Knowledge Factors and Their Impact on the Organisation

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Abstract:

Research Question (RQ): The research question is whether managers in organisations recognize the benefits of knowledge management.

Purpose: The purpose of this research is to identify the factors of knowledge which have a significant impact on the organisation.

Method: We reviewed the relevant literature in the field of knowledge management. On this basis, we summarized the factors of knowledge. We performed a survey among the 69 biggest Slovenian commercial companies (public and banking sectors were excluded).

Results: Research has shown that managers recognize the positive effects of knowledge. Factor analysis, with the discovery of latent variables, additionally confirmed already established facts from the research literature. This led us to the discovery that knowledge is the common denominator of all companies, regardless of the business in which they operate.

Organisation: From the examined literature, we can conclude that knowledge management has a positive impact on the company's results. Identification of knowledge factors allows a more efficient use of company's resources and enables further development of the organisation.

Society: Knowledge has become a highly appreciated "resource", therefore it is necessary to be able to manage it. Knowledge is the foundation of progress, not only for the development of the company but for the entire civilization.

Originality: We see the original contribution in the identification of dilemmas in building connections between knowledge management and the company's success.

Limitations / further research: The research matter is extremely difficult because the evidence that knowledge is the most influencing matter of a company's success can not be easily confirmed. The connection (we remain inside the topic of human capital) between knowledge and company's result is also manifested with other elements of the business, such as organisational culture, public relations, etc. Additional question is whether all employees in companies have the same opinion about knowledge management, namely most of the responses to our survey were received from people who are managers, directors, etc.

Keywords: knowledge management, knowledge factors, human capital.

1 Introduction and Theoretical framework

Continued development and rapid distribution of information technology has caused a cyclical - continuous struggle for market share and fight for every customer between manufacturers and suppliers of similar products. The existence of a company primarily depends on the success of the materialization of the intellect of its employees and their intellectual potential. The purpose of this study is to determine which knowledge factors are identified as the most important for the success of the company and the goal is to determine whether there are other hidden knowledge factors (which can not be determined directly from the survey) that can significantly affect the company's results.

Clerical skills to the company's success in the business environment are the creative ideas and knowledge which the company can realize at the right time and in the right market (Ovsenik & Ambrožič, 2010, p. 78). Knowledge is a multifaceted concept with a multifaceted range of meanings and is defined as justified true belief which results in a value increase (Nonaka, 1994, p. 21). On the other hand, Bhatt (Bhatt, 2001, p. 70) notes that the data are raw facts which, by means of processing and organisation, turn into information, whereas knowledge is logically completed information. Knowledge can be designed as tacit knowledge or explicit knowledge (Nonaka, 1994, p. 19). Tacit knowledge is knowledge which can not be identified and there is no word for it (Smith, 2001, p. 313). Tacit knowledge is automated and requires very little time for making a decision; we can talk about collective behavior and collective consciousness of the organisation (Smith, 2001, p. 314). It can also be defined as a structural concept that describes the relationship between different types of knowledge (Gupta, Iyer, & Aronson, 2000, p. 17). Explicit knowledge is academic or technical data (or only information) described in formal language (Smith, 2001, p. 316). Examples of explicit knowledge are manuals, mathematical expressions, copyrights and patents (Smith, 2001, p. 316).

Seen from the distance, the development of the company is directly connected to the development of employees (regardless of their position in the company) and their knowledge. However, under the microscope, on the basis of our own experience, we realize that the knowledge of individuals affects the sum of the collective knowledge of the company (e.g. the educational structure, the number of individual awards for outstanding achievements at work, etc.), but without an effective distribution network, filters and verified processes within large companies, it is not necessary that the company will be successful even if it has the largest amount of knowledge and skills in cumulative terms among its employees. The last finding also reflects the core of our research questions. Various authors, e.g. (Hsu & Shen, 2005, p. 355) establish a link between the life cycle of the product, knowledge and development of the company. The term life cycle of the product stands for stages which each product or service on the market goes through. When the life cycle of the product reduces, the role of knowledge management increases ("knowledge management" is hereafter referred to as KM), because the faster rotation of phases of the product, the greater competitiveness on the market. Therefore, the competition must adapt to the new situation or withdraw from the market.

There has been a lot of research done on the subject of knowledge and its relationship to the organisations' "put out". We focused on some research studies and findings on qualitative and quantitative analyzes of these studies. They offered us a previously installed and tested framework of the scientific matter of the study of the environment. Based on qualitative case studies of larger organisations, the finding of knowledge management has confirmed, that the most important internal KM factors which affect the result of the company's organisational culture, are the organisational infrastructure and employee motivation (Davenport & Prusak, 1998, p. 159) or "knowledge management is the management of people and vice versa" (Davenport & Volpel 2001, p. 218).

