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THE KNOWLEDGE MANAGEMENT WHEEL

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Abstract:
Knowledge has become a more powerful production factor than any other. Organizations are aware that knowledge is the key dimension which can bring them their competitive advantage. Knowledge management is a systematic approach to planning, actuating, and controlling the knowledge manipulation process in order to achieve the organization's goals. This paper provides a model for knowledge management – the knowledge management wheel that is based on the management process and is close to senior management thinking. The practical application of the model was demonstrated by means of a case study. The implementation of knowledge management is a long-term project and with knowledge as an intangible asset, its usefulness cannot usually be seen in the short run. As in all case studies, the limitation of this research is its context dependency. We believe that the results provide us with the confidence to begin with the next phase of the study, namely the validation and the testing.

Keywords: knowledge management, knowledge manipulation, management, knowledge.

1. INTRODUCTION

The time when muscles shaped the world is long gone. Brains have won this battle. Knowledge has become the most powerful production factor. While knowledge is power, it is only powerful in the hands of those who can use it. In today's competitive business world, more and more companies are aware that knowledge is the key dimension which can bring the company its valuable competitive advantage.

Knowledge management (KM) is a relatively recent development in organizational science. Some even consider it merely a fad. But how can companies improve without learning something new? Organizations and people involved with them must continually learn to increase their knowledge and stay competitive. KM is quickly gaining recognition as a key determinant of value in the marketplace, organizational success, and competitive edge (Geisler & Wickramasinghe, 2009, p. 4). The problem is that there are many different theoretical solutions viewing knowledge management from many perspectives and often considering it to be just a learning process. Knowledge management is practical and action-oriented. Knowledge management relies on recognizing the knowledge resident in people's minds, using technology to facilitate its sharing, to make business processes more efficient and effective. It tries to solve the problem of how to manage knowledge to assure that it will be appropriate, transferred, used, and that it will grow. Like almost every other type of change program, a knowledge management project benefits from senior management support (Davenport, De Long and Beers, 1999, p. 103). For the support of senior management, it is very important that they understand the knowledge management process. The easiest way for them to understand the process is to make it similar to the management process.

The purpose of this paper is to develop a model for the knowledge management process based on the management process and functions. The main goal of this qualitative research is to develop a new applicable model of knowledge management titled the Knowledge Management Wheel and present a case study for the application of this model. The methodology is to integrate various researches in social sciences and knowledge management and to provide a coherent and generic framework for the better understanding of the knowledge management. This exploratory study reviews the literature on management, knowledge, learning, knowledge manipulation, and knowledge management. The application of this model and the results are later shown in the case study of the company Tuš.

2. THEORETICAL BACKGROUND

2.1. Management

In order to know what knowledge management is, we must first know what management is. The managerial process and function does not directly result in products and services. The purpose of management is to ensure the rationality of the business process to achieve the business goals. This is accomplished through the four functions of management that together constitute what is called the management process of *planning, organizing, leading, and controlling* (Schermerhorn, 2010, p. 16).

Management is the attainment of organizational goals in an effective and efficient manner through planning, organizing, leading, and controlling organizational resources (Daft & Marcic, 2010, p. 8). Management is an organizational function and process:

- that makes it possible, due to the technical division of labour, for individual executors separate operations to remain a part of a unified process of fulfilling the business goal (technical definition of management);
- that receives all its tasks and the authority for the execution of these tasks from governance, for whom it is an executorial and trustily body (social definition of management), and
- that executes these tasks that had begun in governance with the help of other people in the process of planning, delegating, actuating, coordination, and control (process definition of management) (Lipovec, 1987, pp. 136–137).

Lipovec (1987) later points out that management, in its content, is coordination and, in its method, it is decision-making. Delegating is a part of organizing, and is, according to Lipovec, already included in the planning of organization, which is actuated in the next phase. Thus, the management process is defined according to its purpose of ensuring the rational achievement of company goals as *planning, actuating, and controlling*. These parts of the management process will also be considered in knowledge management.

2.2. Knowledge

Knowledge can be defined as the factors that have the potential to influence human thought and behaviour and that sometimes allow the explanation, prediction, and control of physical phenomena. This is a very broad definition and includes factors such as skills, intuition, organizational culture, reputation, and codified theory. All factors which are contained within the definition may be placed on a spectrum of knowledge which runs from tacit (uncodified) knowledge at one extreme to explicit (codified) knowledge at the other (Hall & Andriani, 2003, p. 145). Knowledge is sometimes viewed as if it was a concrete manifestation of abstract intelligence, but it is actually the result of an interaction between intelligence (capacity to learn) and situation (opportunity to learn), so it is more socially-constructed than intelligence (Winterton, 2005, p. 9).

Information is important and relevant in the light of knowledge which may be complemented, amended, or changed in the light of new information. Information can be an input into the decision-making process and can be interpreted to justify beliefs; however, it also depends on knowledge to interpret information. From the viewpoint of information technology, data is seen as raw facts, information is regarded as an organized set of data, and knowledge is considered to be information that has been processed in some meaningful way.

