

KNOWLEDGE MANAGEMENT IN IT COMPANIES IN POLAND

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Abstract:

Globalisation and the development of high technology, in particular telecommunications technologies, have contributed to an increase in the significance of knowledge to economy. We started perceiving it as a source of competitive advantage, which induced the need for knowledge management in enterprises. This phenomenon is stronger or weaker, depending on the sector of business, but it has a clear influence on the development of information technology industry. This article presents results of surveys concerning the status of knowledge management in Polish IT companies, according to the size of the analysed enterprises. Enterprise size was selected as a test criterion due to the authors' research assumption that the status of knowledge management would be different in small, medium-sized and large enterprises in the IT sector in Poland.

The survey aimed to answer the following questions:

1. To what extent have the companies implemented knowledge management?
2. What are the objectives of implementing knowledge management?
3. Is knowledge management an element of the system of organisation?
4. What are the barriers to implementing knowledge management?
5. What sources of knowledge are used by companies?
6. What tools do they use for knowledge management purposes?
7. What stages of the knowledge management process are carried out by companies?

The survey covered 101 information technology companies in Poland, of which 1 large, 10 medium-sized and 90 small enterprises.

Keywords: knowledge management, small, medium-sized, large enterprises, IT sector

1. INTRODUCTION

The fundamental role of knowledge management in an organisation is mainly perceived through the growing significance of knowledge resources in building competitive advantage. „Knowledge Management (KM) in all its various forms has been proposed by many authorities as the means to attempt to optimize enterprise performance and longevity in the face of the very rapidly increasing complexity and ambiguity of our modern world”¹. F. Land states that „we live in a world where knowledge is currently the most important source or factor production and success in the turbulent and competitive global system”². „Knowledge management is about using and improving the knowledge capital in an organisation to better perform knowledge-related tasks, improve organisational behaviour, make better decisions and improve the operation of an organisation”³. „Thus, knowledge management objectives can be defined as assistance in acquiring, gathering and using knowledge to achieve success, competitive advantage and increase goodwill and wealth of the company”⁴. Knowledge management throws a spotlight on the excess knowledge not utilised by the organisation, and on the other hand the lack or insufficient acquisition of knowledge. On the other hand, having useful knowledge is the basis for creating new knowledge taking upon a form of innovation. Based on the above-mentioned reasons many enterprises make efforts to implement a knowledge management concept. For this purpose implements and evaluates the strategy knowledge, creates an environment to support the activities of the knowledge to improve the functioning of the organization⁵. In addition to the strategy and environment the effectiveness of knowledge management, according to C. O'Dell, C. Grayson, also depends on organizational culture, technology, measurement and leadership⁶.

1.1. Results

The first question regarding knowledge management status was the question about the level of advancement in knowledge management in the companies subject to survey.

In a large enterprise a definite majority of employees (86.56%) could see and were aware that knowledge management had been implemented.

In medium-sized enterprises the largest group of respondents (35.84%) denied the existence and need for knowledge management. Simultaneously, 30.18% of respondents claimed that their companies planned to implement knowledge management or were in the course of implementing such a concept. Practical knowledge management was confirmed by 10.37% of respondents.

In small enterprises the percentage distribution of responses at two levels of knowledge management was very similar. 29.75% of respondents reported lack of knowledge management and at the same time could see a need for knowledge management. Nearly an identical percentage of respondents (28.51%) declared that knowledge management was present in their companies. The smallest number (19.42%) knew about knowledge management implementation planning activities.

¹ Smith P., A Performance-Based Approach to Knowledge Management, „Journal of Knowledge Management Practice” 2002, vol. 3, <http://www.tlinc.com>.