Similar as Davenport, the authors Wong and Aspinwall (Wong & Aspinwall, 2005, pp. 74-75) in 2005 also confirmed the hypothesis (the most important internal KM factors which affect the result of the company's organisational culture are organisational infrastructure and employee motivation), that these factors are the most important to achieve a business objective in the medium-sized companies. Later, a more recent study confirmed that the organisational infrastructure is a very important internal factor that has a significant impact on improved communication, collaboration and exploitation of knowledge within the organisation. All this has a positive effect on productivity. They also found that organisational culture is deeply rooted among the employees in the organisation and requires a lot of effort to change. Larger companies are managed centrally, therefore easier to change the organisational culture as smaller organisations, which, from this perspective, are given the advantage in the implementation of KM (Bharadwaj, Chauhan, Raman &, 2015, p. 430).

Valmohammadi (Valmohammadi 2010, p. 920) found great deviations from the confirmed hypothesis of Davenport, Wong and Aspinwall in his empirical research, namely the two factors of rewarding and motivating employees proved to be insignificant in the medium-sized companies. However, other factors, such as limitations in the implementation of KM, education and training and the importance of human resources, were perceived as very important in achieving the organisation's objectives. Valmohammadi notes that it is important to distinguish between large and small companies while exploring KM. Moreover, the results obtained should be interpreted correctly, for example, the KM factor which is ranked the highest in the survey must be addressed prior to other factors by the managers. With the empirical research on a sample of 301 selected respondents in major research centers, authors Akhavan et al (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 283-285) discovered that the scope of KM consists of three important factors. The first factor (human resources management) consists mainly of concepts that are the foundation of the KM system in the organisation. These include: organisational culture, collaboration and communication among employees, motivation, teamwork and job security. The second most important factor is KM or knowledge management (storage, transmission and renewal of knowledge). The third factor involves certain factors which are more general in comparison to the other ones. These are necessary for the successful establishment of a system of the organisation (not only for KM system). These factors are measurement, transparency and support of the company's management (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 283-285). An important aspect of KM is transfering the experience from the elderly to the younger. A survey among students (Jeleč Kaker, Ovsenik, & Zupančič, 2016, p. 68) who will work with the elderly in the future has shown that students who participated in a study have an honest and respectful relationship to the elderly, despite poor current economic situation. Intergenerational cooperation is essential because it especially allows the transfer of experience from the elder to younger generations. Experience is a basis for decisions and creative challenge (Ovsenik M., 2013, p. 71). Below we list the literature on which we built the factors of knowledge. Literature is summarized according to the article (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 276-288). Regarding the factors of knowledge relating to the organisational and cultural fields, we further examined these, updated them with the latest research and articles and found relevant literature from the environment of the study conducted.

Table 1. Reference literature of knowledge indicators

Knowledge indicators	Source
Transparency, trust and organisational culture	· (Akhavan, Jafari, & Fathian, 2006, pp. 97-113) · (Luo & Lee, 2015, pp. 62-75)
Database and technological tools for knowledge searching	· (Davenport E. , 2001, pp. 61-75)
Documentation of knowledge	· (Davenport & Volpel, 2001, pp. 212-221)
Measuring performance	· (Moffett & McAdam, 2009, pp. 44-59) · (Bharadwaj, Chauhan, & Raman, 2015, pp. 421-434)
Comparative analysis	· (Moffett & McAdam, 2009, pp. 44-59) · (Frost, 2014)
Structure of knowledge	· (Davenport & Prusak, 1998) · (Bharadwaj, Chauhan, & Raman, 2015, pp. 421-434)
Management of changes	· (Ovsenik & Ambrož, 2006)
Knowledge exchanging	· (Davenport & Volpel, 2001, pp. 212-221) · (Mustafa, Lundmark, & Ramos, 2016, pp. 273–295)
Company's willingness for KM strategy	· (Akhavan, Jafari, & Fathian, 2006, pp. 97-113)
Systematic approach to KM	· (Akhavan, Jafari, & Fathian, 2006, pp. 97-113)
Knowledge and measurement of knowledge	· (Wong & Aspinwall, 2005, pp. 64-82)
Architecture of knowledge	· (Skyrme & Amidon, 1997, pp. 27-37) · (Brahma & Mishra, 2015)
Continuous learning	· (Skyrme & Amidon, 1997, pp. 27-37) · (Luo & Lee, 2015, pp. 62-75)
Creating knowledge	· (Skyrme & Amidon, 1997, pp. 27-37) · (Manuel, 2016)
Head of knowledge	· (Moffett & McAdam, 2009, pp. 44-59)
Organisational structure	· (Ovsenik M. , 1999) · (Ovsenik & Ambrož, 2010)
Repositories and transmission of knowledge	· (Davenport E. , 2001, pp. 61-75) · (Kim, Mukhopadhyay, & Kraut, 2016, pp. 133-156)
Knowledge management	· (Davenport & Prusak, 1998)
Teamwork	· (Šumanski, Kolenc, & Markič, 2007, pp. 102-116) · (Jafari, 2015, pp. 82-93)
Information infrastructure	· (Wong & Aspinwall, 2005, pp. 64-82) · (Kim, Mukhopadhyay, & Kraut, 2016, pp. 133-156)
Cooperation and communication	· (Drucker, 2001) · (Mciver, Lengnick - Hall, Lengnick - Hall, & Ramachandran, 2013)
KM integration with existing systems	· (Moffett & McAdam, 2009, pp. 44-59) · (Kim, Mukhopadhyay, & Kraut, 2016, pp. 133-156)
Knowledge and winning organisation	· (Coulson - Thomas, 2007, pp. 108-112)
Job security	· (Egbu, 2004, pp. 301-315) · (Frost, 2014)
Climate in the organisation	· (Wong & Aspinwall, 2005, pp. 64-82)
Human resources management and motivation	· (Egbu, 2004, pp. 301-315) · (Jafari, 2015, pp. 82-93)
Flexible and dynamic organisational structure	· (Bukovec, 2009, pp. 4-23)
Management support and commitment to the goals	· (Davenport & Volpel, 2001, pp. 212-221) · (Bukovec, 2006)
Awareness and understanding of employees	· (Garrick, Chan, & Lai, 2004, pp. 329-338)
Training and education of employees	· (Garrick, Chan, & Lai, 2004, pp. 329-338)
Teamwork and problem solving	· (Zarraga-Oberty & De Saa-Perez, 2006, pp. 60-76) · (Jafari, 2015, pp. 82-93)

