is understood in this way also by G. Probst, S. Raub and K. Romhardt^[6], who list: knowledge location, acquisition, development, sharing, popularization, use and storing. On the other hand, W.R. Bukowitz and R.L. Williams^[7] define knowledge management as a process through which an organization generates its wealth basing on its intellectual capital or knowledge-based assets. In the process presentation of knowledge management, they distinguished: obtaining knowledge from environment, using knowledge in an organization, assessing knowledge assets in an organization, maintaining and developing knowledge assets and selling knowledge in form of new products, services and technologies. Basing on this interpretation of knowledge management, one of the first pilot surveys was conducted^[8] by the research team of Management Studies Center at WSPiZ. The aim of the research was to identify initiatives related to knowledge management in enterprises operating in Poland (Table 2):

Table 2. Knowledge management initiatives

Level of relations between an organization and its surroundings	Level of relations inside an organization	Individual level
Regular cooperation with clients/suppliers Virtual e-room Website Strategic ties with other firms and research centers Discussions on new products and services Sending employees to other organizations Purchasing skills and expert opinions	Allocating budget for obtaining information and developing knowledge in an organization Collecting and analyzing employees ideas Team games and simulations Sharing knowledge by employees who participated in trainings Creating specialist teams Implementing procedures of documenting information Electronic and physical data bases Changes in physical arrangement of work posts Knowledge measure and evaluation in an organization	Developing methods supporting creative thinking of employees Access to information on strategy, products, services, clients and suppliers Team analysis of successes and failures Qualitative structures analyzing and transmitting various organizational structures Sending employees to conferences/seminars

Source: Own elaboration on the basis of: J. Dąbrowski, I. Koładkiewicz, *Inicjatywy zarządzania wiedzą w przedsiębiorstwach działających w Polsce*, „Organizacja i Kierowanie”, No 2(108)/2002, pp. 3-20.

6 G. Probst, S. Raub, K. Romhardt, *Zarządzanie wiedzą w organizacji*, Oficyna Ekonomiczna, Kraków 2002, p. 42

7 W.R. Bukowitz, R.L. Williams, *The Knowledge Management Fieldbook*, Financial Time&Prentice Hall, London 2000, p. 2.

8 Research conducted by the team led by professor Bogdan Wawrzyniak.

According to T.H. Davenport and L. Prusak^[9] many projects of knowledge management refer to externalization of knowledge and to emphasizing its importance in an organization, for example through creating the so-called knowledge maps, which define the areas where knowledge from various fields is created and gathered. Moreover, organizational culture supports knowledge development by encouraging searching for knowledge and sharing it. The construction of knowledge infrastructure does not only cover technical systems and network communication, on the basis of which knowledge sharing is supported, but also physical (informal) interactions. It is worth noticing that knowledge management refers to identification and acquisition of collective knowledge^[10], which is much broader than the sum of knowledge possessed by individuals. Since there is collective knowledge, it might be worth considering the above assumption in the context of “collective mind”^[11], when the subject of thinking and creator of ideas and new knowledge are all members of the team. In a group it is hard to determine who is the real author of the solution. The premises for creation of a collective mind are emotional climate (sympathy, fascination, ludic attitude) created in a group; communication inside the group, using language understood by everybody (for example colloquial, metaphoric) and the aim organizing the group’s activeness.

3. To cooperate or not to cooperate □ that is the question. Barriers to knowledge management

We should keep in mind that one of the main factors restricting implementation of new knowledge, especially in small enterprises, is quite high labor turnover and little orientation towards investment in human capital. These enterprises do not pay much attention to creating knowledge and expanding employees competencies. Not all companies in Poland are ready for implementation of the knowledge management system. Managers must be explicit to new activities and changes and should provide wide access to information for their personnel. Although the management often realize the significance of knowledge management in contemporary world, they do not know how to do it or what to start with. Small enterprises reluctantly spend money on trainings and specialists’ visits. They want to invest in systems which are rather cheap, easy to install and use. Many Polish companies underestimate the role of knowledge in creating their competitiveness in the global market. The effects of such approach are soon to be visible. Only partial use of available

9 T.H. Davenport, L. Prusak, *Working Knowledge*, op.cit

10 G. von Krogh, *Care in Knowledge Creation*, “California Management Review”, (40) 1998, pp. 133-153.

11 E. Nęcka, *Umysł zbiorowy, czyli grupowe myślenie twórcze*, „Przegląd Psychologiczny, Volume XXVIII, No 2, pp. 345-360.

resources, including human capital, is a common problem in enterprises. Each company loses financially when the available knowledge is not applied to activities determining success. From business perspective it is hard to accept the situation in which a firm possesses a precious resource sought after by clients, but cannot activate it. The knowledge management system allows companies to locate, catalogue, file, transfer and use again knowledge. Employees reach information faster, learn more quickly and become more efficient, which translates into visible improvement of effectiveness and better operational efficiency of the whole enterprise.

