



INCENTIVES FOR KNOWLEDGE MANAGEMENT AND ORGANISATIONAL PERFORMANCE

Valerij Dermol

International School for Social and Business Studies, Celje, Slovenia
valerij.dermol@mfdps.si

Abstract:

Knowledge management impacts organisational performance. It is related to technical systems and business and work processes in which employees as human beings are involved. The key objective of knowledge management is “doing what is needed to get most out of knowledge resources”. In the paper we examine influences of organisational incentives on knowledge management and their joint influence on organisational performance. We also examine whether there are differences regarding knowledge management processes in organisations of different sizes, types and ages.

Keywords: knowledge management, organisational incentives, organisational performance.

1. KNOWLEDGE MANAGEMENT

Becerra-Fernandez, Gonzalez, & Sabherwal (2004) state that KM focuses on organising the knowledge and on that, how to make important knowledge available. But, KM is not only about the mechanical organisation of knowledge; nor is it solely about the content (Gamble & Blackwell, 2001) or its availability. KM is a system and a systematic mix of processes by which knowledge needed for an organisation to succeed is created, captured, shared and leveraged (Mitchell & Young, 2003). KM is an approach to achieving organisational objectives by making the best use of knowledge, or “doing what is needed to get the most out of knowledge resources” (Becerra-Fernandez et al., 2004).

Holsapple & Jones (2004) explaining the concept of knowledge chain introduce primary and secondary KM activities. As primary activities they define activities such as the acquisition, selection, generation, assimilation and emission of knowledge, which are mainly synonyms of previous mentioned KM processes. As secondary they define activities such as measurement, control, coordination and leadership of knowledge which together enable the effective implementation of primary activities. An important message sent by Holsapple & Jones (2004) is, that the transformations of knowledge leading to competitiveness should be supported by different management activities including the ones based on leadership and motivation competences.

KM is conceptually tightly connected with the use of technical equipment and information-communications technology. On the other hand Liebowitz (2003) notes that actual strength and value of successful organisations lie in the brainpower of their employees. He suggests that technical delivery systems (e.g. computers, databases, and communication networks) only technically support connectivity, sharing of knowledge and building bridges among isolated islands of processing, storing, and sharing information and knowledge. It focuses also on cultural foundations that support the KM processes (Mitchell & Young, 2003) and incentives that “cause the use and augmentation of KM tools to become an instinctive part of everyone's thought processes” (Liebowitz, 2003). As Liebowitz (2003) notes, some organisations proactively promote knowledge sharing and retention incentives until such processes become organisational norms.

Gold, Malhotra, & Segars (2001) emphasise the meaning of organisational incentives. They are of the opinion that organisation's system of rewards and incentives determines the channels through which the knowledge is accessed and how it flows within organisation related network. Beside, the reward and incentive system can become a barrier to effective KM practices. Therefore such systems should be structured in a way that “workers are motivated and rewarded for taking the time to generate new knowledge (i. e. learn), share their knowledge and help others” outside their own organisational units.

1.1. Impacts of KM

Mitchell & Young (2003) summarise that the reasons to introduce KM are to improve the quality of available knowledge within an organisation and to share it across operating units, to reduce the loss of intellectual assets caused by employee fluctuation, to reduce or control the costs, to encourage innovation in a company, but also to improve responses to competitive forces. Liebowitz (2003) claims that knowledge related efforts can lead to effectiveness of a company, its efficiency and productivity.

Gold et al. (2001) study the influence of knowledge infrastructure capability (technology, structure, culture) and knowledge process capability (acquisition, conversion, application, protection) on organisational effectiveness. They researched and confirmed a significant contribution of KM on abilities to innovate, coordination of efforts, speed of new products' commercialisation, abilities to anticipate surprises, responsiveness to market changes, ability to reduce the redundancy of information/knowledge etc.

