

Janusz Marek Lichtarski *

ORGANIZATIONAL STRUCTURE AND KNOWLEDGE MANAGEMENT

For years, numerous experts have been forecasting the development of new forms of organization, which are able to create new ideas, improve organizational know-how, develop its members' skills, and survive in the complex environment by adapting to unstable conditions. The main goals of the article are to examine the relationships between organizational structure and knowledge management in an organization both in theory and practice, analyze various structural designs in terms of knowledge management efficiency, and identify major organizational stimulators and obstacles to knowledge management. The author formulates the hypothesis that the more organic structure, the more advanced knowledge management system within an organization, i.e. a higher number of various and more sophisticated tools are used in practice. The text is based both on literature studies and the results of the empirical research conducted in 2005 in 131 enterprises from the regions of Lower Silesia and Greater Poland.

Keywords: project structure, hypertext structure, knowledge management, learning organization

1. INTRODUCTION

The new business environment imposes new demands on organizations. Traditional success factors, like organizational size, material and financial resources, or organizational structure designed precisely as a complex machine, seem to be replaced by new factors, like speed of activity, flexibility, information, and innovation. For years, numerous experts have been forecasting the development of new forms of organization, which are able to create new ideas, improve organizational know-how, develop its members' skills, and survive in a complex environment by adapting to unstable conditions. Such organizations are an answer to the uncertainty of the dynamic environment, and are called boundaryless, knowledge-based or learning organizations (Senge 1990, p. 3; Ashkenas 2002 p. 5).

The basic resource of learning organizations is knowledge which contains data and information. As well as other organizational resources, both material and non-material, knowledge to be useful should be well managed

* Department of Organization and Management Theory, Wrocław University of Economics

within an organization. The efficiency of the knowledge management process is determined by a number of factors. Some of them are directly related to organizational structure. Many interesting questions arise in this field, e.g.: What are the major stimulators and obstacles to knowledge management concerned with organizational structure? Are organizational structure and the knowledge management system interrelated? What kind of organizational design is the best for learning organizations? These and many other questions need to be answered if we want to make use of the new organizational forms and concepts of management. The main goals of the article are:

- to examine the relationships between organizational structure and knowledge management in an organization both in theory and practice,
- to analyze various structural designs in terms of knowledge management efficiency,
- to identify major organizational stimulators and obstacles to knowledge management in each phase of the whole process: knowledge identification, creation, collection, update, and sharing.

The author formulates the hypothesis that the more organic the structure, the more advanced knowledge management system within an organization, i.e. a higher number of various and more sophisticated tools are used in practice. The text is based both on literature studies and the results of empirical research conducted in 2005 in 131 enterprises from the regions of Lower Silesia and Greater Poland.

2. THE LEARNING ORGANIZATION AND KNOWLEDGE MANAGEMENT

According to Senge, learning organizations are “organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together” (Senge 1990, p. 3). The dimension that distinguishes learning from traditional organizations is the mastery of certain basic disciplines. The five that Senge identifies are said to be converging to innovate learning organizations. They are: systems thinking, personal mastery, mental models, building shared vision, and team learning. Senge adds to this recognition that people are agents, able to act upon the structures and systems of which they are a part. All the disciplines are “concerned with

a shift of mind from seeing parts to seeing whole, from seeing people as helpless reactors to seeing them as active participants in shaping their reality, from reacting to the present to creating the future” (Senge 1990, p. 69).

The basic and the most important resource of learning organizations is knowledge. There is however no single agreed definition of knowledge at present. This paper follows traditional epistemology and adopts Plato’s definition of knowledge as “justified true belief”. To quote the Oxford English Dictionary, we can define knowledge as expertise and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject; or what is known in a particular field or in total; facts and information; or awareness or familiarity gained by experience of a fact or situation.

Although the terms “knowledge” and “information” are used interchangeably, there is a difference between them. Dretske puts forward the following definitions: “information is that commodity capable of yielding knowledge, and what information a signal carries is what we can learn from it” and “knowledge is identified with information-produced (or sustained) belief, but the information a person receives is relative to what he or she already knows about the possibilities at the source” (Dretske 1981, p. 44, 86). Knowledge is not just a collection of information, as information is not a simple collection of data. Evans distinguishes four main types of organizational knowledge (Evans 2005, p. 30):

- **Know What.** Operational knowledge used in day-to-day activities and basic duties. It is relatively easy to codify (put it down in a language of words, symbols, or numbers), and easy to share with others within the organization.

- **Know How.** Also operational knowledge, located in individuals’ minds and related to their experience. Used mostly in problem solving and decision making processes. There could be some obstacles in its codification, storage and distribution.

- **Know Why.** All managers and employees within the organization should know the organization’s mission statement, vision, strategy, and shared values. This knowledge explains the organizational activities and it is helpful in making decisions that are convergent with the organizational objectives.