Knowledge management generally consists in creating, passing and storing tacit knowledge. Tacit knowledge may be at the level of an organization or at the individual level. At the organizational level, when decoding it, we deal with organizational theories, while at the individual level – with psychology. The process of sharing and spreading knowledge is endangered then, as its implementation weakens someone's position in the company, for example by losing exclusivity of information. It usually happens in organizations with clear division of power, in which knowledge becomes an attribute of the position held. In such conditions it is hard to talk of efficient knowledge sharing. A solution could be to create mutual trust among knowledge owners, which can be achieved through linking the process of knowledge sharing to the motivation and remuneration systems. Mechanism constructed in this way should aim at encouraging questions and developing demand for knowledge. Sharing knowledge should happen in the atmosphere of trust.

Creating such atmosphere is a long process – it consists in providing positive examples and absolute avoidance of bad behavior which may thwart all our efforts. Organizational culture of an enterprise is greatly affected by creating positions especially dedicated to knowledge management or expanding the tasks of existing posts to accommodate knowledge management elements. The main barriers to implementation of knowledge management concept resulting from inappropriate organizational culture are:

- reluctance to share knowledge,
- people's mentality, as our nature encourages us to build our competitive advantage on the basis of possessed knowledge,
- bad habits and customs, manifested in avoiding cooperation,
- unwillingness to delegate authority,
- lack of knowledge of foreign languages, inability to use some information tools

In order to manage knowledge effectively, we must convince people that they should work differently and change their values as no one can be successful alone these days. Cooperation with internal and external partners is gaining significance.

There are two fundamental barriers to knowledge sharing: lack of trust and lack of openness. The former is associated with uncertainty related both to the way the employee's knowledge will be used by the board or organization and to the future of such a person in the company after sharing knowledge. An employee may be moved to a worse-paid position. After spreading knowledge and developing new standards based on it, an employee may be made redundant and a person with lower financial expectations may be hired in their place. As a person who has shared knowledge – he has already lost his competitive advantage over other employees. However, without trust, no programs of identifying and sharing knowledge would work, it would not be possible to protect it, either. That is why it is so important to create a climate of trust inside the organization. The latter barrier is connected with rejecting solutions proposed by others. The ideas brainstormed by employees of other organizations are considered valueless. An important feature is openness and humbleness, and openness to surrounding stimuli which do not always bring ready-to-use solutions, but may be an inspiration for creating our own concepts. Cooperation is also essential – without it, knowledge sharing may not take place at all. That is why we need appropriate organizational structure, built on all organizational levels – from managers to laborers. We should appreciate and reward workers with appropriate attitude, acting in accordance with the values professed by the organization – clearly defined and critical for its culture.

The survey of knowledge management in Poland^[12] has shown that in many surveyed enterprises their organizational culture does not support introduction of changes in favor of knowledge management. The main barriers – evaluated on the 0-5 scale (0 – no barrier, 5 – a very big barrier) were considered to be: poor communication (3.58), resistance to knowledge sharing (3.56), inappropriate management style (3.28), lack of financial resources (2.53), lack of measurable benefits of knowledge management implementation (2.43), specialist turnover (2.11) and finally – poor IT infrastructure (1.84). The first two barriers are connected with organizational culture of an enterprise and power. Access to information and possession of knowledge are its attributes. Sharing knowledge would lead to losing their position – and the third barrier is directly related to it – leading in a way that prevents employees from self-actualization and using their potential. That is how we can explain lack of involvement and labor turnover. Lack of financial expenditure on development and poor infrastructure also contribute to the emigration of intellectual capital.