² Land F., Knowledge Management or the Management of Knowledge?, [In:] Knowledge Management and Organizational Learning, ed. W.R. King, Springer, New York 2009, p. 18

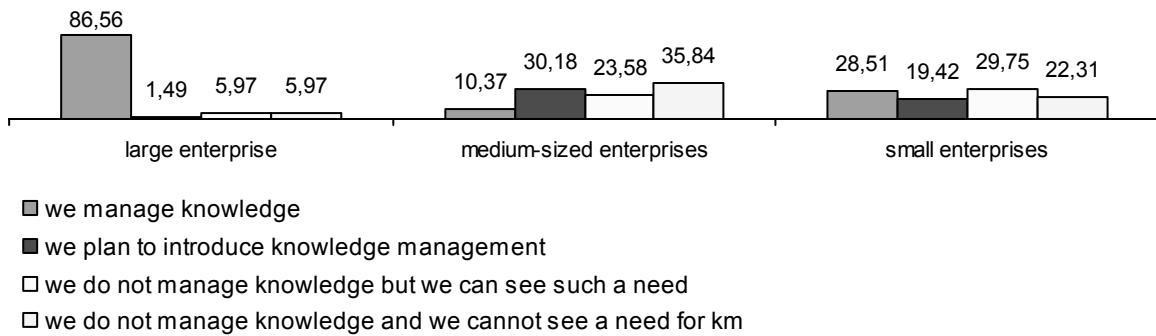
³ King W. R., Knowledge Management and Organizational Learning, Springer, New York 2009, p. 4

⁴ Kotarba W., Istota zarządzania wiedzą (*The essence of knowledge management*), [In:] Ochrona wiedzy a kapitał intelektualny organizacji (*Protection of knowledge and the intellectual capital of organisations*), (Ed). W. Kotarba, M. Kotarba, Polskie Wydawnictwo Ekonomiczne, Warszawa 2006, p. 27

⁵ Maier R., Hädrich T., Peinl R., Enterprise Knowledge Infrastructure, Springer-Verlag, Berlin Heidelberg 2009, p. 32

⁶ O'Dell C., Grayson C. J., Identifying and Transferring Internal Best Practices, [In:] Handbook on Knowledge Management, C. W. Holsapple (Ed.), Matters, Springer, Berlin-Heidelberg, New York 2004, p. 606 – 607

Diagram 1: Distribution of respondents' answers concerning the level of knowledge management (%)

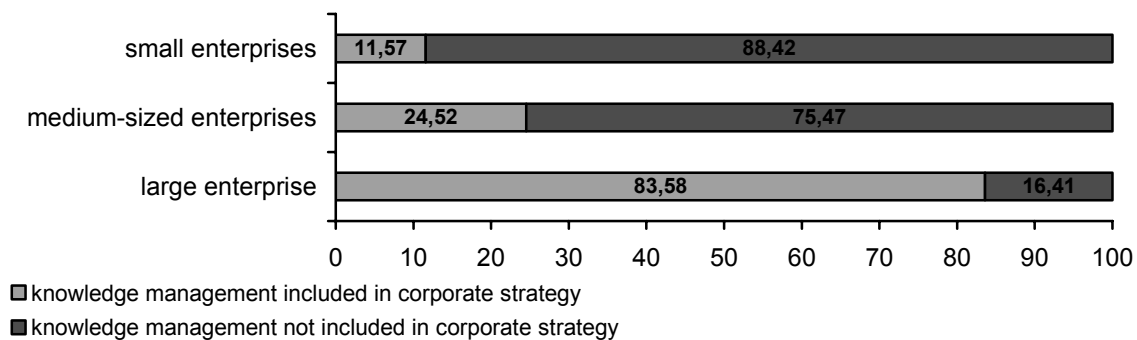


Source: own, based on results of surveys.

Another question making it possible to describe the status of knowledge management referred to links with corporate strategy.

In a large enterprise 83.58% of employees believed that knowledge management was a part of corporate strategy. In medium-sized enterprises the answer was generally negative. Only 24.52% of respective respondents claimed knowledge management was a component of the general strategy. Also, not every small enterprise perceived knowledge management to be an element of its adopted organisational strategy. Such was the position declared by 88.42%.

Diagram 2: Distribution of respondents' answers regarding links between knowledge management and corporate strategy (%)



Source: own, based on results of surveys.

Knowledge management is a responsibility of people in positions directly connected with such a concept. In a large enterprise 77.61 % of employees believed that the company had job positions in charge of implementing and performing knowledge management. In case of medium-sized and small enterprises the answer was negative. Only 16.98% of employees working in medium-sized companies and 15.28% in small companies were aware that knowledge management was a responsibility assigned to specific job positions.

