Knowledge Management Perception in Industrial Enterprises Within the CEE Region

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Abstract. Smart Cities work with many data collected from various sources. The data are useless unless people know how to process them effectively. The aim of the submitted paper is to find out what the attitudes of the employees working in industrial enterprises in the CEE region are towards the Knowledge Management and it also focuses on finding the means of possible improvements of the Knowledge Management implementation. In the first part, definition and importance of the knowledge is explained for better understanding of the dealing issue. The second part describes our questionnaire survey with sample of 650 respondents. Selected survey results are presented and interpreted in the following section. Main research findings and recommendations can be found in the fourth part. The last part summarizes all previous parts of the article. From the survey results can be concluded that there is a significant relationship between knowledge management performance and the ease of use of knowledge management tools.

Keywords: Knowledge · Knowledge management · Perception · Industrial enterprise · Blue collars

1 Introduction

People use technology in their everyday life. Constant progress in science bring new possibilities for improving way of living. City is a permanent human settlement with boundaries. Smart Cities are results of combination of people, technology and processes that try to effectively solve problems which are developing daily. Data are needed for searching solutions. The large amount of data needs to be processed for further use, changing to information. In the final level, the information change to knowledge which make possible for human to resolve given issues.

In a rapidly changing work environment, organizations face challenges of how to manage their knowledge assets efficiently in order to generate market value and to gain competitive advantage. The focus for knowledge influences almost all parts of the organization such as its strategy, products, processes and ways of the workflow organisation. Thus, knowing what to manage as a knowledge is a critical issue. While having this in mind, it is necessary to distinguish between information and knowledge, between

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information management (IT) and knowledge management (KM). Information can be anything that can be digitised, while knowledge is the capacity to act effectively. This is why our research focused on the perception of knowledge management within organisations in CEE region. When knowing how KM is perceived by management, but the blue collars as well one can approach more efficient ways of applying KM methods and tools to the enterprise processes.

What knowledge should one be managing? This question might seem trivial, but in fact it is quite hard to answer. A trite answer is, "Everything!" But of course if you attempted to capture and collate everything, you would be swamped, information overload would soon set in, and you would not be able to distinguish high-value, reliable, and useful information and knowledge from low-value, dubious knowledge [1].

The knowledge that you need to manage is that which is critical to your company—that which adds value to your products or to your services. Here are some examples:

- Knowledge of a particular job, such as how to fix a fault in a piece of critical manufacturing equipment.
- Knowledge of who knows what in a company, who solved a similar problem last time.
- Knowledge of who is best to perform a particular job or task, who has the latest training or best qualifications in a particular subject.
- Knowledge of corporate history—has this process been tried before, what was the outcome?
- Knowledge of a particular customer account and knowledge of similar customers.
- Knowledge of how to put together a team that can work on a project, who has worked successfully together in the past, what skills were needed on similar projects [1].

In order to manage something you must be able to recognize it. Knowledge does not exist in isolation though. It is not something that can be picked up or locked in a company vault. An important notion here is that knowledge involves the recognition or the understanding of patterns. This involves the creation of mental models, exemplars, or archetypes. When a pattern exists between the information, the pattern has the potential to represent knowledge [2].

However, the patterns representing knowledge must have a context. Data, information, and knowledge can be considered, not as discrete entities, but as existing along a continuum, as illustrated in Fig. 1 [1].

In the field of cognitive sciences, and even more so in epistemology, great deal of research and work has been done to attempt to identify and define knowledge. Unfortunately, in management, we do not know what managerial knowledge really is and even though we have a vague feeling for it, there are few definitions of knowledge within a "managerial" context.

Kim suggested that knowledge is a combination of "know-how" and "know-why." [3] Other authors, including Nonaka, identify different types of knowledge, i.e., tacit and explicit knowledge [4].

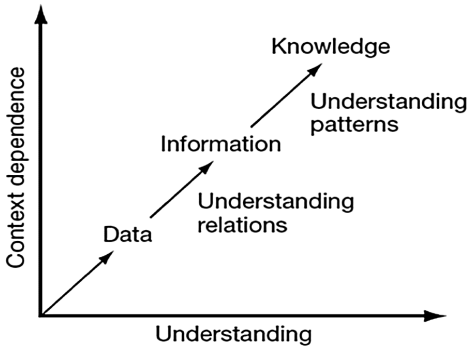

Fig. 1. Relationship of context to understanding [1].