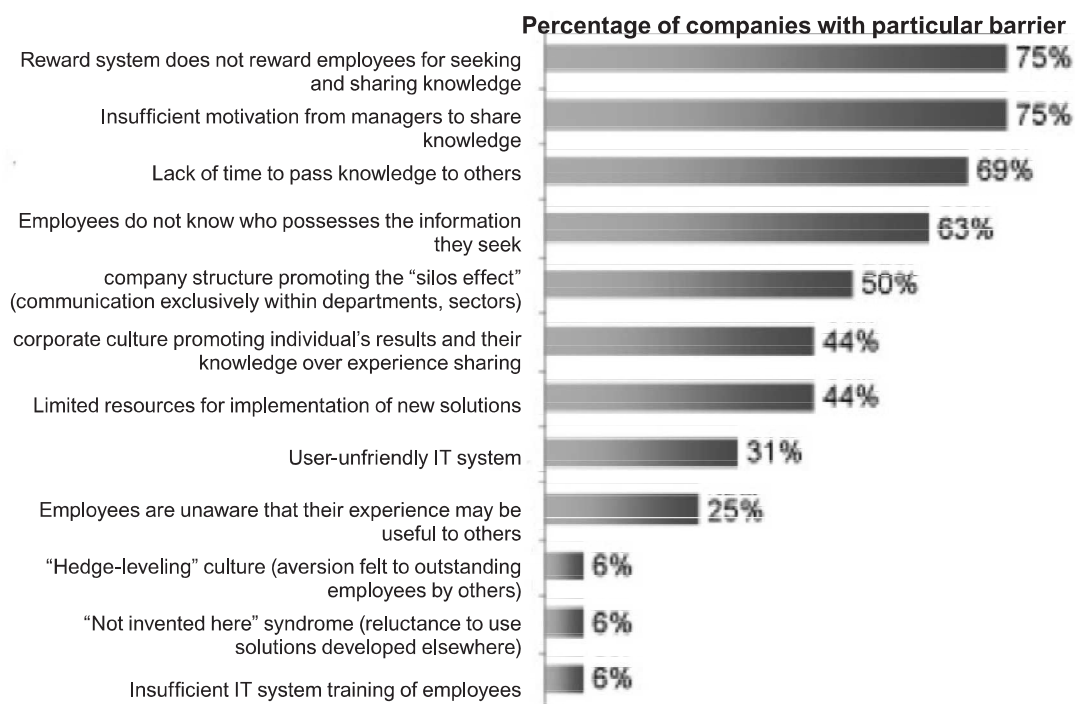
12 A. Błaszczuk, J.J. Brdulak, M. Guzik, A. Pawluczuk, Wyniki badań sondażowych nad zarządzaniem wiedzą w Polsce, Zarządzanie wiedzą w polskich przedsiębiorstwach, SGH, Warszawa 2002. Research was conducted in 33 enterprises in three provinces: Dolnośląskie, Mazowieckie and Podlaskie, at the turn of April/May 2002.

According to W.M. Grudzewski and I.K. Hejduk^[13] company employees do not want to share their ideas because they are afraid to lose the job or the reputation they developed. Organization culture often makes it complicated to present one's proposals to the superiors. Employees doubt whether their ideas are good, and when they are convinced, they still feel that this is a one-way exchange. Managers may not support knowledge sharing or get involved in the process, discriminating lower level employees and protecting their own interests. There is a deficit of mutual trust and time to share knowledge,. People are afraid of changes – related to implementation of new technologies and systems streamlining information flow. Finally, there are no systems motivating to share knowledge (there are no personal benefits attached).

As far as spreading knowledge in external environment is concerned, the basic barriers are: language, national differences, distance and fight for the customer. This fight accounts for the fact that most information is censored or omitted when sharing the whole concept with other partners. The company protects its own solutions, guaranteeing it appropriate market position. It is connected with taking risk – the company is afraid that it will lose jointly developed solutions and that they will be popularized by other cooperating enterprises, it hesitates whether it behaves properly. Little time is devoted to building trust and loyalty between companies. The fear that they may take over and use our solutions often leads to hiding ideas and slowing down creation of new solutions. There are cases when, in spite of huge market demand, the company is hiding the solution it developed – related to new technology or software, which leads to the situation when another company invents a similar technology and begins its sales. This causes that the original inventor has to bear additional costs to adjust its products to standards introduced by competitors, even if its original software was better and more useful. Also universities are beginning to protect their knowledge through the trend of new intellectual property management, which is less explicit to cooperation with companies. This slows down and limits usefulness of their results while the new solutions application speed results from competitive fight rather than from protecting and hiding knowledge.