- **Know Who.** Very important knowledge about who is who and what expertise they possess, not only in the organization but also externally in its environment. It is useful in building a network of relationships both inside and outside the organization.

Another approach categorizes organizational knowledge into four groups: tacit, explicit, personalized and codified knowledge:

- **Tacit knowledge.** This is the personal awareness that one is able to do something without being able to describe how, e.g. I know that I can ride a bicycle, but the description that I give of how to do so is not scientific. It is very doubtful that scientifically formalized knowledge is essential for being able to keep balance on a bicycle. There is a set of personal abilities which intervene to turn riding a bicycle into an art (Polanyi 1958, p. 610).

- **Explicit knowledge.** This is knowledge that can be articulated, codified and stored in documents and certain media. It is relatively easy to capture and code, so it can be easily transmitted to other organizational members.

- **Personalized Knowledge.** Knowledge that is memorized by organizational members. It is stored and developed in their minds, so it is dynamic knowledge. Its major drawback is that it can be transmitted and shared with others only through direct face-to-face interaction. The organization loses the knowledge when the employees who possess it, change jobs.

- **Codified knowledge.** This is knowledge that is memorized in different types of media – paper documents, electronic databases, etc. It is formalized and as a result of it, it is available to a wide audience. Everyone who reads, watches or listens to the media can obtain the knowledge without communicating directly with others.

The above-mentioned types of organizational knowledge and relationships between them are presented in Figure 1.

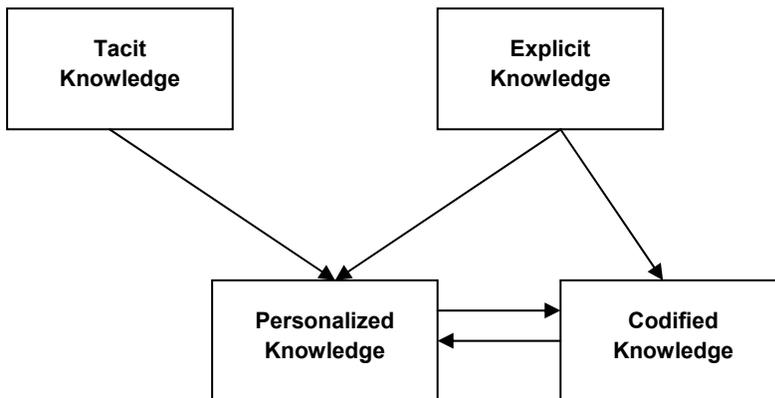


Figure 1. Major Types of Organizational Knowledge

Source: Gableta 2003, p. 144

Tacit knowledge can be transformed only into personalized knowledge, because there does not exist a way of putting it into a language of signs or letters understandable to others. Explicit knowledge in turn can be memorized by individuals and shared through direct communication. It can also be formalized and transformed into codified knowledge.

Most experts stress that knowledge within an organization should be managed in a rational and holistic way. Knowledge management (KM) can be defined as “the overall task of managing the processes of knowledge creation, storage and sharing, as well as the related activities” (Kuczaj 2001, p. 58). The general purpose of knowledge management is to make knowledge usable for all organizational members. The whole process of knowledge management contains a set of chronologically ordered and interrelated sub-processes (Kuczaj 2001, p. 59):

- **Identification of the need for knowledge.** The first phase in the knowledge management process concerns the identification of the kinds of information and knowledge that are required in particular departments and units of an organization. It is one of the most problematic stages in the whole process of knowledge management. The major question is how to identify needs for knowledge, especially tacit one. Some experts suggest using a tool called knowledge identification protocol (KIP) which allows to obtain a knowledge map of the organization.

- **Creation of knowledge.** One of the most important stages in the whole process when knowledge is created or imported (e.g. benchmarking). Various tools can be used at this stage, e.g. collective cooperation forms (brainstorming), experiments, learning by doing, etc. According to the dynamic theory of knowledge creation, organizational knowledge is generated through a continuous dialogue between tacit and explicit knowledge via four patterns of interaction: socialization, combination, internalization, and externalization (Nonaka 1994).

- **Knowledge collection and storage.** This stage involves collecting the knowledge created or gathered before, in the employees' minds and in various types of media: paper documents, electronic databases, etc. Most authors see the advantages of electronic databases in the fact that they allow to adapt and improve knowledge and information. In addition they access to all data to many users at the same time. The main disadvantage of electronic bases is that they are attractive targets for hackers.

- **Sharing knowledge.** Knowledge can be useful in an organization only if it is accessible and if all individuals know how to find it. The stage of knowledge distribution consists in building communication channels called

knowledge exchange network (KEN), and transmitting information and knowledge to the employees who need it at the moment. A high number of obstacles can hinder or slow down knowledge sharing, one of the most important of which is motivation-related. That is why most authors claim that individuals should be rewarded for the knowledge they possess and exchange with others.