Another question describing the status of knowledge management was the existence of a system of measurements facilitating the evaluation of knowledge management effectiveness. In a large enterprise a definite majority of respondents (77.61%) confirmed that such a system did exist. The results were contrary in other enterprises. 81.13% of employees in medium-sized enterprises and 88.84% in small ones denied that any system of measurements existed with reference to knowledge management.

The next question making it possible to describe the status of knowledge management in information technology companies referred to reasons for taking interest in and implementing knowledge management.

In a large enterprise employees subject to survey mentioned the following factors as causing the need for knowledge management:

- improved quality of services – 65.67%,
- increased competitiveness – 62.68%,
- improved customer satisfaction – 59.70%,
- cost reduction – 56.71%.

Employees of medium-sized enterprises could see the function of knowledge management as an improvement in the following areas of the organisation:

- increased effectiveness – 78.30%,
- improved customer satisfaction – 75.47%,
- time savings – 70.75%,
- improved management – 62.26%,
- cost reduction – 60.37%.

Among indicators which, if improved, were/could be the reason for putting the concept of knowledge management into use, 242 of responding employees working in small enterprises mentioned the following:

- improved quality of services – 71.07%,
- improved management – 57.02%,
- increased effectiveness – 56.19%,
- time savings – 56.19%,
- improved customer satisfaction – 53.71%,
- increased competitiveness – 50.82%.

Other suggested indicators which could be improved by knowledge management were definitely less popular among respondents.

Knowledge management faces barriers limiting its effectiveness. Barriers mentioned by employees of a large company comprised: lack of financial resources (59.70%), ineffective communication (56.71%) and fluctuation of specialists (50.74%). Additional impediments to knowledge management were due to the lack of measurable benefits from knowledge management implementation (43.28%) and incorrect management style (41.79%).

Employees working in medium-sized enterprises mentioned ineffective communication (74.52%), incorrect management style (70.75%) and lack of measurable benefits from knowledge management implementation (61.32%) as the most significant ones.

On the other hand, employees in small enterprises most frequently selected ineffective communication (48.76%) and incorrect management style (46.69%). Among other significant impediments to using knowledge management respondents indicated the lack of financial resources (40.49%) and the lack of measurable benefits from knowledge management implementation (36.77%).

The underlying element for knowledge management is the sources in which data and information is stored and from which it is retrieved.

Employees of a large enterprise, taking a stance on the above-mentioned issue, most frequently mentioned external training (95.52%), acquiring knowledge from third party experts (94.02%), market survey (82.08%), previous experience (73.13%) and meetings of managerial staff with employees (71.64%).

A definite majority (85.84%) of respondents representing medium-sized enterprises in the IT sector indicated the Internet as the main source of knowledge. In addition, they thought external training (75.47%) and professional literature (72.64%) were also significant. Also, the following sources of knowledge were often selected: in-house databases (62.80%), previous experience (51.88%), customer relations and tracking customer feedback (50.94%) and long-standing employees of the company with long-term experience, unique knowledge and skills (46.22%).

People working in small enterprises, out of 22 knowledge source options selected databases (62.80%), own experience (54.95%), Internet (54.13%), external training (42.97%) and studying literature (41.32%) as the most often used ones.

Employees of small companies rarely used sources of knowledge such as: market survey (19.83%), employee's findings (18.18%), external sourcing of high-skilled employees (12.39%) and strategic investors (9.91%). The latter was also given a low rank by other respondents.

Using sources of knowledge is facilitated by tools supporting fast penetration of information systems and transmission of information.

The results of survey suggest that in the large enterprise employees most often used the Internet (98.5%), Intranet (98.5%), databases (85.07%) and conference calls (83.58%) to find the desired knowledge.

Employees of medium-sized enterprises mainly used the following knowledge management tools: Internet (99.05%), databases (89.62%), electronic mail (81.13%) and Intranet (49.05%). In turn, their less frequent choices were Lotus Notes (2.83%) and teamwork support systems (12.26%).