13 W. Grudzewski, I. Hajduk, *Zarządzanie wiedzą w przedsiębiorstwach*, Difin, Warszawa 2004, pp. 126-128.

Figure 1. Barriers to knowledge management



Source: P. Markowski, P. Tomczak, *Gdybyśmy tylko wiedzieli, co wiemy... .Efektywne zarządzanie wiedzą organizacji*, Bernard Brunhes Polska, Warszawa, 2004. Report on research.

One of the most important barriers to effective operation of the knowledge management system of an enterprise is lack of rewards for knowledge transfer efforts. Lack of elements motivating employees to share results in inferior treatment of this activity, as additional and unnecessary burden imposed by the employer. In extreme cases, the existing hedge-leveling culture discourages outstanding employees and hampers all initiatives exceeding employees scope of responsibilities. The syndrome of "constant lack of time" can be noticed in case of management systems favoring short-term objectives. Then sharing knowledge or new ideas is perceived by employees as a barrier to realization of objectives assigned to them. From the budget perspective, each new solution may then generate unplanned cost and therefore be "shelved". Another major barrier is the "silos" organizational structure of the company, which slows down communication between various sectors. A similar effect of deliberate retention of information appeared also in shift structures, in which particular teams competed with each other. The lowest intensity of this phenomenon was observed in enterprises in which work is performed in groups. Another frequent barrier is lack of belief and involvement of managers. Employees see that their superiors do not use knowledge exchange tools, for example they do not feed data to the IT system and they choose not to do it as well. They do not

share their ideas with others, assuming that the boss will treat it as unnecessary eagerness. Though they may sometimes be unaware that their experience could be useful to others, they usually realize that knowledge is a valuable resource. Nevertheless, company culture, promoting individual's effects over knowledge sharing, may transform this knowledge into some sort of competitive advantage in the internal labor market. Then some behaviors of deliberate blocking information and building employee's position of an expert with monopoly for knowledge appear. Frequently the contact with a person possessing particular knowledge is difficult. Knowing exactly their information needs, employees are forced to make an effort to find a competent person in a given field, the task not always successfully completed. Less frequent barriers are mechanism of selecting information which seems less important to an employee and aversion to solutions developed by other people, also known as the "not invented here" syndrome.

Summing up, Table 3 presents barriers existing in various levels: of the employee (individual), enterprise and economy (sector). An extensive list of barriers and difficulties definitely is not a complete list of obstacles appearing in the process of knowledge management, but these barriers are most common and may affect the effectiveness of knowledge management^[14].

It should be emphasized that not all these barriers must appear among employees and enterprises of a particular sector.

Table 3. Barriers existing in various levels

Level	Barrier type	Identified barriers
EMPLOYEE LEVEL	Psychological	<ul style="list-style-type: none"> • natural fear of change • protection of one's interests and position and fear of one-way passing valuable experience • reluctance to do additional work • limited needs for professional development and self-actualization • lack of initiative • inability to gain and evaluate knowledge on one's own • no courage to share one's observations • fear of making a mistake and its consequences • inability to receive criticism and to criticize constructively • inability to ask for advice and help
	Technical	<ul style="list-style-type: none"> • inability to use new technologies • unclear codification of knowledge and freedom of interpretation
	Financial	<ul style="list-style-type: none"> • no possibility of bearing the costs of services related to access and acquisition of new skills

¹⁴ Extensive report on research on barriers to knowledge management with detailed questionnaire consisting of 74 questions can be found [in:] BADANIE BARIER W ZARZĄDZANIU WIEDZĄ W PRZEDSIĘBIORSTWACH - RAPORT KOŃCOWY. Projekt EQUAL Nr F0576 MODELOWY SYSTEM WSPARCIA PRZEDSIĘBIORSTW I PRACOWNIKÓW W TWORZENIU SYSTEMÓW ZARZĄDZANIA WIEDZĄ, Warszawa-Gdańsk 2007.