- **Knowledge update.** Even the best developed knowledge within an organization can be useless if it is not up-to-date. For this reason organizational knowledge should be updated when confronted with unstable conditions and changeable needs for knowledge. Moreover, everyone in an organization should be engaged in the continuous and never ending process of knowledge improving.

An enlarged model of knowledge management process is shown in Figure 2.

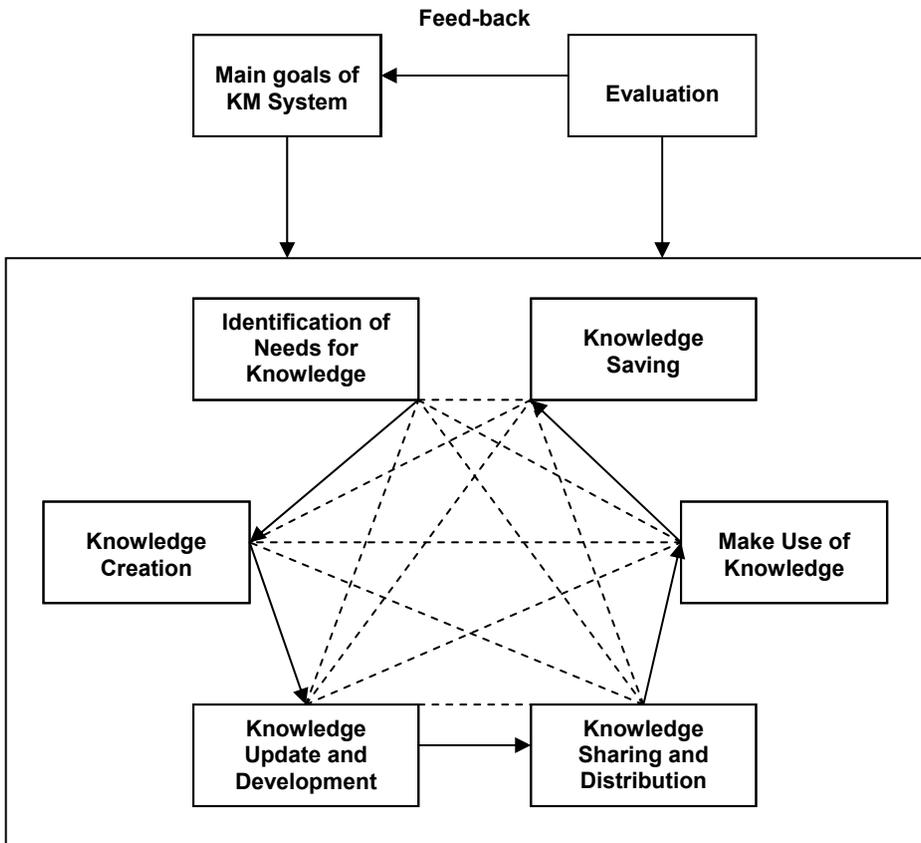


Figure 2. The Process of Knowledge Management

Source: Probst G., Raub S., Romhardt K. 2002, p. 46

Although standardized knowledge management methods and techniques are still not available, modern organizations use some more or less advanced tools. The following are the most common tools mentioned in management theory and used in practice:

- **Training Courses.** Fundamental tool for collecting information and for improving individuals' knowledge, especially for those organizations which try to manage personalized knowledge. Companies which take care of development of their members, treat training as an investment in human resources. They have large budgets for a wide range of training courses and organize them more frequently. Frequent training courses are required mostly in organizations that operate in an environment with rapid technological development, unstable external regulations, globalized markets, etc.

- **Databases and Knowledge Bases.** All codified information and knowledge must be collected in a safe and accessible place. Databases and knowledge bases play a very important role, especially in organizations that deal with a huge amount of data, numerous customers, and which operate in diversified and unstable markets, e.g. banks, law agencies, and business consulting companies. Most knowledge libraries are part of IT-supported intelligent information systems (intelligent information system has an ability to learn – search for new information, select and collect it, as well as to relate to other data and information).

- **Meetings for Information Exchange.** They are treated as a basic and easy-to-use tool for tacit knowledge management. The exchange of information is very important for the learning organization, and even if efficient formal communication channels exist, frequent informal meetings are still required. Presentations of plans and the results of particular units and departments, general discussions, etc., facilitate sharing of information, integrate activities, and build a “spirit de corps”.

- **Meetings for Consulting Decisions.** More complex problems that organizations encounter can be solved by making group decisions. Techniques like brainstorming or discussion panels are used, as well as temporary problem-solving teams are formed in such cases. To be successful, meetings should be well prepared (e.g. members should know about the meeting a few days in advance and receive the required information before), and chaired by an experienced person, otherwise they can become a waste of time and provoke conflicts inside the organization.

- **Advanced Communication Channels.** Under very dynamic conditions traditional communication, both informal and formal, seems

insufficient. Advanced communication channels, like internet, intranet and other most recent media can be a helpful solution.