Source: Adapted from (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 276-288) and supplemented with newer sources.

We looked at the knowledge in organisations from 31 perspectives − hereafter defined as indicators of knowledge.

On the basis of the reference literature, we formed two survey questions (a total of 62 survey questions) for each indicator (Table 1). For the purposes of analytical data processing, we combined the 31 indicators of knowledge into 12 meaningful sets of "knowledge factors" (Table 2). When reducing the indicators of knowledge into the knowledge factors, we used the methodology used in the study (Valmohammadi 2010, pp. 915-924). The hypotheses are based on the 12 knowledge factors resulting from the examined literature. Table 2 shows the link between the indicators of knowledge and factors of knowledge (factor of knowledge is defined as a logical unit, consisting of different indicators of knowledge). It shows the indicators with which we based our knowledge factors.

Table 1. Link between factors and indicators of knowledge

Knowledge factor	Knowledge indicator
Factor 1: Leadership management and support	Teamwork
	Management support and commitment to the goals
	Transparency, trust and organisational culture
Factor 2: Culture of the organisation	Climate in the organisation
	Organisational structure
	Cooperation and communication
	Awareness and understanding of employees
Factor 3: Information technology	Database and technological tools for knowledge searching
	Information infrastructure
Factor 4: KM strategy	Company's willingness for KM strategy
	Knowledge management
	Administrator of knowledge
	Knowledge and measurement of knowledge
Factor 5: Performance measuring	Benchmarking
	Teamwork and problem solving
Factor 6: Infrastructure of the organisation	Documentation of knowledge
	Knowledge exchanging
	Repositories and transmission of knowledge
Factor 7: Processes and activities	Architecture of knowledge
	Systematic approach to KM
	Creating knowledge
Factor 8: Rewarding and motivation	Human resources management and motivation
	Knowledge and winning organisations
Factor 9: Elimination of restrictions	Job security
Factor 10: Training and education	Continuous learning
	Training and education of employees
Factor 11: Human resources management	Flexible and dynamic organisational structure
	Change management
Factor 12: Comparative analysis	KM integration with existing systems
	Measuring performance
	Structure of knowledge

Table 3 shows the structure of the questionnaire, resulting from links between indicators and knowledge factors.

Table 3. Knowledge factors and survey questions

Factor 1: Leadership management and support
· Managers act as catalysts for KM.
· Managers create the necessary conditions for KM.
· Managers act as an example to show the desired behavior.
· Managers encourage knowledge creation, sharing and use.
· Managers recognize KM as an important factor that contributes to the business success.
· Managers show attachment and support of KM.

Factor 2: Culture of the organisation
· High organisational culture that values knowledge and problem solving.
· A high degree of trust among employees is important when exchanging knowledge.
· Frank exchange of errors between employees without fear of punishment.
· Collaboration between employees is important.
· Encouraging of teamwork among employees.
· Empowering employees to explore new possibilities.
· Encouraging people to ask questions.
· Accepting the exchange and sharing of knowledge (not accumulation) as organizational strength.

Factor 3: Information technology
· The use of an appropriate system for managing KM.
· Using of technological tools (tools for collaboration, knowledge base, search engines, document management systems, intelligent systems, etc.).
· The utilization of intranet or internet.
· Easy use of technology.
· Relevance of KM system according to the user's needs.