Explicit knowledge, on the one hand, refers to the formal, systematic language, the rules and procedures that an organization follows. This kind of knowledge can be transferred and therefore can be a subject of education and socialization. Knowledge-based Systems also work with explicit knowledge.

Properties of explicit knowledge are following:

- Ability to disseminate, to reproduce, to access and re-apply throughout the organization.
- Ability to teach, to train.
- Ability to organize, to systematize, to translate a vision into a mission statement, into operational guidelines.
- Transfer knowledge via products, services, and documented processes [5].

Tacit knowledge, on the other hand, is mainly based on lived experiences and therefore is difficult to identify and to transfer. Deeply rooted in action, commitment and involvement in a specific context, it refers to personal qualities such as cognitive and technical elements inherent to the individual [6].

Tacit knowledge properties are following:

- Ability to adapt, to deal with new and exceptional situations.
- Expertise, know-how, know-why, and care-why.
- Ability to collaborate, to share a vision, to transmit a culture.
- Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis [5].

The term "knowledge management" is relatively new. Its emergence as a management concept is the result of the recognition of "knowledge" as an intangible yet very valuable corporate asset which needs systematic attention and careful managing in order to get the maximum value from it [7].

According to the Awad, Ghaziri, knowledge management (KM) is a newly emerging interdisciplinary business model that has knowledge within the framework of an organization as its focus. It is rooted in many disciplines, including business, economics, psychology, and information management. It is the ultimate competitive advantage for

today's firm. Knowledge management involves people, technology, and processes in overlapping parts (Fig. 2) [8].

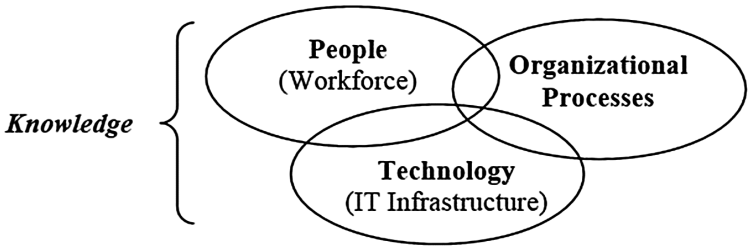

Fig. 2. Overlapping Human, Organizational and Technological factors of KM (own elaboration based on Awad, 2007) [8]

In a simple form, knowledge management means the process of collecting, organizing, classifying and disseminating information throughout an organization. In a wider sense it can be understood as the philosophy and technique of recognizing, increasing and exploiting the organization's intangible assets [9].

Ruggles and Holtshouse identified the following key attributes of knowledge management:

- Generating new knowledge.
- Accessing valuable knowledge from outside sources.
- Using accessible knowledge in decision making.
- Embedding knowledge in processes, products and/or services.
- Representing knowledge in documents, databases, and software.
- Facilitating knowledge growth through culture and incentives.
- Transferring existing knowledge into other parts of the organization.
- Measuring the value of knowledge assets and/or impact of knowledge management [10].

The points mentioned above suggest that the key difference between management and knowledge management is that knowledge management moves management to higher level of effectivity by collecting data from internal and external sources for decision making, applying them to processes, products and services, transfer existing knowledge throughout the whole organization focusing on knowledge growth through culture and incentives. Final step is measurement of the value of knowledge assets and the impact of knowledge management on the enterprise.

For the organization, knowledge management:

- Helps drive strategy.
- Solves problems quickly.
- Diffuses best practices.
- Improves knowledge embedded in products and services.
- Cross-fertilizes ideas and increases opportunities for innovation.
- Enables organizations to better stay ahead of the competition.
- Builds organizational memory [5].

From the previous facts can be concluded that the knowledge management has positive influence on various areas of the enterprise, including strategy creation, problem solving, ideas, knowledge and innovation opportunities improvement. Knowledge management helps organization to compete competition and build memory of the organization for further operation.

2 Research Justification and Methodology

The main purpose of the research is to give us a perspective, whether the employees working in the company have a background about knowledge management problematic and if so, how do they perceive the KM and KM tools. Whether they think it's important to use knowledge management tools, and what is their attitude to using such kind of tools.