Level	Barrier type	Identified barriers
ENTERPRISE LEVEL	Psychological	<ul style="list-style-type: none"> • low awareness of benefits of knowledge management • low involvement of management in implementing and monitoring knowledge management
	Social	<ul style="list-style-type: none"> • lack of leader • fear of investing in an employee who may leave for another enterprise • national and cultural differences • inability to cooperate in a group
	Organizational	<ul style="list-style-type: none"> • no clearly defined strategy • no feedback with human resource management area • improper information flow • developed hierarchical structure • no inflow of people with new knowledge to enterprise • not integrated staff • unfavorable organizational culture • early retirement of experienced employees • fear of information leak from enterprise
	Technical	<ul style="list-style-type: none"> • architecture • distance • not integrated technical infrastructure or lack of it • no system of filing information • no possibility of substitution for period of training
	Financial	<ul style="list-style-type: none"> • limited possibility of expenditures on implementation and realization of knowledge management concept • inappropriate priorities leading to seeking economies in expenses on improving employee qualifications
SECTOR AND ECONOMY LEVEL	Psychological	<ul style="list-style-type: none"> • enterprise inability to cooperate and associate
	Social	<ul style="list-style-type: none"> • reluctance to share achievements and experiences
	Technical and systemic	<ul style="list-style-type: none"> • deficit of knowledge management specialists • no highly specialized and flexible trainings • no contact with the sphere of science and research • education system not adjusted to economy needs, inertia of education system • no uniform system of acknowledging qualifications obtained outside formal education system
	Legal	<ul style="list-style-type: none"> • bad legal protection of intellectual property • unstable law
	Financial	<ul style="list-style-type: none"> • poorly finance science and research programs • worse working conditions

Source: Analiza barier i trudności w zarządzaniu wiedzą w obszarze zarządzania zasobami ludzkimi. Projekt EFS, EQUAL Modelowy system przystosowania kadr przedsiębiorstw do zmian strukturalnych w gospodarce, Gdańsk 2005.

The survey covered 406 employees from various levels within the EQUAL Project No F0576 „Modelowy System Wsparcia Przedsiębiorstw i Pracowników w tworzeniu Systemów Zarządzania Wiedzą” (Model System of Supporting Enterprises and Employees in Creating Knowledge Management Systems). Participants were employees of: 19 enterprises from chemical industry (159 people) and 38 enterprises representing light industry (247 people). The researchers obtained completed questionnaires from 369 people in the period from 9th March 2006 to 16th February 2007. In the whole period of the survey 91 groups of employees were analyzed, including 118 people representing chemical industry and 251 people from light industry.

Among psychological barriers at the employee level, the most important one was the feeling of loss accompanying the process of sharing knowledge with others. Presenting co-workers with the knowledge that one developed for years and which demanded a lot of effort, sacrifice and sometimes financial investment, arouses natural resistance in an employee. The thesis was confirmed by the survey results in which a significant part of employees (28%) share their knowledge with others only when forced to do so. Other major problems are: inability to self-learn (44%), inability to receive criticism and tendency to find malicious remarks in someone's criticism (34%) and fear of improvements and new solutions developed in experimenting and questioning the existing operational methods. The survey results show that employees declare awareness of necessity of continuous professional development, are not afraid to ask others for help or explanation of complicated issues and try to communicate their dissatisfaction and comments in a balanced way, without unnecessary emotions. However, we should remember that the selected form of the tool has a number of restrictions and analyzed only declarative attitudes of employees. 15% of surveyed employees declared strong negative attitude towards any changes introduced in an enterprise and admitted to having problems with using information from various sources. Respondents declared significant lack of trust in their superiors (27%). It should be emphasized that as many as 44% of people do not consider their boss to be an authority at work for them. Problems in relations between subordinates and supervisors should be considered a serious barrier in implementing knowledge management in a company. Respondents show more trust in their subordinates and peers. Most of the surveyed employees expressed an opinion that their peers trust them. A serious problem damaging trust in employer is the fact that employees do not believe that if they perform their jobs properly and diligently and if their work constitutes real value for the company, they will probably keep their jobs.

All barriers classified as technical barriers at the employee level obtained more than 20% of answers. The most intense problem was lack of knowledge of foreign languages, preventing their use in improving qualifications (71%)

and inability to communicate effectively which leads to misunderstandings (56% and 60% of answers). Around 25% of respondents declared problems with using the computer and new technologies, being overburdened with job responsibilities and lack of interest in professional novelties.

As expected, a very serious problem are limited possibilities of financing one's professional development by employees. As many as 62% of respondents claimed that trainings, specialist literature, trade journals and other materials helpful in upgrading qualifications are beyond their financial reach. This conclusion is valuable in the context of supporting the professional development process at work and confirms that it is necessary to build the system of coaching and training inside the enterprise.

