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Analysis of selected elements of knowledge management in the context of the size of the enterprise and the specifics of its activity

1. Introduction

In the literature, knowledge management is described, among others, as a business process based on targeted experience, useful information, professional approach and value (Davenport and Prusak, 1998) focused on knowledgeable resources (internal and external, existing and non-existent, known and hidden) and tasks and instruments of organizing and communicating (Perechuda, 2005) leading to the selection, storage, organization, and transmission of information important to the business of the enterprise (Bergeron, 2003), through which companies create and use their institutional, shared knowledge (Sarvary, 1999), generating - on this basis and other intellectual resources - wealth (Bukowitz and Williams, 2000).

The review of definitions allows stating that knowledge management in enterprises is a complex, multi-aspect process requiring the implementation of a number of interrelated elements. Its shape and character is influenced, among others, by the mission and strategy, financial possibilities, the degree of computerization, and the level of competence

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of employees (Kłak, 2010), customer service, business economics (Hansen et al., 1999), the specificity of the business, the size of the enterprise, the type of organizational solution, the level of decentralization and independence of individual units or the type and characteristics of clients. Small and medium enterprises, according to the opinions of some authors, are characterized by lower absorption capacity, are less effective in recognizing the value of their overt knowledge, do not have adequate resources, infrastructure and technology for disseminating and applying existing and new knowledge (Levy et al., 2003). Enterprises of this type often create new knowledge, but do not have adequate systems or mechanisms to develop or distribute it (Beijerse, 2000). In addition, when examining the differences between small and medium-sized enterprises and large organizations, it was observed, *inter alia*, that: small and medium-sized enterprises apply a more mechanistic approach to knowledge creation while in large enterprises it is based to a greater extent on social interactions; dissemination of knowledge in both types of enterprises, regardless of the scale and type of IT solutions used, depends to a large extent on direct contacts (Beijerse, 2000; McAdam and Reid, 2001); along with the increase in the size of the organization: increasing difficulties related to the implementation of business functions and IT (Connelly and Kelloway, 2003), decreasing the ability to recognize and adapt to changing environmental conditions as a result of the progressive formalization of administrative systems, structures, standards and values (Leiblein and Madsen, 2009), it is easier to support technological innovations (Abernathy and Utterback, 1978), increasing efficiency of using equipment and specialized technical staff as well as resources for project financing (Porter and Kramer, 2002).

Taking into account the diversity of activities occurring between different enterprises, an attempt was made to identify and evaluate selected elements of knowledge management in enterprises operating in Poland in the context of their size and activity specifics. The research results presented in the literature characterize a number of issues related to this research area, however, taking into account the dynamics of changes and a certain abstraction of knowledge, conducting further analyzes is necessary to fill knowledge gaps and improve practical solutions. The study was conducted on a group of 105 companies located in the southern part of Poland, mostly in the province of Silesia and Malopolska. The selection of research facilities has non-random, purposeful character and was based on a few basic criteria: in the enterprise there must be functioning elements of knowledge management; knowledge

management must be consciously introduced and located in the company's operating strategy; employment must be stable for at least two years. The research sample included both production (59) and service (46) enterprises. In addition, when analyzing the data in this study, the company size criterion was applied, divided into small entities (up to 49 employees), medium (from 50 to 249 employees) and large (over 249 employees). The survey was conducted using a questionnaire.

2. General characteristics of selected factors affecting the knowledge management

Taking into account the high substantive and practical diversity, it should be stated that the solutions in knowledge management operating in enterprises are specific (in some aspects even unique) resulting primarily from the need to match them to the specificity of the business and the number, type and configuration of resources. For this reason, all considerations regarding this area are usually carried out with a high level of generalization and operate on the basic parameters or guidelines. An example is the concept of a learning organization, according to which the characteristic features of this type of enterprises are (Kłak, 2010; Stańczyk – Hugiet, 2005):

- data and information processing leading to the generation of useful knowledge, as well as its effective use and dissemination combined with the free flow of ideas and new concepts,
- organizational culture focused on learning and the presentation of dissimilar opinions, mutual trust, team spirit,
- a flat organizational structure, within which there are systems supporting learning (including collective learning), far-reaching delegation of powers,
- continuous development of existing competences and gaining new ones, participation of all employees in learning processes and creating a vision of the future of the enterprise,
- active participation of the management in employee development processes, open borders between superiors and subordinates, high level of employee motivation,
- internal and external openness, high level of innovation, experimenting with new methods (risk taking), treating change as a permanent phenomenon.