We will also test whether they think it's important for them and the company to have a methodology that keeps and spreads the knowledge within the company.

Main reason however is to find the "weakest link" in the industrial enterprise when it comes to knowledge management tools usage. Find whether employees are unable or unwilling to use the opportunities given by knowledge management implementation. These factors need to be identified closely in order to undertake corrective actions that could make them understand and use the possibilities given by knowledge management systems.

Because of the variety of attitudes and possible answers many of the questions in the survey, using the Likert scale and evaluating the questions quantitatively we did not find satisfactory. Therefore we decided to build up the questionnaire to be subsequently evaluated qualitatively. This kind of approach is often more time consuming, but the data obtained is much more meaningful.

2.1 Research Sample

The final survey was carried on in Slovakia and in Czech Republic. We mainly targeted medium (50–249 employees) and large (250 + employees) enterprises, since small enterprises (0–49 employees) are not likely to have knowledge management systems, nor are likely to have the interest to invest in these systems.

The companies participating in the questionnaire were chosen at random, while they had to fulfill two basic requirements:

- To be an industrial enterprise/have an assembly in-house/
- To have at least 50 employees

Companies were from all the regions of Slovakia and two regions of Czech Republic.

The survey was divided into 16 questions out of which 12 were only with one possible answer and 4 had multiple answers possible. In addition 8 of the questions had an opened option available, where the participant could propose his own answer.

Correctly filled surveys were obtained from 144 companies where 650 employees participated. The employees were chosen at random across all the departments and

positions to get the most objective idea about the knowledge management perception within the industrial companies and to identify the hindrances to KM.

3 Selected Survey Results

As mentioned in the previous paragraph, the survey consisted of 16 questions. These were divided into three main groups:

- General questions (age, position, etc.)
- Attitudes towards Knowledge Management
- Weak links in the KM and KM tools

We mainly focused on getting more information about the problems employees face while getting confronted with everyday use of knowledge management tools. Diminishment of these issues could lead to higher efficiency of KM tools.

To retain this article in a reasonable length we choose four most interesting findings from the questionnaire. Some of these questions offered a possibility of multiple choices, that is why the total number of responses may exceed the total number of participants.

30% said that poor knowledge sharing is the main issue related to knowledge retention. 28% said it was reinventing the wheel. 22% said it was the loss of a crucial employee leaving with his experience. 11% said it was the lack of various information. On the other hand 9% said it was information overload.

46% of the employees stated that knowledge creation should come "from the top". 20% said that it was everyone's job to contribute to new knowledge formation. 14% did not have an opinion or did not know. The same amount (14%) said it was the job of R&D Department. Only 6% have chosen other option.

40% said that convincing employees to share their knowledge is going to be the biggest issue while implementing KM. 30% said it would be the lack of KM tools usage by employees. 15% said that knowledge grows faster as it can be captured. 11% said that management is going to be hard to convince about KM implementation. 4% picked other.

26% of the respondents claimed that the integration of KM tools into day to day work is a burden. 25% of them said that lack of training is a common issue. 19% found insufficient communication as a problem. 17% claimed that there is short amount of time to learn. 9% found KM system too complicated. 4% reported other issues.

3.1 Survey Results Interpretation

As one may see from Fig. 3, even in the companies with working KM system the biggest challenge that employees face is the poor knowledge sharing within the organization. This is closely followed by "reinvention of the wheel" which however is usually caused by the poor knowledge sharing. Question number 9, that has not been mentioned in this article showed, that 82% of the employees struggle to get relevant documents or information within the company from several hours up to several days. According to the

survey, this often makes them listless and that could be the main cause of the reinvention of the wheel.