- **Creativity Development.** Organizations which are people oriented try to improve their innovativeness and creativity. Employees' openness and resourcefulness can be developed not only through special training courses but also thanks to a motivation system, which seems to be very important stimulant of knowledge creation.

- **Best Practices.** In some organizations managers and employees exchange their knowledge, skills, and experience about the most successful and efficient ways and methods of performing tasks. This kind of sharing knowledge and experience is a very simple and time-saving method known as "best practices".

The efficiency of the knowledge management system (as a whole system and in terms of particular tools and methods) in contemporary organizations depends on many various factors. One of them is organizational structure which should be adaptable to dynamic conditions and make the information flow fast and more efficient (Morawski 2006, p. 39).

3. THE NATURE OF ORGANIZATIONAL STRUCTURE

3.1. Defining Organizational Structure

Stoner and Wankel define organizational structure as "the arrangement and interrelationship of the component parts and positions of a company" (Stoner, Wankel 1986, p. 234). The authors focus mostly on the configuration of organizational components and relationships between them. In wider definitions the term is explained as "the established pattern of relationships between the component parts of an organization, outlining both communication, control and authority patterns. Structure distinguishes the parts of an organization and delineates the relationships between them" (Wilson et al. 1990, p. 215). Emphasis is thus put on communication and control.

The nature and basic functions of organizational structure have been changing for decades. Traditional structure is close in its nature to Weber's ideal bureaucracy, and to Burns and Stalker's mechanistic model. The major characteristics of this form are: strict and rigid definition of tasks, a high number of organizational levels, vertical communication, centralized authority, formal influence, standardized activities, and a high level of

formalization. Numerous findings prove that this model is effective in simple and stable conditions – see research works conducted by Lawrence and Lorsch or Burns and Stalker.

The organic model is a logical opposite – flexible division of tasks, low standardization, flat structure, heterarchy, and low formality of rules. According to numerous experts this type of organizational design is developed for knowledge-based organizations that operate in dynamic milieu. There are faster flows of information and knowledge in the organic structure, which additionally facilitate the exchange of experience and individual's unlimited creativity. The following four sections are devoted to the examination and presentation of the advantages and disadvantages of the knowledge management process in the most common organizational designs – functional, divisional, matrix, and project structures.

3.2. Functional Structure and Knowledge Management

The functional design is the most basic one. The idea is to group employees who perform similar tasks and activities in one department of an organization. The functional structure tends to centralize coordinating and decision making at the top organizational level. What is the knowledge management process like in the functional design?

First, we should point out that there is a good flow of knowledge and information within a department thanks to the similarity of tasks and activities. Such circumstances also foster knowledge creation, because specialists in the same discipline are grouped together in one department. Their common field of interests and similar education facilitates organization of training courses within the department. Another advantage is that such conditions are favourable for organizing databases. The collected information can be kept in one central library, administrated by specialized staff, and catalogued in a logical way, e.g. each department has access to the most important information related to its field of activity.

The major disadvantage is a poor flow of information and knowledge between departments. Members are often isolated or even hostile to one another as a result of strict functional division. Moreover, the lack of coordination across the functions results in low innovativeness – ideas for new products and the implementation of new methods and technologies often get lost because of the need to communicate or to generate support across departments (Aldag, Stearns 1987, p. 297).

3.3. Divisional Structure and Knowledge Management

According to Chandler's theory, as a result of organizational growth and product diversification (or market, or customer), the divisional structure appears. The divisional design means that all activities needed to produce a good or service are grouped together into an autonomous unit. This tends to decentralize decision making by pushing authority and responsibility down to a lower level.

Knowledge management in the divisional structure differs significantly from the type discussed above. Generally the flow of knowledge and experience is efficient within the divisions which were set apart. Flows between particular divisions (SBU) however, are limited and poor. Low functional specialization does not facilitate learning and specializing processes. Employees are obliged to handle all activities related to the business units they are hired in: from supply, logistics and production, to sales, marketing and finance. So individuals have good conditions for creating and developing more general rather than specialized knowledge.

Horizontal flows of information and knowledge do not exist in the divisional structure. In fact, their usefulness can be questioned. When divisions operate in different fields, e.g. totally different products or markets, one holistic knowledge management in an organization system is not needed.

Because of the large size of organizations and their diversified activity, numerous problems with the location of database or knowledgebase appears within an organization. How to manage it? Who should be responsible for data storage and sharing? Should it be centralized or decentralized? These and many other questions arise when we organize knowledge identification, collection and distribution in a large company. One universally correct solution does not exist. For this reason each case should be studied individually so that the most effective model could be found.