Factor 4: KM strategy
· Having clear goals and objectives of a shared vision that employees support.
· It is necessary to develop a KM strategy at any cost.
· Having clear tasks and clearly defined objectives of KM.

· Alignment of KM strategy with business strategy.

Factor 5: Performance measuring
· Measurement of the benefits of KM depending on initiatives stemming from KM.
· Monitoring the progress of the development of the KM.
· Assessing the impact of KM on financial performance.
· Updating of indicators (financial and the organisational climate ones) for measuring KM.
· Measuring the value of intellectual capital.

Factor 6: Infrastructure of the organisation
· The company has a knowledge trustee (administrator of knowledge, etc.).
· The company defines the roles and responsibilities for the purpose of carrying out the tasks of KM.
· The company has a clearly defined ownership of the initiatives arising from the KM group.
· The company has a flat organisational structure of the KM working groups.

Factor 7: Processes and activities
· Generating new ideas and knowledge.
· Documenting the key skills and knowledge.
· Effective classification and storage of knowledge.
· Improving procedures for finding the necessary knowledge.
· Sharing knowledge with the use of electronic media or personal contact.
· Communication (formal and informal) among employees.
· Immediate implementation of best knowledge in products and services.
· Promotion of continuing education at all levels.
· Providing for the protection of knowledge assets from unauthorized exposure or theft.

Factor 8: Rewarding and motivation
· Guaranteeing the right motivators to encourage the production of new knowledge.

· Motivating employees to use new knowledge.
· Visibly rewarding employees who share their knowledge.
· Rewarding employees for successful teamwork.
· Motivating work performance by means of assessment system.

Factor 9: Elimination of restrictions
· Provision of funds for investment in KM.
· Sufficient funding investment for the construction of KM technological system.
· Ensuring sufficient human resources to create new knowledge.
· Providing employees with time for knowledge management related activities.

Factor 10: Training and education
· Training on the concept of knowledge and KM.
· Training on the use of KM systems and tools.
· Training individuals to assume roles related to KM.
· Training to develop knowledge skills such as creative thinking, problem solving, communication, team building, etc.
· The possibility that employees are involved in both internal and external learning opportunities such as conferences, training seminars, etc.

Factor 11: Human resources management
· Employment of workers in order to fill gaps related to knowledge.
· Employment of workers due to their positive attitude to knowledge.
· Rewarding employees for the purpose of retaining.
· Providing opportunities for career promotion.

Factor 12: Comparative analysis
· Constant care for benchmarking system performance (measuring the usefulness of KM initiatives with regard to financial or non-financial indicators of the company).
· Encouraging employees to compare with other organisations.
· Establishing the internal mechanism with a view to coordinating the company's strategy, budget and human resources management.

Source: Adapted from (Valmohammadi, 2010, pp. 915-924).

The survey questions were taken from a survey questionnaire (Valmohammadi 2010, pp. 915-924). As we partially corrected the indicators of knowledge due to cultural and other impacts, which we previously described in formulating hypotheses, we approached to the correction of the survey questions in the same way. We formed the 62 survey questions out of the 31 indicators of knowledge from the reference literature. Respondents were asked to respond to the question (Table 3) "To what extent do these arguments apply to the company in which you are employed (rating from 1 to 6)?". Below we show a link between the factors of knowledge and hypotheses (Table 4). Each hypothesis is based on the factors of knowledge management.

Table 2. Link between hypotheses and influential factors of knowledge management

Hypotheses	Influential factors of knowledge management
H 1 - Knowledge management creates innovation processes.	Factor 7: Processes and activities
	Factor 8: Rewarding and motivation
H 2 - Knowledge management realizes the company's strategies.	Factor 9: Elimination of KM restrictions
	Factor 4: KM strategy
	Factor 5: Performance measuring
H 3 - Knowledge management creates conditions for the competitiveness of the organisation.	Factor 2: Culture of the organisation
	Factor 6: Infrastructure of the organisation
H 4 - Knowledge management provides the foundations for new knowledge.	Factor 3: Information technology
	Factor 10: Training and education
	Factor 11: Human resources management
H 5 - Knowledge management helps to the success of the organisation.	Factor 1: Leadership management and support
	Factor 12: Comparative analysis