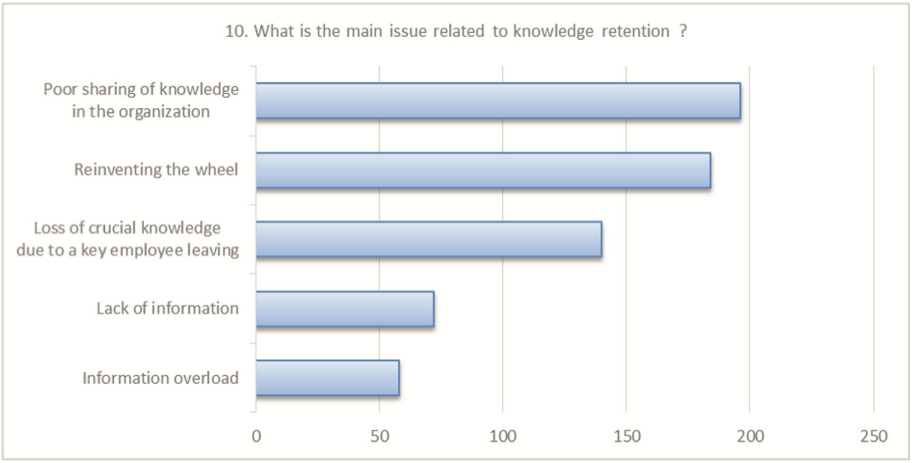

Fig. 3. Distribution of employee opinions about issues leading to knowledge retention

Figure 4 suggests that almost half of the employees participating in the survey believe that knowledge creation is solely the job of the top management. These opinions are imperative to be changed by continuous information throughout the entire company structure, to make employees aware that knowledge creation is to be done from bottom to top and not vice versa. In this question, the employees have often chosen the opportunity to write their own suggestion. Often an idea about having "knowledge owners" occurred. Those would be employees specifically responsible about a tacit knowledge regarding a certain part of the manufacture and production.

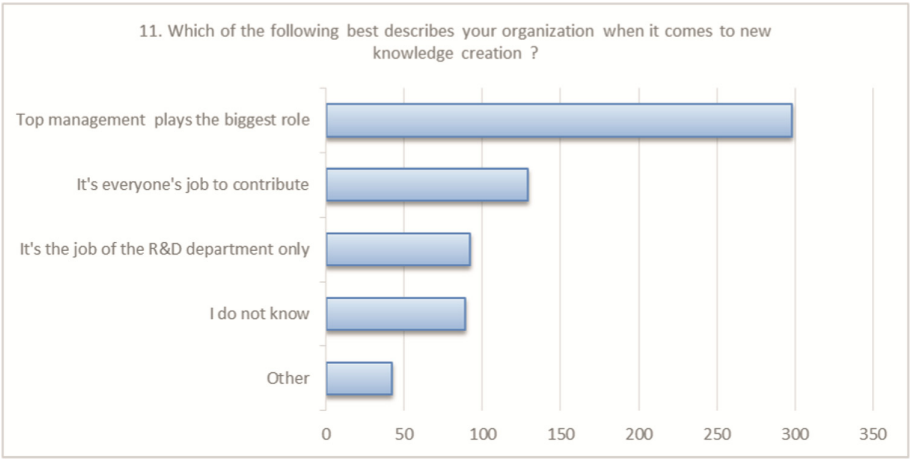

Fig. 4. Distribution of employee opinions regarding the knowledge creation within the company.

Figure 5 shows two biggest issues when it comes to KM tools implementation. The first one is convincing the employees to add their tacit or explicit knowledge to the KM system and the other one is making other people using these information. This is why the main target for the KM tools should be its ease of use and simplicity in contribution. Tools that would meet these requirements would ensure that the access to the relevant data for the employees would be reduced from several hours and days to several dozen of minutes.

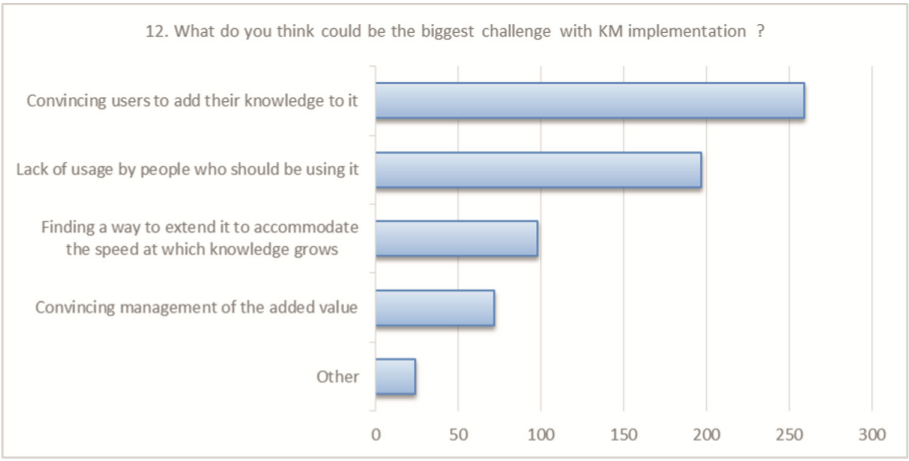

Fig. 5. Distribution of employee opinions about the biggest challenges in KM implementation.