3.4. Matrix Structure and Knowledge Management

Due to an increase in the complexity and changeability of the organizational environment, the matrix design appeared. It is a stable and permanent form of organization based on horizontal and vertical relationships (both functional and divisional structures concentrated on vertical ones). It combines functions with products, projects, or markets, as the result of which each unit reports simultaneously to two directors. The information and knowledge flows are multidirectional in this case and most

experts regard the sharing of information as the major strength of the matrix form. Also knowledge creation can be more effective if various specialists cooperate with each other and are all engaged in problem solving and knowledge creation and update processes. To conclude, in spite of its weaknesses that are exemplified in practice, the matrix organization is a good form in terms of knowledge management.

3.5. Project Structure and Knowledge Management

Organic organizational forms like project structures or task forces, which are based on temporary teams, seem to be the most flexible and suitable for the knowledge management process. Many authors present this kind of structure primarily in terms of its advantages. Is it really the best solution for the knowledge management process?

Specialists and experts engaged in projects are members of particular teams and they focus mainly on goals, dates, and budgets, rather than on creating knowledge or sharing experience. There is no place, tools, and motivation for such an exchange. Individuals meet to perform particular tasks or solve problems, and after completing the tasks, each of them goes their own way taking their knowledge and experience with them. In a traditional organization all specialists in the same discipline, even if they complete different tasks and work on different projects, share rooms, report to the same supervisor, attend the same courses and meetings, etc. In the pure project structure they do not have an opportunity to generate new organizational knowledge and share their experience, which can be seen as the major disadvantage of the organic form.

Is there any possibility to make use of the flexibility of the organic structure and avoid the above mentioned obstacle? Nonaka developed the "hypertext organization", which blends the strengths of bureaucratic efficiency and standardization with those of task force flexibility and dynamism. The hypertext organization combines the "business system layer", the "project team layer", with a value-added feature of the hypertext organization called the "knowledge base layer". In the business system layer routine, day-to-day operations are carried out. It operates along the lines of the bureaucratic model. It is here that products and services are delivered and it is here where the vast majority of tacit knowledge is found within the organization. The business system layer is that part of the organization that deals directly with the customers and whole environment. The project team layer is where multiple project teams engage in knowledge-creating

activities, such as new strategies or product development. This layer operates along the lines of the task force model whereby individuals are drawn from their normal responsibilities to participate in a project team with a specific objective and time frame for completion. This is where knowledge conversion takes place, pulling tacit knowledge from individuals from the business system layer and engaging this knowledge towards developing new concepts, ideas and products. Once the project is completed, individuals return to their normal roles and responsibilities within the business system layer. The knowledge base layer is where knowledge generated in the above two layers is codified and stored to ensure accessibility to everyone in the organization. The most effective organizational knowledge base is structured around organizational intent – vision, long-term objectives, performance expectations. What is very important is that staff must be capable of moving between these three layers with relative ease and ability to separate their mindset and business practice.

4. METHODOLOGY OF RESEARCH AND THE DESCRIPTION OF INVESTIGATED ENTERPRISES

The study was performed in 2005 in 131 enterprises that operate mainly in Lower Silesia and Greater Poland regions. The basic method relied on the analysis of questionnaire findings. To achieve the established goals a special questionnaire form was prepared and tested in a few local enterprises. Then the questionnaire was distributed among students of master, MBA and postgraduate studies. Having collected over 200 completed forms, they were selected and entered into a specially designed database. The last stage consisted of analyzing the information (many various criteria were taken into account, e.g. the size of organization, the profile of activity, the industry, the advancement of project teams, etc.) and finding appropriate interpretation. As a result of the study, a final report was prepared.

A short description of the enterprises investigated in mentioned study seems to be necessary if we want to look for some more general conclusions. Such basic characteristics as the size, the profile of activity or the industry, may influence the results. The total number of enterprises investigated in the study was over 200. However, having eliminated the questionnaires completed inappropriately, the author finally qualified 131 enterprises for further analysis.

In the sample of the investigated companies, large organizations (those which employ 250 people and more) accounted for 31 percent, medium enterprises (51-250 employees) – 23 percent, small businesses – 31 percent, and micro-businesses (less than 10 employees) – 15 percent. See Figure 3.