In formulating the hypotheses, we based on the already conducted research in the article »Identification of knowledge management critical success factors in Iranian academic research centers« (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 277-283). The hypotheses were partially summarized from the mentioned research, the difference being in the indicators of knowledge. We changed the reference literature (Table 1) for designing the indicators of knowledge in the fields where we found the research results stemming from our living environment. In particular, these areas relate to the cultural aspect, the organisational structure and understanding of the work in general. With this, we changed the content structure of the hypotheses. We also added a testing hypothesis that was not included in the summarized survey (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 277-283). Respondents could respond to the mentioned hypotheses with CONFIRM or REJECT. With the study, we wanted to identify the factors of knowledge that affect the performance of the organisation, so it was very important that the respondents identified KM - knowledge as a potential factor impacting the performance of the organisation. For this reason, in addition to the four statements, we also added hypothesis H5, to which respondents answered the same with CONFIRM or REJECT. This last argument allows us at least a partial view of the sincerity of the answers; indeed, if the respondent decided to reject the first four statements and confirm the fifth, this would mean that we can reasonably suspect the validity of the responses and eliminate the completed questionnaire. The same applies to the contrary, e.g., if the respondent rejected the last statement and confirmed the other four. The questionnaire was completed by collecting characteristics and demographic data of respondents.

2 Method

Before carrying out the actual survey, we conducted a pilot study. The pilot study was conducted with randomly selected people. They were selected randomly in our circles of associates, all of which met the conditions of "population research" in terms of education and the workplace. The purpose of the pilot study was to determine whether the measuring instrument is appropriate. By this we mean primarily the strength of connections between variables and verification of the statistical methods that were intended to be used in the right pattern. We conducted a survey among 21 people, but this time we interviewed them personally by dividing the questionnaire in printed form. A pilot survey data was collected and processed in SPSS program. We focused on the analysis of data reliability (reliability analysis) with Cronbach's coefficient α (alpha). The selected respondents evaluated the questionnaire twice, because the first time we did not reach the minimum value of the coefficient of 0.7 (the average of all factors was 0.54). Therefore, the questionnaire was corrected especially in terms of further clarifying the survey questions. Some questions were re-formulated and some of them excluded, because we realized that they did not contribute to the further clarification but, in certain aspects, even gave rise to doubts into question that had already been answered. The revised questionnaire was tested again in the circle of friends and associates but this time among different people. This pilot study included 19 people. This time, the Cronbach coefficient α (alpha) was reached (0.76). We used a predetermined set of companies or respondents. This is a method of a non-random sample, namely the sample was prepared in advance and based on published data on added value per employee in the article "300 biggest and best Slovenian companies in 2010" (Bertoncelj Popit, 2011) published in the electronic edition of the newspaper Delo. The list of companies included 300 of the biggest companies in Slovenia, excluding the financial sector. All companies gave prior consent to the publication of data in the electronic version of Delo.

The main reason for choosing these companies was that the list includes the majority of economic activities in general and which, from the revenue point of view, present the largest share. Selected companies are the largest companies not only from the revenue and employee point of view but also in terms of investments in research, technology and innovation, etc. The target research group were managers, researchers and professionals or people who make essential decisions in the organisations.

We carried out a parallel test of the correctness of the data published by the web app Gvin, which is a web service that allows registered users insight into registered Slovenian companies, ownership share, market developments, etc. The survey was carried out with the help of the online collection. As a tool for collecting survey responses, we used Google documents - Forms (Do more in cooperation with other office applications with Google Drive, 2013). Only selected companies could access the questionnaire. Invitations for filling out the questionnaire were distributed by e-mail.

The invitation listed all the necessary information related to the study, to whom the invitation is intended and the electronic link to the online form. In the e-mail addresses, we deliberately avoided the e-mail addresses that included personal names, so that the respondents would not regard (perceive) them as spam and delete them. Therefore, we prefered using e-mail addresses such as info@company.si.

When confirming the hypotheses, we took into account the answers provided in the questionnaire. To analyze the reliability of the questionnaire, we used the Cronbach's coefficient α (alpha). With this coefficient, we tested only those questions which belonged to the specific hypothesis. This confirmed that any differences between the answers were not the result of a questionnaire or unclear questions, in short, this means that the answers received vary because of different opinions of the respondents, and not because the survey was unclear or because multiple-choice questions could have several explanations (Cronbach, 1951, pp. 297-334). We confirmed or rejected the hypotheses in the following successive steps:

1) We reviewed the responses obtained according to each hypothesis. Each participant in the survey gave an answer for each hypothesis in the questionnaire. The first four hypotheses represented the arguments that we wanted to test. The fifth and final hypothesis was a test and a partial indicator of sincerity of the answers. Indeed in some cases, it appeared that the respondents confirmed the first four hypotheses but not the last one. This clearly indicates that we may reasonably doubt in the accuracy of the results, so we excluded such questionnaires altogether (we eliminated two of the questionnaires). None of the respondents confirmed the final hypothesis, but not the first four.

2) Each of the following hypotheses, as we have already explained, is based on the influential factors (Table 4). To confirm the hypothesis, we set the following rule in this part of the model: in order to confirm the hypothesis, the arithmetic mean of all the sub-questions (Likert scale from 1 to 6) must be at least 3.5 ($x \geq 3.5$) with the distribution within + - 1.3 of the standard deviation. We believe that the Likert scale has the same spacing between the ordinal classes (e.g. responses 1 and 2 have the same interval distance).