Figure 6 shows the most common problems of the employees that are using KM tools in their daily work. Most often they claim that the tools are complicated and they do not reflect the common practices at the workplace. This might be solved by having the above mentioned "knowledge owner" that employees may refer to with their

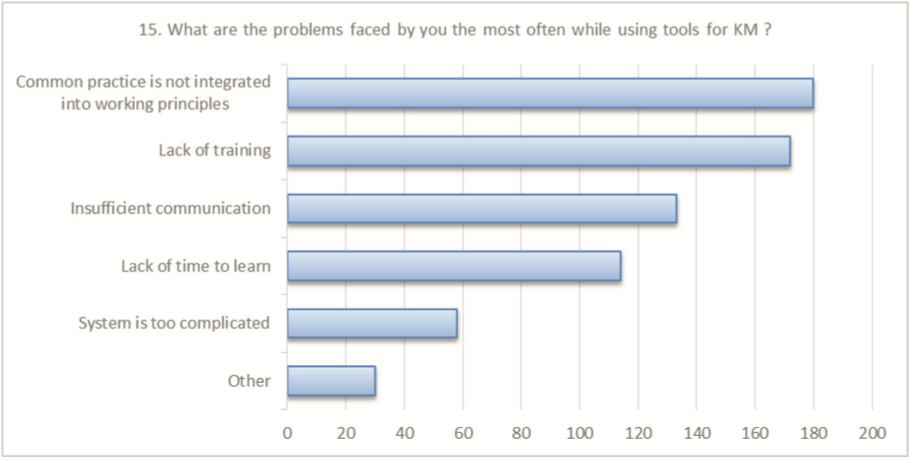

Fig. 6. Distribution of most common problems faced by the employees while using KM tools.

questions or concerns when the knowledge tools would not be clear or they would need an explanation or suggest an improvement.

4 Main Research Findings and Recommendations

Following are the major findings of the study, carried out in Slovakia and the Czech Republic to find the perception of employees working in various industrial enterprises regarding the Knowledge Management:

- Most of the employees in industrial companies have high school diploma followed by employees with university education. Only a tiny fraction has lower or higher education level achieved.
- Majority of the employees are males 31–53 years old.
- The awareness about Knowledge Management systems and tools within the companies could be worked on, since almost 1/3 of the employees did not know about the processes to be followed.
- Getting to the relevant KM tools consumes unreasonably long, that effects the efficiency and quality of the manufacture and other processes.
- Employees meet with seemingly two opposing problems. They experience poor sharing of the knowledge within the organization, but at the same time they experience an information overload with information that often are not too relevant.
- Employees often believe that top management is responsible for knowledge creation. This might mean that the management does not send a proper signal to the employees to contribute to and use various tools of knowledge management.
- Two biggest issues that came out from the survey when it comes to usage and creation of knowledge is that it's either hard to convince people to record they knowledge and on the other hand it's also not easy to convince employees to use guidelines created.
- Employees believe that a well-functioning KM could benefit to less error rates in production and decrease downtimes.
- Often mentioned fact in the open-ended questions was that the KM processes and tools often do not reflect the common practices in their workspaces. They are often not possible to follow with the tools and capacities they dispose with.
- Most of the employees feel that one of the most essential type of information to be captured is the knowledge and experience of the skilled workers.

5 Conclusion

This research has been carried on mainly for the purpose of finding out, what the attitudes of the employees working in industrial enterprises in the CEE region are towards the Knowledge Management. It also focused on means of possible improvements of the KM implementation when it comes to daily use of the tools provided to the employees by KM. From the results of the study it can be concluded that there is a significant relationship between knowledge management performance and the ease of use of KM tools, clarity of knowledge management processes. These variables can jointly predict the

knowledge management efficiency and performance. It can also be concluded from the results, that the knowledge management can become an effective and strategic instrument for achieving organizational objectives. Organizational learning however must depend on every employee contributing and that message needs to be clearly delivered from the top management to the rest of the employees.

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