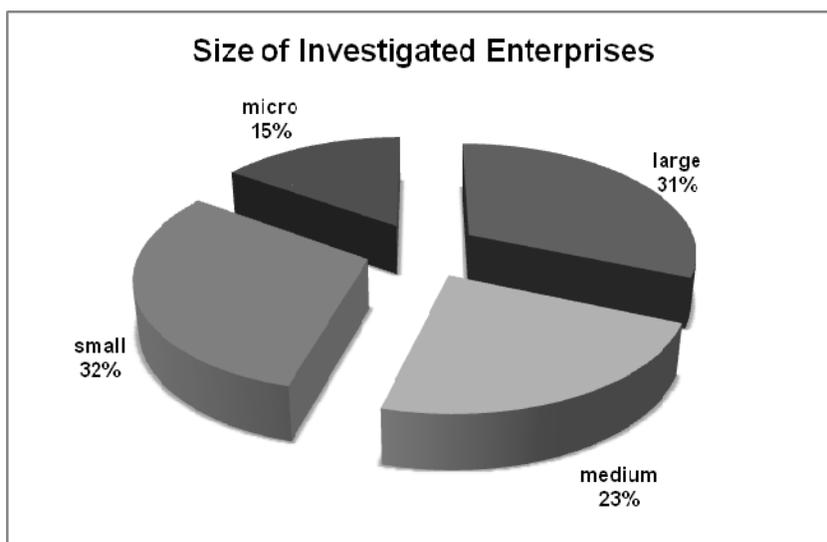


Figure 3. Size of Companies in the Sample
Source: author's own

What is important is that the structure of the examined sample differs from the structure of the whole population (according to the reports of Polish Agency for Enterprise Development, over 98 percent of all registered enterprises in Poland are small and micro organizations).

As a dominating profile of their activity most companies declared services (36%), then mixed profile (production-services-trade) (20%), production (20%) and trade (20%). There were companies from various industries in the sample (building, energy, mining, machinery, IT, food, medicine, etc.), but it was impossible to analyze them in detail from such a perspective. Some kind of grouping was indispensable in this case. All industries were thus divided into three groups: developing industries, traditional, and declining industries. The group of developing industries, i.e. computer sciences, telecommunications, pharmacy, finances, and consulting, was made up of 15% of all companies. The biggest group (76%) consisted of companies operating in traditional industries, i.e. food, transport, and car

manufacturing. The remaining part of the investigated companies came from declining industries, like mining, ship construction, or heavy machinery.

The majority of all companies (73%) declared to be financed by national capital, and 27% indicated a share of foreign capital.

5. RESULTS OF EMPIRICAL FINDINGS

All the enterprises examined in the study were divided into three groups, depending on the advancement of project teams and task forces. The advancement of project teams was identified on the basis of the answers to six questions. The first group of organizations consisted of companies in which there were no temporary teams, or they appeared very seldom and realize some unimportant tasks. The organizational structures of these companies are based on stable configurations. Thirty eight of all the examined enterprises were placed in this group.

In the organizations from the second group, temporary task forces and project teams appear more frequently and are designed to achieve more important goals, but the stable hierarchical core is still more important. This group was the largest and included 65 organizations.

The third group is a collection of organizations that are based on temporary teams, and the stable structure is not so important in this case. The organizational structures of these companies are the most organic ones – temporary teams realize the most important tasks within the organization and have a strong impact on organizational efficiency. Only 28 of the 131 enterprises qualified for this group.

To verify the hypothesis that was made in the introduction to this paper, the most popular elements of knowledge-based organizations were identified in the three distinguished groups of companies. The comparison of the answers in those groups shows a correlation between the type of organizational structure (how organic the structure is) and the advancement of a knowledge management system.

The basic components of the learning organization are training courses for its members. Respondents were asked how often training courses were organized in their enterprises. Their answers are as follows (Figure 4).

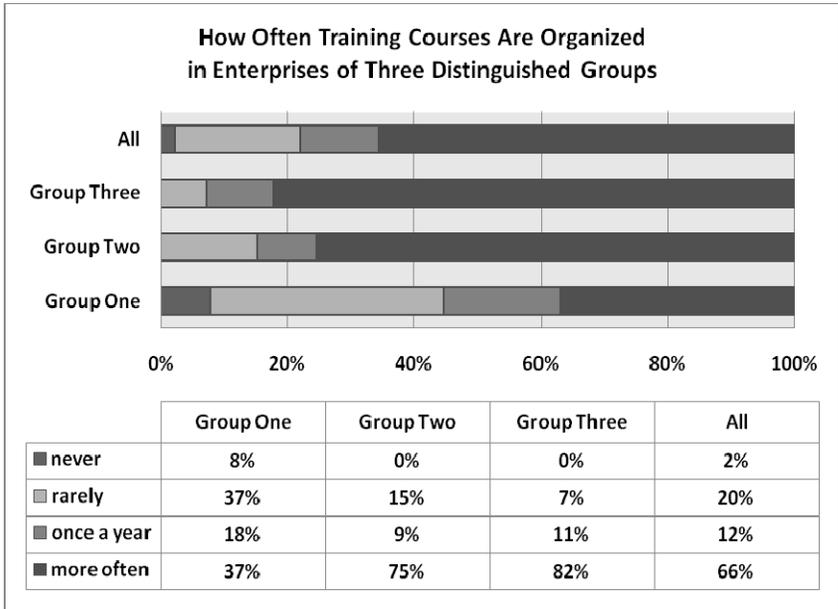


Figure 4. The Frequency of Organizing Training Courses in Three Groups of Investigated Companies

Source: author’s own

The frequency of organizing training courses differs in the three groups. In the first group of the investigated companies they were organized relatively rarely, in the second one and especially in the third group of the sample companies, training courses took place more often. Additionally, in the group with the most advanced temporary teams, the aim of the training was more often to develop managerial skills, ICT (information and communication technologies), and economic and financial awareness, while in the first and second groups these issues appear very rarely. The most popular subjects in these groups were: obligatory Safety and Hygiene of Work, changes in law and tax regulations, effective sales, and marketing. So we can conclude that the more organic the structure, the wider in range and also the more frequent training courses for organizational members.