Becerra-Fernandez et al. (2004) identify a wide spectrum of organisational impacts of KM. They note that KM can impact organisations and their performance at several levels: people (e. g. retaining employees' expertise), processes, products (e. g. enhancing customers' product satisfaction) and the overall organisational performance (e. g. increasing profits or revenues). The impact can be performed in two ways – through creating needed knowledge and through direct improvements along the four dimensions.

1.2. Causal links between organisational incentives KM and performance

On the basis of our considerations we assume that organisational incentives to transfer and to share the employees' knowledge directly influence KM processes and indirectly, through these processes, also personal and organisational performance. We are of opinion that recognition of employees is quite important for KM performance as well. KM processes in an organisation should provide availability and recall of information and knowledge, finding the information and knowledge should be easy and simple and consequently the employees should know where relevant information and knowledge are located (inside or outside the organisation). Beside, supervisors play an important role in conduct of KM, providing encouragement for information and knowledge sharing between members of working teams. Group norms supporting knowledge transfer and sharing are important as well.

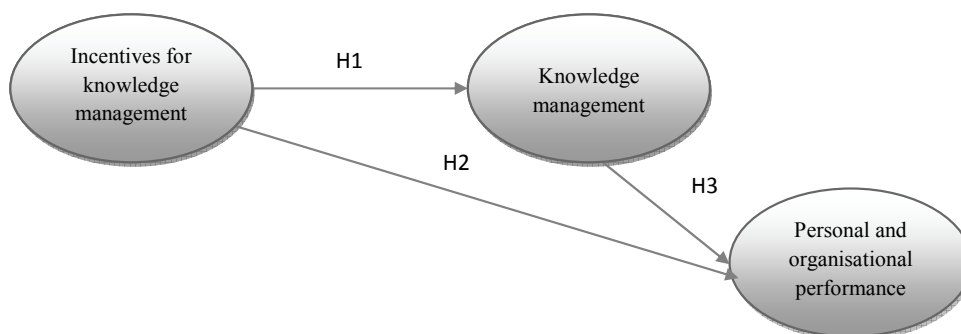
As can be seen in the conceptual model presented in figure 1 we propose three hypotheses:

H1: Incentives for KM influence conduct of KM processes.

H2: Incentives for KM influence organisational performance.

H3: KM influences organisational performance.

Figure 1: Conceptual model of KM



2. EMPIRICAL RESESARCH

2.1. Methodology of the research

In April 2011 we conducted an empirical research based on survey method at one of the Slovenian business HEI. Population of the survey consisted of 88 first year students of the second cycle study. We surveyed a sample of 50 part-time and full-time students. Vast majority of these students are employed in different Slovenian organisations. The

questionnaire, which we used in the survey, consisted of 10 questions related to KM and 4 demographic questions (organisations age, size, type, ownership). The questionnaire was based on a questionnaire found in Liebowitz (2006).

Among surveyed individuals 18 % of them were employed in organisations with up to 10 employees, 31 % in organisations from 10 to 50 employees, 41 % in organisations from 50 to 250 employees, and 10 % of them were employed in organisations with more than 250 employees. 57 % of respondents came from for-profit organisations – companies, 22 % from public institutions (e. g. schools) and 20 % from state administration. Beside, 22 % of respondents were employed in organisations which are up to 10 years old, 12 % in organisations from 10 to 20 years old and 65 % respondents came from organisations which are more than 20 years old.

Statistical analysis was partly performed in the SPSS environment and partly in LISREL. In the first step of the analysis we used linear regression analysis examining cause-effect relationship between independent and individual dependent variables. In the second step of the analysis we performed exploratory analysis using correspondence analysis investigating relationships between relevant KM processes and demographic variables. In the third step of the analysis we tested conceptual model and causal links between the constructs (incentives, KM, organisational performance) using structural equation modelling (SEM) approach and LISREL environment.