Proper implementation of processes related to the acquisition, dissemination and use of knowledge is of key importance from the point of view of achieving the intended objectives (Sarvary, 1999). As part of

acquiring knowledge, a number of subprocesses can be specified such as, among others: analysis, reconstruction, synthesis, codification, modeling, organization (Brdulak, 2005), creation of knowledge, externalization, selection, sharing, collecting, adopting, identifying (Stankiewicz, 2006). Knowledge can be obtained from both internal and external sources. The basic sources of knowledge include: benchmarking (Leja and Suwarzyński, 2007), customers and contractors (Lemon and Verhoef, 2016), consultancy and consulting companies (Kowalczyk nad Nogalski, 2007), acquiring know-how, licenses, patents, technologies, strategic alliances and other forms that allow acquiring knowledge from partners (Gierszewska, 2011). Knowledge exchange is the basis for creating new ideas and developing new business opportunities (Szabó and Csepregi, 2011). As research shows, sharing knowledge is one of the key ways to maintain competitive advantage (Li-Fen, 2010). Sharing knowledge can increase employee productivity, team performance (Cummings, 2004) and the ability to transform diversity into creativity and organizational innovation (Lee and Choi, 2003). Dissemination of knowledge in the enterprise should be implemented both in a formal and informal way (Kowalczyk and Nogalski, 2007) and be supported by appropriate communication mechanisms, employee exchange programs, job rotation, mentoring relations, techniques and tools for assessing teamwork (Nonaka and Takeuchi, 2000), a remuneration system promoting creativity and cooperation (Garavan et al., 2000). All actions should allow to overcome barriers to knowledge sharing, i.e.: organizational culture (De Long and Fahey, 2000) national culture (Michailova and Husted, 2003), level of mutual trust (Tschannen-Moran and Woolfolk Hoy, 2001) or mutual cooperation (Sveiby and Simons, 2002), individual characteristics of people (Argote and Ingram, 2000).

Sharing knowledge should be aided by a well-formed, implemented and consolidated organizational culture that creates good social conditions, including trust, shared values and good will to share knowledge (Rastogi, 2000). People are reluctant to share knowledge because they are afraid of losing their own advantage over other employees, gained through greater experience, greater skills, abilities, and knowledge they have acquired (Coates, 2003). In addition, there are often a number of other elements, i.e. (Skyrme, 2008): syndrome „not invented here”, lack of awareness of the importance of knowledge for other people, lack of mutual trust, lack of time, level of confidentiality of information and knowledge. Organizational culture should, above all, foster continuous learning, knowledge sharing, as well as foster

team work and generate added value from employees in the organization (Dale and Cooper, 1992).

The choice of an appropriate structural solution in an enterprise depends on the type of knowledge (explicit or tacit), routine and frequency of the sharing process and the recipient of knowledge (individual, group or the whole organization) (Dixon, 2000). The knowledge management system can be centralized (built and managed by the enterprise management, using IT solutions intensively, focused on knowledge codification) or decentralized (lower level of management interference, more emphasis on personalized knowledge, giving it a more practical form, easier to use) (Sarvary, 1999). In general, the organization's structure should be conducive to appropriate deployment of resources, increase employee involvement and enable the construction of both formal and informal channels of communication and enable overcoming barriers to knowledge transfer, such as: preference for own ideas and studies, low level of interpersonal relations (resulting in, for example, a reduced level of trust towards colleagues) (Huang et al., 2011), no social network (Liao and Xiong, 2011), poorly chosen and, in effect, inefficient tools of the incentive system (Lipka et al, 2010), ignorance (Gierszewska, 2011), inappropriate values, attitudes and role models preferred in the company (Michailova and Hutchings, 2006), transfer of data and information, omitting the context in which they arose (Stabryła et al., 2008). The structural and organizational solution should lead to shaping appropriate social relations. Positive effects of social relations on the sharing of knowledge occur on several levels: they lead to the development of a common language (which facilitates communication), facilitate the recognition of who has knowledge and to what extent (leading to the reduction of exploration costs), lead to raising the level of trust, and create a network of mutual obligations that facilitate asking for help or helping others (Jolink and Dankbaar, 2010). An element that facilitates cooperation are undoubtedly the features of a physical workplace - in the context of knowledge sharing, it should be pointed out above all: spatial density, the number of barriers surrounding the user's working space and interpersonal distance. Physical proximity of employees (their mutual placement in relation to each other) can be perceived as a tool facilitating the interaction and frequency of knowledge sharing in a way both direct (from the perspective of the effort) and indirect (social proximity) (Kabo, 2018).