3) We have tried to establish for each hypothesis (with factor analysis - PCA method) the existence of latent (hidden) variables, which could explain the greater part of the variability of the hypothesis, and whether the observed latent variables (factors) can be usefully applied to the hypothesis.

3 Results

When gathering the data, we realized that 14 (4.7%) of the companies from our range had ceased their activities for various reasons, therefore 286 or 95.3% of the initially planned electronic invitations were sent.

In 97 cases (33.9% of all outgoing emails), we received notice that the web address does not exist anymore. We concluded that these are mainly companies, which stopped working from the time of publication of the list to the implementation of our study. 71 questionnaires (24.8%) were completed, the others did not reply. We excluded four respondents from the analysis because of an incompletely filled out questionnaire. The survey was answered by 28 men and 34 women, five respondents did not indicate gender. The average age of participants was 43.2 years.

Table 3. Position in the company and the level of completed education

Job position/ Education	PhD	Master's degree	Specialization	High school	Higher education	College	Empty	Total
Operator	2	3	2	5	8	6	2	28
Expert		2	1	2	5	3	2	15
Head of department	3	3	2	1	5	6	1	21
(empty)					1		2	3
Total of	5	8	5	8	19	15	7	67

We calculated the descriptive statistics indicators, such as arithmetic mean, standard deviation, asymmetry and kurtosis. The calculations are based on the results of descriptive statistics directly from the questionnaire responses using values of the Likert scale (1 to 6).

Table 6. Descriptive statistics of the hypotheses

Hypotheses	Arith. mean	STATUS according to the Arith. mean (AR > 3,5)	Std. deviation of the hypothesis	STATUS according to the Std. deviation (Std < 1,3)	Asymmetry	Kurtosis
H 1 - Knowledge management creates innovation processes.	3,945	CONFIRMED	1,27	CONFIRMED	-0,33	-0,35
H 2 - Knowledge management realizes the company's strategies.	3,987	CONFIRMED	1,21	CONFIRMED	-0,33	-0,22
H 3 - Knowledge management creates conditions for the competitiveness of the organisation.	3,968	CONFIRMED	1,25	CONFIRMED	-0,50	-0,15
H 4 - Knowledge management provides the foundations for new knowledge.	4,007	CONFIRMED	1,26	CONFIRMED	-0,38	-0,24
H 5 - Knowledge management helps to the success of the organisation.	3,698	CONFIRMED	1,45	REJECTED	-0,43	-0,62

We confirmed all hypotheses except the last, fifth hypothesis. This one deviates due to an increased standard deviation. Also, the arithmetic mean of the responses suggests that respondents were the least inclined to the last fifth hypothesis in relation to the other ones.

In this stage of the analysis, we rejected hypothesis 5. Hypotheses were tested according to the assumed normal distribution.

We used the non-parametric Kolmogorov-Smirnov test for one sample. We found out that we can assume that it is a normal distribution (statistically significant value > 0.05). The exception is the hypothesis 3 where the average responses in regards to Kolmogorov-Smirnov test for one sample are on the border of the normal distribution but still acceptable (Table 7).

Table 7. Kolmogorov-Smirnov test for one sample

Hypotheses	N	Ar. mean	Std. deviation	Kolmogorov-Smirnov test	Feature (2-tail)
H 1 - Knowledge management creates innovation processes.	69	3,9458	,70704	1,211	,107
H 2 - Knowledge management realizes the company's strategies.	69	3,9884	,58639	1,161	,135
H 3 - Knowledge management creates conditions for the competitiveness of the organisation.	69	3,9691	,74064	1,357	,050
H 4 - Knowledge management provides the foundations for new knowledge.	69	4,0094	,70617	,859	,452
H 5 - Knowledge management helps to the success of the organisation.	69	3,9748	,67938	,899	,394

We used the factor analysis to determine whether there are hidden components that can explain the greater part of the hypotheses variability. We used the method of Principal Component Analysis (PCA). Before performing PCA analysis, we further tested the answers of the respondents with D`Agostino test. This test was chosen because of the structure of the responses received: namely, the answers were given in a Likert scale of 1 to 6. The test is particularly suitable for determining the normality of the distribution of variables which contain multiple identical responses, in our case from 1 to 6. The test was testing whether the answers received are distributed normally. The objective of the PCA analysis was to identify whether there are other - hidden knowledge factors which had not been detected yet. The results of our analysis (Table 8) are similar to the studied literature.