As said before, another indicator of the learning organization are individuals’ openness and creativity. This is essential for the knowledge creation process. Also it has a significant impact on the efficiency of the knowledge management system. That is why modern organizations take interest in providing favourable conditions for developing creativity, as well

as stimulating unconventional thinking and problem solving in their employees. This is illustrated in Figure 5.

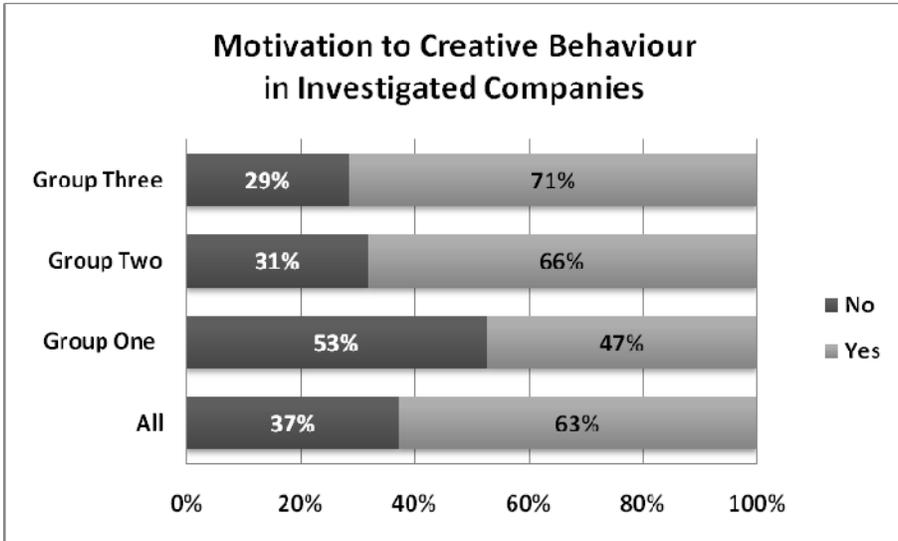


Figure 5. Encouraging Creative Behaviour in Three Groups of Investigated Companies

Source: author's own

In the group of companies with the most traditional structures (group one), 47 percent of organizations motivated their employees to be open-minded and creative. In the second group there were 66% and in the third group – 71% of positive answers, so the relation between the organizational structure and creativity encouragement is visible in this case too.

Another question examined in the study was the companies use of innovative communication channels. In this case the correlation was also identified. The enterprises in group three relatively frequently used technologies like intranet, e-mails, and internet communicators to exchange information among their employees. Much more often they declared using advanced software (e.g. Lotus).

The respondents were asked if databases and knowledge bases were used in their companies. Figure 6 shows the results.

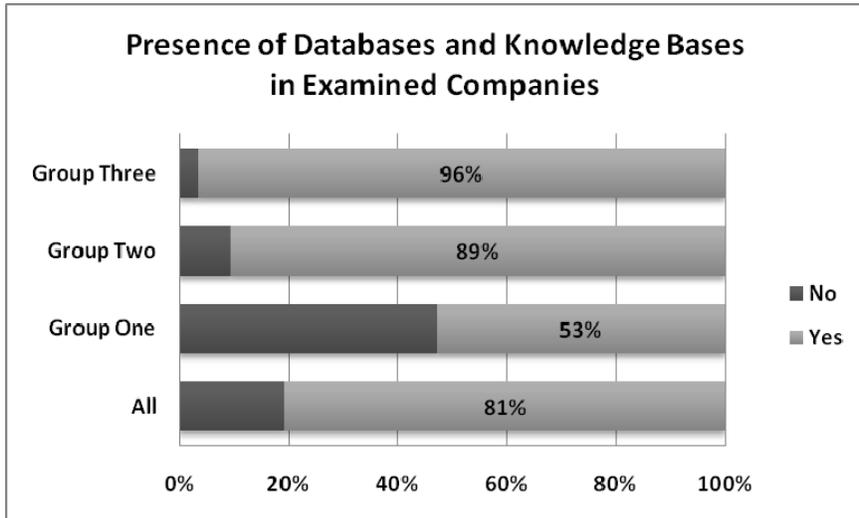


Figure 6. The Presence of Databases and Knowledge Bases in Three Groups of Investigated Companies

Source: author's own

According to the presented numbers, databases and knowledge bases were used in the vast majority of the companies of the third (96%) and second group (89%), whereas only half of them (53%) declared using such bases in the companies of the first group of organizations.