The ability to learn and develop as well as knowledge transfer are considered critical issues from the point of view of growth and survival of the organization

and building a competitive advantage (Hu, Randel, 2014). The knowledge that occurs in an enterprise can be divided into two basic types: tacit and explicit. Tacit knowledge is embedded in the mind, affects the nature of actions and decisions taken by people and its transmission is often done by observation (Lee and Choi, 2003). Explicit knowledge can be fairly well documented, transferred and tracked between organizational units verbally, through computer programs, or in the form of patents, diagrams and information technologies (Calo, 2008). An increasing number of enterprises recognize that the particularly tacit knowledge accumulated by their employees represents an invaluable organizational capital (Nonaka and Takeuchi, 2000). The development of knowledge, regardless of its type, can take place both through the development of human capital and the acquisition of this capital. The first of these solutions is associated with greater investments in the development of unique and strategic competencies of employees, the use of mentoring or incentive systems and require an effective evaluation system (Lepak and Snell, 2002). The second one is more effective in situations in which the required competences of employees are not unique or specific to the enterprise (Lepak and Snell, 2002).

Managers in enterprises often focus on short-term, easily identifiable and measurable effects, because their performance assessment systems strongly emphasize this type of performance. Knowledge management requires a change of the role of the general management and line managers from reactive to proactive in the area of learning (mentoring, coaching), creating business awareness of employees, building an organizational culture conducive to sharing knowledge in the organization, as well as creating valuable values for clients, employees and shareholders. An incentive program in an enterprise should be structured in such a way that the participation in knowledge management itself is treated as a distinction and to avoid situations in which employees undertake activities directed only at the desire to obtain a prize (without a deeper involvement) (Santosus and Surmacz, 2001).

3. Analysis of results

Taking into account the basic assumptions of knowledge management systems described in the literature, with particular emphasis on the learning organization, four basic research areas were identified and specific issues which were analyzed:

- general assumptions of knowledge management (5 questions: 1. strategic goals: clear or hidden from employees, 2. the nature of the enterprise activities:

- active or passive, 3. improvement processes: continuous or depending on the needs, 4. knowledge acquisition: purchase or creation, 5. type of knowledge: codified or personalized),
- structural and organizational solutions (5 questions: 6. organizational structure: flat or slim, 7. priority forms of communication: informal or formal, 8. information exchange: free or hierarchical, 9. space management: hierarchical or task-oriented, 10. developing rules: hierarchical or participatory),
 - communication and knowledge transfer system (3 questions: 11. knowledge transfer: push or pull, 12. memory type: collective, individual, 13. obtaining information: easy or difficult),
 - human resources management (5 questions: 14. meetings with managers: frequent or rare, 15. working conditions, shaped or direct control, 16. human resources development: human capital or sieve model, 17. working mode: individual or group, 18. interpersonal relations: cooperation or competition).

The survey questionnaire was filled each time by the representatives of the top management (each time a group of several people), whose responsibilities and competences were appropriate to answer the questions asked. Within particular issues, a bipolar scale was used, from -5 to +5, with extreme values corresponding to the indicated options (eg strategic objectives: - 5: clear, +5: hidden) and values between to intermediate options. Management representatives indicated the value that was the most consistent with the situation in a given company.