2.2. Regression analysis

Since the study does not forecast differences in importance of various independent variables, we used Enter method as a validation method and not hierarchical methods (therefore we introduced all of the independent variables in the model at the same time). First we tested the relationship between KM practices and organisational efficiency and efficacy as dependent variable. Table 1 presents the results of the analysis showing that only one independent variable is statistically significant (knowing locations and sources of information and knowledge). Therefore, for the other independent variables it is impossible to say whether they influence the dependent variable or not. Table 2 presents influences of dependent variables on employees' satisfaction with knowledge management practices in an organisation. Regression analysis shows that it is only availability of information and knowledge which statistically significantly affects the level of satisfaction. Table 3 shows influences on individual performance. It seems that it is only the knowing of locations and sources of information and knowledge that affects individual performance. This is the same variable which seems to influence organisational performance as well.

Table 1: Results of regression analysis (organisational efficiency and effectiveness as dependent variable)

Independent variable	Beta	P
availability of information and knowledge	0,227	0,238
easiness of information and knowledge recall	0,201	0,294
knowing locations and sources of information and knowledge	0,325	0,032
members of working team transfer and exchange knowledge	0,144	0,297
organisation compensates employees for information and knowledge transfer and sharing	0,025	0,865
employees get public recognition for the provision of information and knowledge	-0,048	0,756

Source: Statistical analysis

Table 2: Results of regression analysis (satisfaction with knowledge management in organisation as dependent variable)

Independent variable	Beta	P
availability of information and knowledge	0,330	0,043
easiness of information and knowledge recall	0,307	0,058
knowing locations and sources of information and knowledge	0,155	0,211
members of working team transfer and exchange knowledge	0,124	0,282
organisation compensates employees for information and knowledge transfer and sharing	0,208	0,091
employees get public recognition for the provision of information and knowledge	-0,003	0,981

Table 3: Results of regression analysis (personal efficiency and effectiveness as dependent variable)

Independent variable	Beta	p
availability of information and knowledge	-0,153	0,485
easiness of information and knowledge recall	0,387	0,081
knowing locations and sources of information and knowledge	0,526	0,003
members of working team transfer and exchange knowledge	-0,218	0,172
organisation compensates employees for information and knowledge transfer and sharing	0,032	0,848
employees get public recognition for the provision of information and knowledge	-0,031	0,858

2.3. Correspondence analysis

“Correspondence analysis is a descriptive/exploratory technique designed to analyze simple two-way and multi-way tables containing some measure of correspondence between the rows and columns. The results provide information which is similar in nature to those produced by Factor Analysis techniques, and they allow you to explore the structure of categorical variables included in the table.” (StatSoft, b.d.) With the help of correspondence analysis we tried to find out whether there are some specifics regarding “knowing about locations and sources of information and knowledge” and “availability of information and knowledge” within organisations of different types, sizes and ages (which are actually categorical variables).

Figure 2 is very clear and it shows that availability of information and knowledge and knowing of locations and sources of information and knowledge seem to be better in organisations of state administration and in public institutions; on the other hand the situation related to availability and knowing of locations and sources of knowledge in for-profit organisations (companies) is somehow worse.