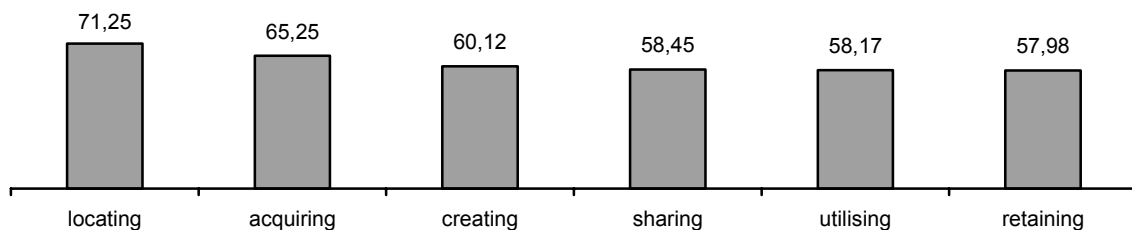
Employees of small IT companies indicated two predominant tools; namely, the Internet - a choice of 97.52% of respondents - and e-mail - selected by 91.32% of respondents. The respondents often made also use of databases (52.06%), teamwork support systems (40.49%) and conference calls (38.84%).

However, the least frequent choice was Lotus Notes - selected by 2.47% of respondents. Another question making it possible to describe the status of knowledge management is how the process of knowledge management is handled.

In the respondents' opinion, knowledge management in a large enterprise is differentiated. The following activities were most strongly emphasised:

1. developing knowledge – 71.25%
2. sharing knowledge – 65.25%
3. acquiring knowledge – 60.12%
4. locating knowledge – 58.45%
5. utilising knowledge – 58.17%
6. retaining knowledge – 57.98%.

Diagram 3: Knowledge management process in a large enterprise (%)



Source: own, based on results of surveys.

Based on the results of survey, a list of the best and the weakest practices related to knowledge management process could be developed. Employees of a large enterprise mentioned the following good knowledge management practices:

- using the consultancy services to find specialist information – 74.13%,
- ensuring proper conditions for developing individual and group knowledge – 73.23%
- archiving the knowledge of key personnel – 73.13%
- using reasonable data protection – 65.12%
- using own research and development resources to create knowledge – 63.78%.

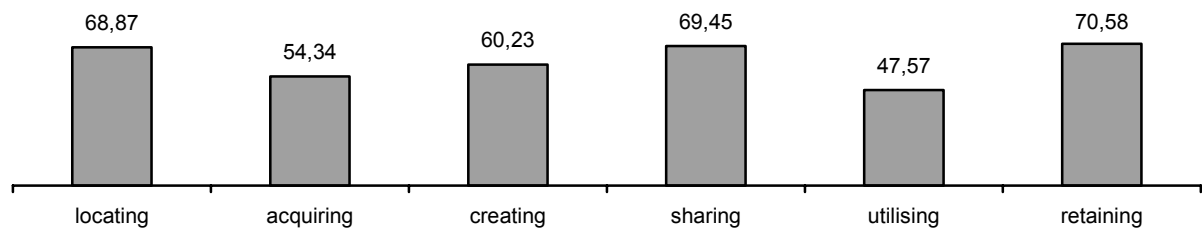
In turn, the weakest knowledge management practices observed by employees of a large enterprise were:

- reluctance of employees to make use of new operating methods – 67.39%
- problems identifying in-house experts – 65.13%
- poor utilisation of purchasing a knowledge-related product as a source from which knowledge can be acquired – 63.65%
- using “new” information only for the needs of innovative projects – 62.15%.

The evaluation of the knowledge management process by employees of medium-sized enterprises was also varied. They noticed all stages of the process but evaluated their presence with different intensity. In terms of percentage their order is the following:

1. Retaining knowledge – 70.58%
2. Sharing knowledge – 69.45%
3. Locating knowledge – 68.87%
4. Creating knowledge – 60.23%
5. Acquiring knowledge – 54.34%
6. Utilising knowledge – 47.57%.

Diagram 4: Knowledge management process in medium-sized enterprises (%)



Source: own, based on results of surveys.