The presented findings shows that the level of the advancement of the knowledge management system seems to be related to the type of organizational structure. Generally, companies with the most organic structures demonstrated the most developed knowledge management system. Further analysis shows that this correlation is stronger in large companies than in medium and small ones, as well as in companies that operate in developing industries, e.g. IT, pharmacy, finance, or consulting.

6. CONCLUSIONS

For years both researchers and managers have been creating and implementing modern approaches to management which focus on managing non-material resources. The best known example is the concept of the learning organization.

Although the organization has been treated as a system for decades, relationships between its components are still not recognized at all. Is the organizational structure interrelated with the knowledge management system of an organization? The hypothesis that the more organic the structure, the more advanced knowledge management system within an organization, seems to be proved by the results of conducted study. The group of enterprises with the most common temporary and project teams has also the best developed and advanced knowledge management system. Training courses were organized more frequently, employees were motivated to be creative in their work more often, innovative communication channels were used more widely, and various databases or libraries were much more common than in other companies.

An important issue is that only the correlation was identified in the presented study, not the direct impact of the organizational structure on the knowledge management system. On the basis of the presented results, we may only suggest that a more organic organizational structure facilitates the development of the knowledge management system and boosts its efficiency. Or the direction of the influence is reversed – maybe a more developed knowledge management system allows to develop a more organic structure? A deeper study is necessary to answer this question.

REFERENCES

- Aldag, R. J., Stearns, T. M., *Management*. South-Western Publishing Co., Cincinnati Ohio, 1987.
- Ashkenas, R., Ulrich, D., Jick, T., Kerr, S., *The Boundaryless Organization. Breaking the Chains of Organizational Structure*. Jossey-Bass, San Francisco, 2002.
- Burns, T., Stalker, G. M., *The Management of Innovation*. Tavistock Publications, London, 1961.
- Chandler, A. D., *Strategy and Structure: Chapters in the History of the Industrial Enterprise*. MIT Press, Cambridge, 1962.
- Dretske, F. I., *Knowledge and the Flow of Information*. MIT Press, Cambridge, 1981.
- Evans, Ch., *Zarządzanie wiedzą [Knowledge Management]*. Polskie Wydawnictwo Ekonomiczne, Warszawa, 2005.
- Gableta, M., *Człowiek i praca w zmieniającym się przedsiębiorstwie [Man and Work in a Changing Enterprise]*. Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław, 2003.
- Kerzner, H., *Project Management. A Systems Approach to Planning, Scheduling and Controlling*. John Wiley & Sons Inc., Hoboken, New Jersey, 2006.

- Kuczajka Timo (2001) *Knowledge Management Process Model*. VTT Publications (455). www.vtt.fi (date 7.12.2008).
- Lawrence, P. R., Lorsch, J. W., *Organization and Environment*. Irwin, Homewood, 1967.
- Leavitt, H. J., *Top-Down. Why Hierarchies Are to Stay and How to Manage Them More Effectively*. Harvard Business School Press, Boston, Massachusetts, 2005.
- Leavitt, H. J., *Why Hierarchies Thrive*, "Harvard Business Review" 03/2003.
- Morawski, M., *Zarządzanie wiedzą – strategie, systemy, metody [Knowledge Management – Strategies, Systems, Methods]* in: *Zarządzanie wiedzą i informacją. Teoria i praktyka [Knowledge and Information Management. Theory and Practice]*. Morawski, M. (ed.), Prace naukowe Wałbrzyskiej Wyższej Szkoły Zarządzania i Przedsiębiorczości. Wydawnictwo WWSZiP, Wałbrzych, 2006.
- Morgan, G., *Images of Organisation*. Thousand Oaks, Sage, 1986.
- Nonaka, I., *A Dynamic Theory of Organizational Knowledge Creation*. "Organization Science", February 1994.
- Peters, T. J., Waterman, R. H., *In Search of Excellence. Lessons from America's Best-Run Companies*. Warner Books, New York, 1982.
- Polanyi, M., *Personal Knowledge. Towards a Post-Critical Philosophy*. Routledge & Kegan Paul, London, 1958.
- Probst, G., Raub, S., Romhardt, K., *Zarządzanie wiedzą w organizacji [Knowledge Management in Organization]*. Oficyna Ekonomiczna, Kraków, 2002.
- Robbins, S. P., *Organization Theory. Structure, Design and Applications*. Prentice Hall, Englewood Cliffs, New Jersey, 1990.
- Senge, P., *The Fifth Discipline. The Art & Practice of the Learning Organization*. Doubleday, 1990.
- Stoner, J. A. F., Wankel, Ch., *Management*. Prentice-Hall International, Englewood Cliffs, New Jersey, 1986.
- Wilson, D. C., Rosenfeld, R. H., *Managing Organizations*. McGraw-Hill Book Company, London, 1990.

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