Figure 2: Results of correspondence analysis based on types of organisation

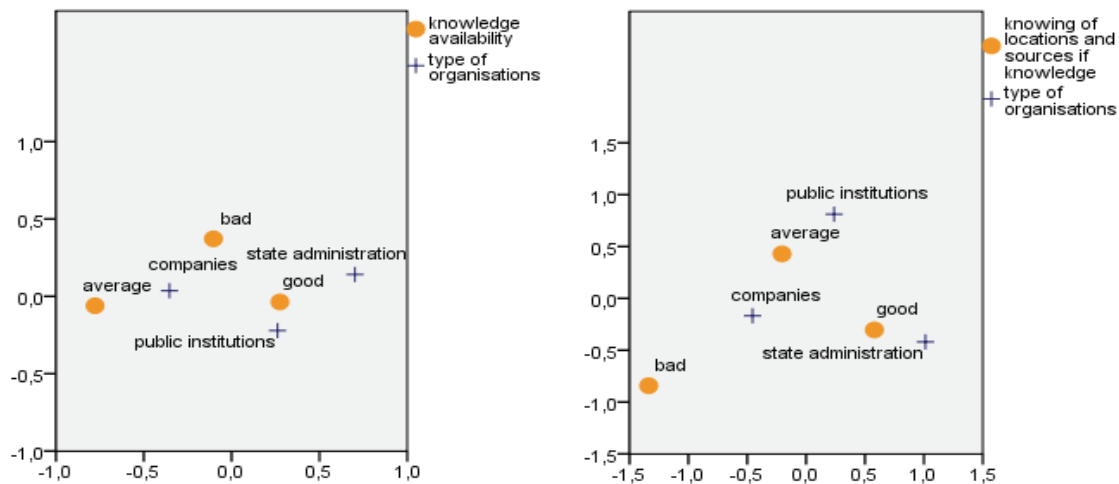
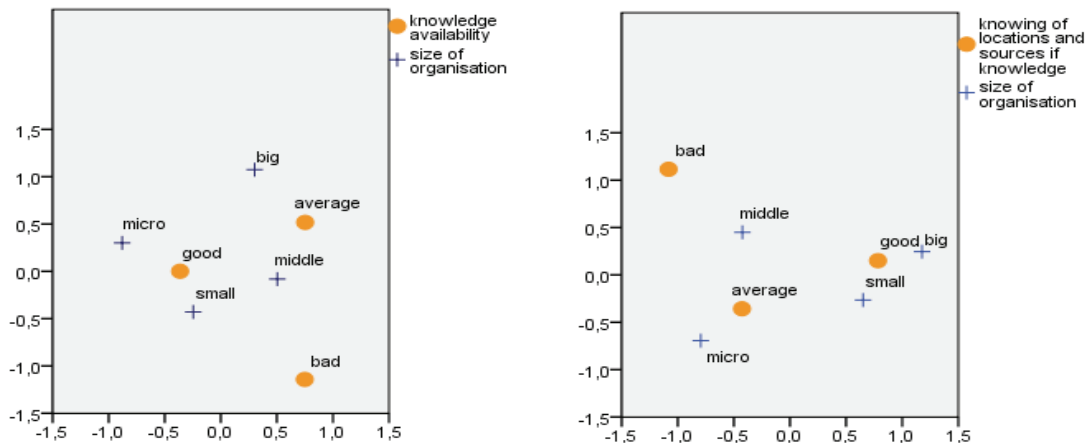


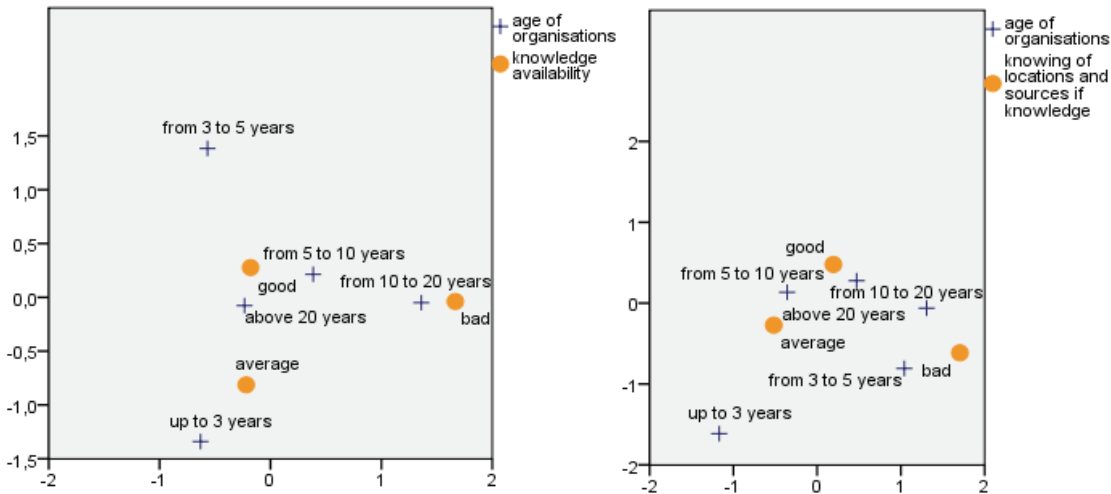
Figure 3 shows results of correspondence analysis for different sizes of organisations. It seems that small organisations (from 10 to 50 employees) allow the highest levels of information and knowledge availability and the best knowing of the sources and locations of knowledge and information. Situation in micro organisations is not very clear since there are only two cases of such organisations in the sample but it seems to be somewhere between average and good. Pretty much the same, a little bit unclear situation applies to middle sized and big organisations. In bigger organisations (above 250 employees) the perception of availability of the knowledge seems to be moderate but perceptions of knowing the sources and locations of knowledge and information are quite good.