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Table 8. Summary of PCA analysis - Hypotheses 1 to 5

Hypotheses	KMO test		Identified latent components	Rotation	% rot. comp.	Cum. %
H 1 - Knowledge management creates innovation processes.	0,752	1.	Technical approach to knowledge in the company (storage, editing, sorting)	Direct Oblimin.	30,60%	
		2.	The protection and transmission of accumulated knowledge (protection, intervention, learning, motivation in the application of new knowledge)		11,15%	41,75%
H 2 - Knowledge management realizes the the company's strategies.	0,643	1.	The economic aspect of knowledge management (KM investment assets, measurement of KM yield, KM consistency with company's strategy)	Varimax	17,67%	
		2.	Strength of intellectual capital (KM development, updating of indicators measuring KM and measuring the value of intellectual capital)		16,71%	34,38%
		3.	Financial effects of KM per unit of time (the time to perform the KM tasks and effects on financial performance)		13,15%	47,53%
H 3 - Knowledge management creates conditions for the competitiveness of the organisation.	0,729	1.	Motivation and teamwork (providing resources for research, knowledge administrators, promoting teamwork, confidence in the exchange of knowledge)	Varimax	23,59%	
		2.	Constructive approach in resolving errors (frank exchange of errors without fear of punishment, promoting questions, clearly defined responsibilities)		23,32%	46,91%
H 4 - Knowledge management provides the foundations for new knowledge.	0,747	1.	Use of information technology (provision of simplification and clarity of systems, use of technology systems)	Varimax	21,98%	
		2.	Employment due to skills needs (priority in employment of those who accept and pass on knowledge, new employments to fill the gaps of knowledge)		15,64%	37,62%
		3.	The adequacy of the current KM system (training of individuals to assume the roles associated with KM, training for skills development).		13,80%	51,42%
H 5 - Knowledge management helps to the success of the organisation.	0,738	1.	Management support of KM (managers are acting as an example, as catalysts for KM, they recognize KM as an important factor).	Direct Oblimin.	31,90%	
		2.	Comparative analysis (measurement of the usefulness of KM initiatives in relation to the financial or non-financial indicators of the company		14,07%	45,97%

Table 8 shows the synthesis of the main findings of the PCA analysis. We conclude that we can in average explain 46.7% variabilities of all five hypotheses with new identified latent components.

4 Discussion

When we were determining hypotheses, we were partially relying on the previous study (Akhavan, Hosnavi, & Sanjaghi 2009, pp. 277-283). The hypotheses that we created are: "Knowledge management creates innovation processes", "Knowledge management realizes company's strategy", "Knowledge management creates conditions for better competitiveness of the organisation", "Knowledge management provides the foundations for the new knowledge" and the final hypothesis "Knowledge management helps to the success of the organisation".

The empirical analysis was made to determine how respondents understand the stated hypotheses. We tested the hypotheses and successfully verified four out of five hypotheses. The last, fifth, rejected hypothesis – "Knowledge management helps to the success of the organisation", did not meet the requirements for approval. This was mainly due to diffuse answers. Respondents were selected from different sized companies and from different fields of activities, so large deviations in answers are not surprising.

It turned out that for H 1 – "Knowledge management creates innovation processes" the most important knowledge factor is technical approach to knowledge in the company (storage, editing, sorting). H 2 – "Knowledge management realizes the company's strategies" discovered that knowledge factor which contributes to the organisations success the most concerns the economic aspect of knowledge management (KM investment assets, KM consistency with the company's strategy). The most influential knowledge factor for H 3 – "Knowledge management creates conditions for the competitiveness of the organisation" is summarizing employee motivation and constructive approach in resolving errors (frank exchange of errors without fear of punishment, promoting questions, clearly defined responsibilities). Regarding H 4 – "Knowledge management provides the foundations for new knowledge", the respondents replied that the most significant knowledge factor concerns the use of information technology and employment due to skills needs (priority in employment of those who accept and pass on knowledge, creating new employments to fill the gaps of knowledge). At the last hypothesis H 5 – "Knowledge management helps to the success of the organisation", we realized that the most significant is management support of KM (managers are acting as an example and they recognize KM as an important factor). Compared to previous research by other authors (Akhavan, Hosnavi, & Sanjaghi, 2009) (Valmohammadi, 2010), (Davenport & Prusak, 1998), (Brahma & Mishra, 2015) (Bharadwaj, Chauhan, & Raman, 2015) our findings are in certain parts confirming and in some deviating.

Similar observations were made with the factor analysis: it turned out that the new identified factors, e.g. the area of human resources management, the importance of storing and distribution of knowledge and organisational culture were similar to those in the study (Valmohammadi 2010, pp. 915-924). In study, the authors Wong and Aspinwall (2005, pp. 74-75) confirmed the positive impact of employee motivation on the positive business result of the company. Our study also confirmed this finding. Motivation does not necessarily mean prizes in terms of increased income.

5 Conclusion

It is important for the company's management to know which of the knowledge factors are the most important for the organisation, and secondary, how much they contribute to the overall result of the company.