Among knowledge management practices applied in medium-sized enterprises respective respondents indicated the best and the weakest practices. The best were:

- acquiring knowledge through cooperation with other companies – 68.45%
- adapting databases to key processes performed in the company – 66.24%
- using the research achievements of other companies – 66.14%
- comprehensibility of databases to enable locating knowledge – 65,87%
- screening knowledge – 64.78%
- providing knowledge that is most significant from the point of view of the task performed by the employee – 60.56%
- not equating the fact that an employee asks questions with his/her incompetence – 59.67%
- archiving the knowledge of key personnel – 59.14%.

In turn, the weakest knowledge management practices observed by employees of medium-sized enterprises comprised:

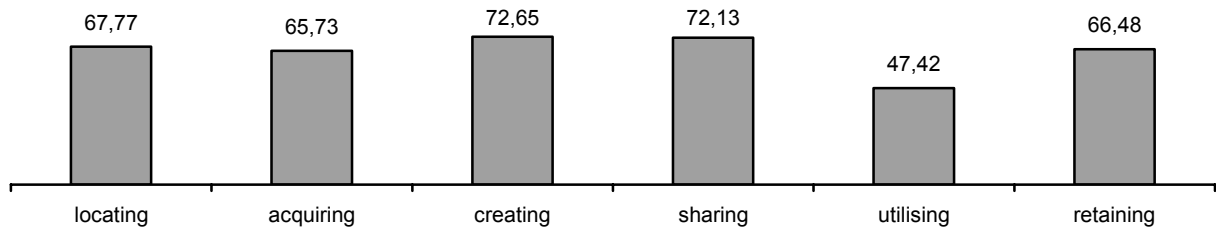
- verified work methods preferred by employees – 73.56%
- using „new” information only with regard to innovative solutions – 71.23%
- avoiding the use of outsourcing to acquire knowledge – 60.278%.

According to the results of surveys it could be concluded that in the respective small IT enterprises the stages of the knowledge management process are carried out with various intensity. The respondents gave the highest rank to creating knowledge and sharing knowledge and the lowest - to utilising knowledge. Ordering the stages of the knowledge management process according to choice percentage, the hierarchy is as below:

1. Creating knowledge – 72.65%

2. Sharing knowledge – 72.13%
3. Locating knowledge – 67.77%
4. Retaining knowledge – 66.48%
5. Acquiring knowledge – 65.73%
6. Utilising knowledge – 47.42%.

Diagram 5: Knowledge management process in small enterprises (%)



Source: own, based on results of surveys.

Based on the results of survey the best and the weakest expressions of the knowledge management process in small enterprises could be defined. The best ones comprised:

- creating favourable conditions in which employees can independently think and experiment – 77.18%,
- purchasing research and development deliverables from specialised organisations – 73.59%,
- good adaptation of databases to key processes performed in the organisation – 70.76%,
- familiarity with in-house experts – 64.17%
- utilising cooperation with other organisations to acquire knowledge – 61.18%.

In turn, major shortcomings in the knowledge management process were connected with:

- preferring previously used work methods – 62.57%
- information required by employees missing from databases or workflow systems – 66.52%,
- lack of periodical checks verifying employees' knowledge to evaluate its usefulness – 58.76%,
- insufficient utilisation of sources of knowledge such as recruitment - 52.77%.

2. CONCLUSION

The results of survey enabled the authors of the article to positively verify the research assumption that the status of knowledge management would differ between small, medium-sized and large enterprises from the IT sector in Poland. The questions and answers from the survey are summarised in Table 1.

From an analysis of the results of survey it follows that knowledge management was implemented according to the plan only in the large enterprise. The primary goal of this measure was to increase customer satisfaction by improving the level of services and, as a consequence, increase the competitiveness of the company.

Knowledge management is associated with organisational strategy, which means that it is considered to be a tool to achieve strategy. It had been incorporated into the structure of organisation, which was manifested in the establishment of job positions specialising in knowledge management. Knowledge management effectiveness is measured by means of specially developed ratios.

The large enterprise subject to survey makes use of various sources of knowledge. Predominant sources comprise external training, acquiring knowledge from external experts, market survey, previous experience and meetings of managerial staff with employees. They often use relations with customers, suppliers and associates (cooperating companies); participate in conferences, fairs and search the Internet to acquire knowledge. The company also has a practice of collecting ideas of employees in the form of findings. To penetrate these sources the employees generally make use of the Internet, Intranet, databases and they take part in conference calls.