Figure 3: Results of correspondence analysis based on organisations' sizes



The situations describing knowledge availability and knowing of locations and sources of knowledge which are presented in figure 4 also show rather unclear relations. For organisations which are up to 5 years old we can't clearly determine the levels of knowledge availability and knowing about locations and sources of knowledge and information. For organisations which are 10 to 20 years old it seems that knowledge availability is quite badly evaluated, but the level of knowing of locations and sources of knowledge are evaluated as quite good. In organisations which are older than 20 years these two issues are also differently evaluated. The best situation regarding availability of knowledge and knowing of its locations and sources seems to be in organisations which are 5 to 10 years old.

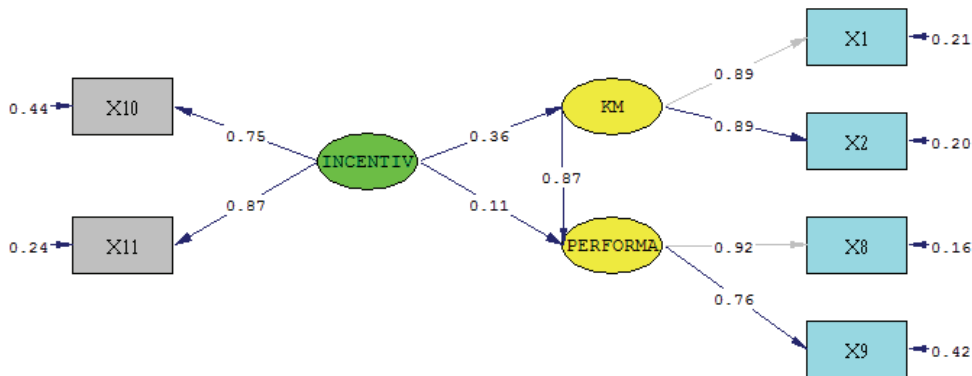
Figure 4: Results of correspondence analysis based on organisation's age



2.4. SEM analysis

Structural equation modelling (SEM) is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. In this analysis we followed the procedure proposed by Koufteros (1999). First we checked convergent validity of the measurement model, its fit, unidimensionality, composite reliability and discriminant validity by using LISREL programme. Afterwards when we were already sure about the acceptability of the measurement model, we evaluated the structural model. Figure 4 presents the structural model with standardised coefficients, indicators and some basic measures of the fit.

Figure 5: Structural model and indicators of measurement model



Chi-Square=5.12, df=6, P-value=0.52843, RMSEA=0.000

As it can be seen from the model in figure 4, each of the three constructs (organisational incentives, knowledge management processes, and organisational performance) is measured with the help of two indicators. These indicators measure variables represented by items in questionnaire. Other 6 variables were eliminated through the process of checking the reliability, validity and fit of the measuring model. Construct “organisational incentives” (INCENTIV) is therefore represented by two of the indicators – (1) organisation compensate employees for information and knowledge transfer and sharing and (2) employees get public

recognition for the provision of information and knowledge. Construct “knowledge management processes” (KM) is represented by (1) “availability of information and knowledge” and (2) “knowing locations and sources of information and knowledge”. Construct “organisational performance” (PERFORMA) is represented by (1) “employees’ satisfaction with knowledge management” and (2) “organisational efficiency and effectiveness”.