Table 1 present the results of research with the division of enterprises due to the leading type of their activity.

The analysis of the obtained results allowed identifying the basic differences in the approach to the analyzed issues depending on the seize of enterprise and type of activity:

- activities undertaken by production enterprises are to a greater extent continuous, subordinated to the previously established strategic plan, while in service enterprises often implemented improvement processes are undertaken „step by step”, depending on changes in the environment,
- in production companies, space management was more often hierarchical in nature, clearly defining areas for individual employee groups, while in service enterprises the space management was more often task oriented,
- in service enterprises, a greater declared share of employees in the development of operating rules and determination of methods and ways to achieve the set goals was found,

Table 1. Summary of test results

No	Category of enterprise's division									
	service		production		small		medium		big	
	avg	me-dian	avg	me-dian	avg	me-dian	avg	me-dian	avg	median
1	0,5	1	0,1	0	1,03	2	0,33	0,5	-0,6	-1
2	0,02	0	0,16	0	0,53	1	0,05	0	-0,3	0
3	0,14	-1	-0,1	0	2,25	3	-1,2	-1,5	-0,6	-1
4	-0,9	-1	-1	-1	-1	-2	-0,4	0	-1,6	-2
5	-0,6	-0,5	-1	-1	0,63	1	-1,5	-2	-1,3	-1
6	-0,4	-1	-0,2	-1	-0,5	-1	0,07	-1	-0,6	-1
7	-1,3	-2	0,52	1	1,56	2	-1,3	-2	-0,5	-1
8	-0,3	0	0,08	0	1	1,5	-0,8	-1	-0,2	-1
9	1,23	1	0,33	0	0,5	0,5	0,43	1	1,29	1
10	0,8	1	-0,9	-1	-2,3	-3	0,81	1	0,74	1
11	0,18	0	-1,1	-1	-1,2	-1	-0	0	-0,6	-1
12	1,55	1,5	-0,7	0	1,5	2	0,5	1	-1,3	-1
13	-0,6	-1	-0,2	-1	-1,4	-3	0,67	0	-0,8	-2
14	-0,3	-1	-0,9	-1	1,78	2	-2,1	-2	-1,2	-2
15	0,25	0,5	0,28	0	-0,1	0	0,17	0	0,77	1
16	0,77	1	-0,8	-1	-1,1	-1	-0,1	0	0,77	1
17	1,82	3	0,64	1	-0,8	-1	1,98	3	1,94	3
18	-0,1	-1	-0,9	-1	-2,2	-3	0,31	0	-0,1	-1

Source: own study

- in service enterprises, managers' declarations were more likely to include human resource management based on a sieve model, with a more intensive assessment process and more clearly defined performance criteria

- (consequently, as shown by additional analyzes, there was a higher staff turnover in these enterprises, and larger discrepancies were found in the level of employee satisfaction),
- in service enterprises also a greater attitude to individual memory was found (greater focus on employee specialization, personalized knowledge, flexibility in relation to market changes and customer needs), greater ease in obtaining the required information (less formalized operation, higher level of computerization, organizational culture oriented for exchanging information and quickly answering questions), frequent meetings with managers (organization of open space positions, less focus on highlighting hierarchical differences, in many cases) and a more collective mode of work (brainstorming, mutual exchange of specialist knowledge, focus on creative problem solving that ensures greater economic efficiency and better use of resources),
 - with the increase in size of the business is increased awareness of the declared level of workers in the context of strategic goals and objectives of the company (so there was no occurrence: less organization, less structure - faster, more efficient and clear flow of information),
 - smaller enterprises declared the passive character of activities to a greater extent - with the increase in the size of enterprises, the response rate for active activities increased (perhaps this distribution resulted from lower competitive potential of smaller enterprises, although additional testing would be required to confirm this assumption),
 - the increase in the size of enterprises was reflected in a greater emphasis on undertaking continuous improvement processes (especially in the group of manufacturing enterprises); as additional research has shown, manufacturing companies more often had implemented and certified management systems (quality, environmental safety, etc.) that would suggest that the implementation of such systems translates into a greater focus on planned and strategic action,
 - medium and large enterprises put much more emphasis on the codification of knowledge (there was no single answer indicating personalization), its greatest independence from employee fluctuation and its consequences (potential loss of strategic competences, disruption of group work, in extreme cases, loss of possibility to implement certain processes) - in large enterprises, the occurrence of complex IT systems supporting management with clearly defined access rights was more frequent,
 - one of the consequences of a greater focus on codification was the greater declared attitude of larger enterprises to the creation and use of collective knowledge, but it should be noted that the formalization of the structure in