Barriers hindering knowledge management in the large enterprise include lack of financial resources, ineffective communication and fluctuation of specialists. Additional impediments to knowledge management were due to the lack of measurable benefits from knowledge management implementation and incorrect management style.

The results of surveys advocate a statement that knowledge management is not a common practice in medium-sized and small enterprises. Small enterprises reveal a positive attitude towards future knowledge management.

Despite the fact that in the surveyed SMEs knowledge management was not broadly declared, many expressions of KM are noticeable.

The enterprises follow all stages of the knowledge management process but with different intensity. Respondents in medium-sized companies assigned the highest rating to retaining knowledge and the lowest to utilising knowledge. In turn, employees in small companies have the best score to creating knowledge, while the worst to utilising knowledge.

The results of survey point to little variety in using sources of knowledge by SMEs. Among the above-mentioned potential sources of knowledge the enterprises subject to survey use a few sources to a significant extent (Internet, external training, own experience, databases) and a few at a moderate level (studying literature, relations with customers, acquiring knowledge from external consultants, meetings of managerial staff with employees). The respondents used a dozen or so other sources of knowledge rarely or very rarely.

The degree to which knowledge management supporting tools were used could be characterised similarly. The enterprises covered by survey definitely in most cases used the Internet and e-mail. Other tools were not used that often or were used to little extent.

Table 1: Summary of research questions

	Large enterprise	Medium-sized enterprises	Small enterprises
To what extent are the enterprises interested in knowledge management?	Knowledge is managed	Knowledge is not managed and no need to manage knowledge is seen / knowledge management is a plan	Knowledge is not managed but a need to manage knowledge is seen / knowledge management is a plan
Is knowledge management an element of the organisation's strategy?	Yes	No	No
Have any positions in charge of knowledge management been created in the company?	Yes	No	No
Is a system of measurements applicable to knowledge management in place?	Yes	No	No
What are the objectives of implementing knowledge management?	<ul style="list-style-type: none"> – improved quality of services – increased competitiveness – – improved customer satisfaction – 	<ul style="list-style-type: none"> – increased effectiveness – improved customer satisfaction – – time savings 	<ul style="list-style-type: none"> – improved quality of services – improved management – increased effectiveness
What are the barriers to implementing knowledge management?	<ul style="list-style-type: none"> – lack of financial resources – ineffective communication – fluctuation of specialists 	<ul style="list-style-type: none"> – ineffective communication – incorrect management style – lack of measurable benefits from knowledge management implementation 	<ul style="list-style-type: none"> – ineffective communication – incorrect management style – lack of financial resources
What sources of knowledge are used by companies?	<ul style="list-style-type: none"> – external training – acquiring knowledge from third party experts – market surveys 	<ul style="list-style-type: none"> – Internet – external training – professional literature 	<ul style="list-style-type: none"> – databases – own experience – Internet
What tools do they use for knowledge management purposes?	<ul style="list-style-type: none"> – Internet – Intranet – databases 	<ul style="list-style-type: none"> – Internet – databases – electronic mail 	<ul style="list-style-type: none"> – Internet – electronic mail
What stages of the knowledge management process are carried out by companies?	Retaining knowledge Sharing knowledge Locating knowledge Creating knowledge Acquiring knowledge Utilising knowledge	Retaining knowledge Sharing knowledge Locating knowledge Creating knowledge Acquiring knowledge Utilising knowledge	Creating knowledge Sharing knowledge Locating knowledge Retaining knowledge Acquiring knowledge Utilising knowledge

Source: own studies.

Employees in small and medium-sized enterprises associated knowledge management with performance of specific objectives. Here, respective respondents most often mentioned improved

quality of services and improved management. Naturally knowledge management in the enterprises covered by survey meets obstacles reducing the effectiveness of this concept. The most significant of such obstacles is poor interpersonal communication and incorrect management style. Also, insufficient financial resources lead to considerable constraints in putting the knowledge management initiative into effect.

Knowledge management practices in small and medium-sized enterprises from the information technology sector in Poland are at a stage of taking interest in the concept and creating the basis for the knowledge management system.

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