The intensification of identified problems in the group of social barriers at the enterprise level shows that it is one of critical areas. The basic problem is too little importance attached to the value of human capital in an enterprise. As many as 53% of respondents pointed out that investment in their companies is usually restricted to company property, while 42% claimed that investment in employees qualifications is shunned. Moreover, 64% of respondents indicated that employee development is pushed aside in their companies and it is not given proper attention. Other serious problems are: unfavorable work atmosphere (69%, 62% and 57%), not integrated staff (52%) and wrong people at executive positions. 29% of the surveyed gave answers which may signal unwillingness or inability to work in a team. It is an important signal for people responsible for development and evaluation of training programs, indicating that they should also include development of competencies necessary for working in groups and that in some cases professional development will bring better effects if it is individual.

Just like social barriers, organizational barriers at the enterprise level were very strong. Two major problems were: motivation systems not taking account of improving qualifications and lack of feedback on whether tasks are performed properly. As many as 73% of respondents stated that improving qualifications is not rewarded in any way by the company. The survey also demonstrated difficulties with information flow and its excessive protection. 39% of the surveyed people claimed that they do not obtain information necessary in their everyday work. Respondents were unable to answer many questions concerning the activities of their company (for example, whether the company belongs to some sector association or cooperates with research and development units) and they ticked the "I don't know/ Not applicable" answer (around 40% of answers). It is also worrying that 41% of respondents admitted to not knowing their company's goals and not knowing in which direction the company intends to develop, or regarded this information as not essential for their work post.

Among technical barriers at the enterprise level, the greatest challenge for enterprises will be organization of knowledge exchange between employees from different, distant branches and allowing workers to contact people they do not cooperate with every day in order to learn their mutual expectations concerning performed work. It should be emphasized that only 1% of respondents indicated that valuable information is not filed in a company.

Financial barriers at the enterprise level turned out to be lower than expected. The answers of overwhelming majority of employees imply that their companies could afford to allocate more money to development of employees competencies and implementation of knowledge management. The survey of social barriers at the sector and economy level proved that the level of cooperation between enterprises from the same sector is very low, which does not allow to use the experiences of other entities and to avoid mistakes made by them.

Among technical barriers, the biggest problem is inadequate preparation of graduates to work in their profession, lack of interest in innovations and in cooperation with research and development institutions, as well as limited access to specialist trainings in the existing market. The surveyed people also indicated that current system solutions do not create appropriate possibilities of confirming competencies employees gained: over 20% of the surveyed people stated that documents confirming possession of particular competencies do not reflect their actual level. A serious threat to the resource of employees knowledge is the possibility of early retirement taken by many experienced workers. More than a half of respondents, if presented with such possibility, would take advantage of it. Moreover, 74% respondents claim that Polish companies are unable to create, especially for talented employees, attractive working conditions, comparable with those offered abroad.

Due to the fact that the results obtained for light and chemical industry do not differ considerably, detailed description of each sector can be regarded as unnecessary, as most of the description would not differ greatly from the collective results presented here.

Knowledge management in Polish economic reality is still a new and unpopular concept. Practical application of knowledge management elements in a traditional enterprise is connected with the necessity to introduce changes in all functional areas of an economic entity, therefore implementation of knowledge management systems encounters barriers and difficulties at all levels: starting from the employee level, through the enterprise level, up to the sector and economy level. There is no doubt that the barriers to knowledge management at the level of an individual employee are the most difficult to break. Creation of a complete catalogue of such barriers is not possible due to individuality and complexity of human nature. However, we can talk of a group of barriers common for most people, which was reflected in current research

and observations. The last group of problems in knowledge management at the employee level are financial barriers. Employees who would be willing to devote their free time to improving their skills and gaining new knowledge are often unable to bear the costs of such activities. This is particularly true in sectors of economy where salaries are low and employees, after satisfying their basic needs, cannot afford to buy expensive books or journals, computer hardware and software, use IT services or pay for participation in a course or some training. Difficulties and barriers to knowledge management are not limited to the level of an individual employee, but also appear at the level of an enterprise and the whole sector (economy).

4. Conclusions

What can an organization do to make its employees want to share knowledge? It should create appropriate environment, in which employees will feel comfortable. Above all, the organization should prevent the situation in which employees feel burnt out and unnecessary. This could be achieved by various development trainings. Also a motivation system in which people sharing knowledge are promoted is desired. Of vital importance are also company message and values, especially if one of them is knowledge sharing. While naturally breaking barriers, we should use individual solutions tailored to a specific organization and profile as well as to expectations of its employees. The organization should try to learn them and respond to them.

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