- large enterprises was also surely affected by the size of the structure, scale of activities and the close relationship between a number of processes,
- as expected, in smaller enterprises a greater focus on cooperation between the employees and the training of successors was found (as shown by additional surveys, people employed in small enterprises more often declared a good atmosphere at work, for this type of enterprises also lower turnover of employees was found).

4. Conclusions

Knowledge management systems operating in enterprises have to fulfill many tasks and functions, among which the most important are: selection of information flowing into the enterprise, prevention of knowledge loss, constant improvement of key skills, facilitating knowledge sharing by employees, improving the processes of introducing new products to the market and creating new markets or increasing the level of innovation of the company. These - and other goals - can be achieved in many ways, using different management styles, variants of a structural solution or with different configurations and ways of using resources. Basic elements facilitating knowledge management can be identified, such as: flat management structures, creating communication networks based on informal structures, using IT tools, free and not hierarchical information exchange, shaping the process conditions, not direct control, stimulating employee creativity, financial incentives, stability of employment implementation of the system revealing all errors, benchmarking (both internal and external), codification of key knowledge, recognition of the superiority of collective memory over individual. However, the solution present in a particular enterprise must be specific to a certain extent, tailored to its potential, market situation, goals and skills. The conducted research does not allow drawing specific conclusions yet (the research sample must be significantly increased), however, they give a certain picture of the situation and allow observing trends and differences between the groups of enterprises specified.

Summary

Analysis of selected elements of knowledge management in the context of the size of the enterprise and the specifics of its activity

Proper, effective knowledge management is possible only through the implementation of mechanisms and systems tailored to the

specifics of the company's operations and the nature and quantity of its resources. Drawing from the experience of others is advisable, however, to some extent difficult due to the specific uniqueness of many elements of knowledge management in enterprises resulting, for example, from the size of the organization. The study attempts to identify characteristic features of the solutions used in Poland, depending on the size of the enterprise and the nature of its activities. The survey used a questionnaire, which was addressed to the representatives of the top management of 105 enterprises. Based on the obtained results, the characteristics of the identified phenomena and trends were characterized and the limitations of the conducted study were indicated.

Keywords: *knowledge, knowledge management, size of enterprises, activity specifics.*

Streszczenie

Analiza wybranych elementów systemów zarządzania wiedzą w kontekście wielkości przedsiębiorstwa i specyfiki jego działalności

Prawidłowe, efektywne zarządzanie wiedzą możliwe jest tylko poprzez wdrożenie mechanizmów i systemów dopasowanych do specyfiki działalności przedsiębiorstwa oraz charakteru i ilości jego zasobów. Czerpanie z doświadczeń innych jest wskazane jednak w pewnym stopniu trudnione ze względu na specyficzną unikatowość wielu elementów zarządzania wiedzą w konkretnych przedsiębiorstwach wynikającą chociażby z wielkości organizacji. W opracowaniu podjęto próbę zidentyfikowania charakterystycznych cech rozwiązań stosowanych w realiach krajowych w zależności od wielkości przedsiębiorstwa oraz charakteru jego działalności. W badaniach wykorzystano kwestionariusz ankiety, który skierowano do przedstawicieli naczelnego kierownictwa 105 przedsiębiorstw. Na podstawie uzyskanych wyników dokonano charakterystyki zidentyfikowanych zjawisk i tendencji oraz wskazano ograniczenia przeprowadzonego badania.

Słowa

kluczowe: *wiedza, zarządzanie wiedzą, wielkość przedsiębiorstwa, specyfika działalności.*

JEL

Classification: D83, J24, O15

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