Considering the R² coefficients, we have to mention that the structural equations explain 83 % of variance of PERFORMA and 13 % of variance of KM construct. In table 4 we present standardised regression coefficients directly or indirectly linking constructs in the model. We can see than causal link between KM processes and organisational performance is very strong and statistically significant. Direct link between incentives and KM processes is moderately strong and statistically significant as well. Total effect of incentives of organisational performance is also quite strong but it is a consequence of indirect influence through the KM processes.

Table 4: Decomposition effects

path	standardised coefficients (t-value)		
	total effect	direct effect	indirect effect
INCENTIV → KM	0,36 (2,13*)		
INCENTIV → PERFORMA	0,42 (2,52 *)	0.11 (0,98)	0,31 (2,08 *)
KM → PERFORMA	0,87 (6,71***)		

*p<0.05; ** p<0.01; *** p<0.001

3. RESULTS OF THE STUDY

As it can be seen from the results of SEM analysis and regression analysis as well we can confirm H1 hypothesis. It seems that incentives for KM influence conduct of KM processes. The link between these two constructs is moderately strong. We can therefore assume that if organisation compensates employees for information and knowledge transfer and sharing and gives public recognition to the employees for the provision of information and knowledge, the possibility for the KM processes to take place is greater.

We can partly confirm the H2 hypothesis as well. Namely, incentives for KM indirectly, through the KM processes, influence organisational performance. The direct link is statistically not significant therefore we cannot confirm the existence of direct influence.

Our study also confirms H3 hypothesis. We can assume that KM strongly influences organisational performance. The link seems to be very strong and statistically significant. For organisation to be effective is therefore important to introduce mechanisms and routines for enhancing the availability of information and knowledge in the organisation and to spread the knowing of locations and sources of relevant information and knowledge among employees to better perform at work.

Our study gives some additional information about existence and performance of KM processes in organisations of different types, sizes and ages as well. On the basis of correspondence analysis we assume that availability of information and knowledge and the level of knowing about locations and sources of knowledge seem to be better in organisations of state administration and in public institutions comparing to for-profit organisations. Beside, smaller organisations seem to be better in managing KM issues regarding availability of

knowledge and familiarity with the locations and sources of the knowledge. Another important result of the study is also the finding that years of organisations' existence strengthen the processes of making knowledge available and knowing about locations and sources of knowledge.

REFERENCE LIST

1. Becerra-Fernandez, I., Gonzalez, A. & Sabherwal, R. (2004). *Knowledge management Challenges, Solutions, and Technologies*. New Jersey: Pearson Education, Inc.
2. Gold, A. H., Malhotra, A. & Segars, A. H. (2001). Knowledge Management: An Organizational Capabilities Perspective. *Journal of Management Information Systems*, 18(1), 185–214.
3. Holsapple, C. & Jones, K. (2004). Exploring Primary Activities of Knowledge Chain. *Knowledge and Process management*, 11(3), 155–174.
4. Koufteros, X. A. (1999). Testing a model of pull production: a paradigm for manufacturing research using structural equation modeling. *Journal of Operations Management*, 17(4), 467–488.
5. Liebowitz, J. (2003). A knowledge management strategy for Jason organization: A case study. *Journal of Computer Information Systems*, 44(2), 1–5.
6. Liebowitz, J. (2006). *Strategic Intelligence: Business Intelligence, Competitive Intelligence, and Knowledge Management*. Boca Raton: Auerbach Publications.
7. Mitchell, J. & Young, S. (2003). *Knowledge Management and the National Training Framework*. Australian National Training Authority.
8. StatSoft. (b.d.). Correspondence analysis. *StatSoft Electronic Statistics Textbook*. (2011, April 15). Retrieved from <http://www.statsoft.com/textbook/correspondence-analysis/>