During the research we relied on already carried out survey of critical knowledge factors »Identification of knowledge management critical success factors in Iranian academic research centers« (Akhavan, Hosnavi, & Sanjaghi, 2009, pp. 276-283). Based on this research, besides taking into account local characteristics (with this we mean the Slovenian cultural specificities), we defined new knowledge factors. The most critical research moment was reduction of 31 knowledge indicators into 12 knowledge factors. With reduction, we created an important research matter. The survey contained questions designed by the elements of knowledge from the research literature. Besides the expected statistical methods, we also conducted factor analysis and found out, that respondents identified new knowledge factors even though they were hidden between questions in the survey. This led us to the discovery that knowledge is the common denominator of all companies regardless of the business in which they operate. The factor analysis with the discovery of latent variables additionally confirmed already established facts from the research literature.

The research goal was achieved. We determined which factors of knowledge are the most important. In our case, it turned out that commendation for a job well done is a positive pulse that in the long-term affects the company's success. But we have not investigated whether this assessment is reflected through higher productivity or innovation. With the study, we also confirmed that the technical approach to knowledge (storage and editing of knowledge) is the most important KM factor for creating innovative processes in the company. The most significant KM factor for the realization of the company's strategy is "the economic view", which defines investment funds and monitoring of the knowledge management results. Motivation and teamwork (providing resources for research, knowledge administrators, promoting teamwork) and constructive approach to resolving the errors are the KM factors that most influence the creation of conditions for competitiveness the organisation. The study also confirmed that the basis for the creation of new knowledge in the organisation stands in simple (user-friendly) use of information technology. We confirmed that knowledge management can positively contribute to the success of the organisation, if well managed.

As a limitation, we see the fact that the knowledge can also be expressed in other ways, not only as a "know-how", but also in collective forms of knowledge, such as organisational culture and climate in the organisation.

Identified knowledge factors that affect organisation's performance give managers in organisations additional useful information for managing companies. The additional value for the organisations in this study is also seen in upgrading and adapting the factors of knowledge. We adapted knowledge factors to the local area and "tested" them with the survey.

With the study, we successfully identified the KM factors, which have a significant impact on the organisation. For further research, we propose to establish a measure (for example added value in EUR per employee) with which it would be possible to determine the impact of KM on the company's result.

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Povzetek:
Dejavniki znanja in njihov vpliv na organizacijo

Raziskovalno vprašanje (RV): Raziskovalno vprašanje je bilo ali vodilno osebje v organizacijah prepozna pozitivne učinke upravljanja z organizacijskim znanjem.

Namen: Namen raziskave je ugotoviti dejavnike znanja, ki pomembno vplivajo na rezultat podjetja, cilj pa ugotoviti ali morebiti obstajajo še kakšni drugi skriti dejavniki znanja, ki jih v dosedanjh raziskavah nismo zasledili.

Metoda: Proučili smo relevantno literaturo s področja upravljanja z znanjem. Na podlagi tega smo povzeli dejavnike znanja. Izvedli smo anketo med 69 največjimi slovenskimi gospodarskimi družbami (javni in bančni sektor sta bila izključena).

Rezultati: Raziskava je pokazala, da menedžerji prepoznavajo pozitivne učinke upravljanja znanja v organizaciji, tudi faktorska analiza je pokazala, da so anketiranci uspešno identificirali dejavnike znanja. To nas je pripeljalo do odkritja, da je znanje skupni imenovalec vseh podjetij, ne glede v katerem sektorju gospodarstva delujejo.

Organizacija: Iz pregledane literature lahko zaključimo, da upravljanje znanja pozitivno vpliva na rezultate podjetja. Identifikacija dejavnikov znanja omogoča bolj učinkovito uporabo virov podjetja in nadaljnji razvoj organizacije.

Družba: Znanje je postala zelo cenjena "dobrina", zato je nujno potrebno upravljati z znanjem v organizacijah. Znanje je temelj napredka, ne samo za razvoj organizacije, temveč tudi za celotno civilizacijo.

Originalnost: Izvirni prispevek vidimo v identifikaciji dilem pri gradnji povezave med upravljanjem znanja in uspehom podjetja.

Omejitve/nadaljnje raziskovanje: Raziskave na tematiko »znanja« predstavljajo izziv, namreč ni mogoče zlahka potrditi teze, da znanje v podjetju najbolj vpliva na njegov uspeh. Povezava med znanjem in rezultatom podjetja se kaže tudi z drugimi elementi, kot so npr. organizacijska kultura, odnosi z javnostmi itd. Dodatno vprašanje, ki se postavlja samo po sebi je, ali imajo vsi zaposleni v podjetjih enako mnenje o kategoriji upravljanja z znanjem, namreč večina odgovorov naše raziskave je bilo prejetih od oseb, ki so menedžerji, direktorji itd.

Ključne besede: upravljanje z znanjem, dejavniki znanja, človeški kapital.