Knowledge has different characteristics than all other assets that the company manages, so it also requires a different type of management. These are six characteristics of knowledge that distinguish it from other assets:

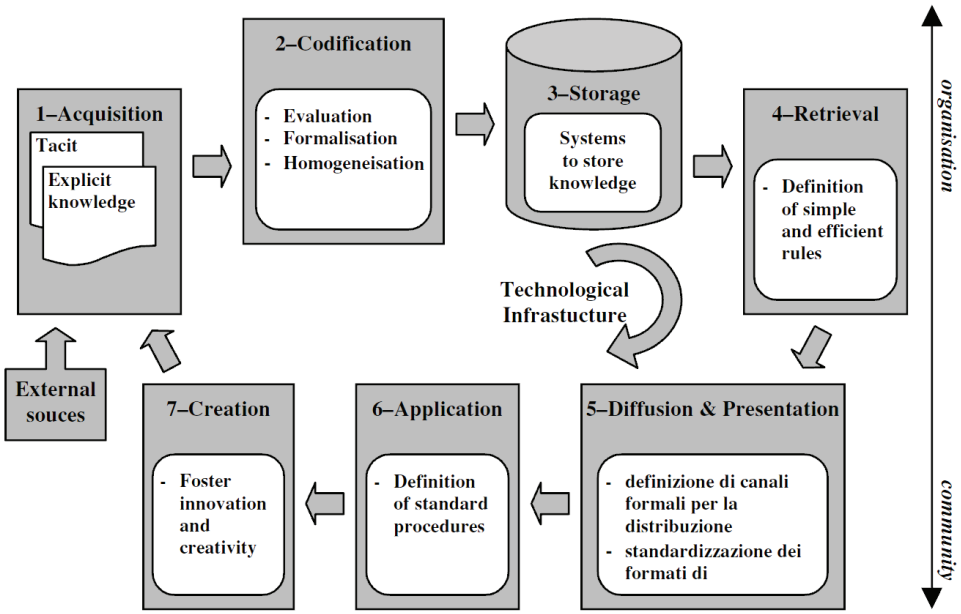
- subjective – the interpretation of knowledge is heavily dependent on an individuals' background and the context in which it is used,
- transferable – knowledge can be extracted from one context and profitably applied in a new one,
- embedded – knowledge invariably resides in a static and often buried form that cannot easily be moved or reformulated,
- self-reinforcing – knowledge does not lose value when shared, its value actually grows when widely distributed,
- perishable – over time, knowledge becomes outdated, especially for an individual organization, and it can be unpredictably volatile,

- spontaneous – knowledge can develop unpredictably in a process that cannot always be controlled (Kluge et al., 2001, p. 21).

2.3. Knowledge manipulation

The knowledge manipulation process is a very important part of the knowledge management process. Most authors call it knowledge management but they are very close to just explaining the learning process in a broader sense. Knowledge management focuses on how an organization identifies, creates captures, acquires, shares, and leverages knowledge (Rumizen, 2002, p. 9). Arthur Andersen and the American Productivity & Quality Center have developed an advance model comprised of seven knowledge management processes. These processes are created to identify, collect, adapt, organize, apply, and share organizational knowledge. It is apparent from the empirical work that the six knowledge processes – knowledge acquisition, knowledge creation, knowledge storage, knowledge distribution, knowledge use, and knowledge maintenance – operate in quantity surveying firms (Fong & Choi, 2009, p. 123). Lettieri, Borga, and Savoldelli designed the seven-step knowledge management process, the knowledge management cycle, in non-profit organizations that comprises of knowledge acquisition, codification, storage, retrieval, diffusion and presentation, application, and creation. The process is presented in Picture 1.

Picture 1: Knowledge management cycle



Source: Lettieri et al., 2004, p. 22.

Definition of knowledge management in the previous paragraph is too narrow and it is much more suitable for the definition of knowledge manipulation. *The knowledge manipulation process includes generation, use, transfer, and reposit of knowledge*.

Knowledge generation, or creation, is the knowledge acquired by a company as well as the knowledge that has developed within it. When considering knowledge generation, usefulness is more important than originality. The transfer of knowledge ensures that knowledge is available to the right people, in the right place, at the right time. Knowledge is transferred orally or through modern technologies. Transfer of knowledge occurs when people are genuinely interested in helping one another develop new capabilities for action. Many obstacles that originate in human relations accompany this transfer. The use of knowledge is

the first and by far the most important thing that the companies must focus on. Only the use of knowledge adds value to the company. The employees transfer their knowledge into products, services, decisions, and actions. The knowledge that is used is more likely to be acquired from learning by doing than from learning by reading, listening, or even thinking. After new knowledge has been identified, an evaluation is needed to determine whether to reposit the knowledge or not. Depending on the type of knowledge, a medium for its repository has to be decided upon. While explicit knowledge can also be kept in documents, tacit knowledge might require packaging in a more indirect form, such as story-telling video.

2.4. Knowledge management

It is generally accepted that knowledge management emerged as a discipline in the early 1990s, fueled by a confluence of computing availability, propagation through consulting firms, and conference promotion (Lambe, 2011, p. 179). The current canonical knowledge management literature almost universally ignores significant antecedents to knowledge management thinking and practice dating back to the 1960s (Lambe, 2011, p. 175).

The great classical theory of knowledge management appeared in a fruitful period of five years. At that time, Wiig wrote a great trilogy on knowledge management, Nonaka and Takeuchi wrote The Knowledge-Creating Company, and Leonard-Barton wrote Wellsprings of Knowledge in 1995. All of them have become the classics of knowledge management. The works from this period continue from Allee's The Knowledge Evolution, Sveiby's The New Organizational Wealth, and Stewart's Intellectual Capital in 1997, to Davenport and Prusak's masterful Working Knowledge and Wenger's Communities of Practice in 1998. Karl Wiig's (1995) overarching framework is based on three pillars and a foundation. Wiig proposes that the foundation of Knowledge Management is comprised of the way knowledge is created, used in problem solving and decision making, and manifested cognitively as well as in culture, technology, and procedures. On this foundation, he situates three pillars which categorize the exploration of knowledge, its value assessment, and its active management.

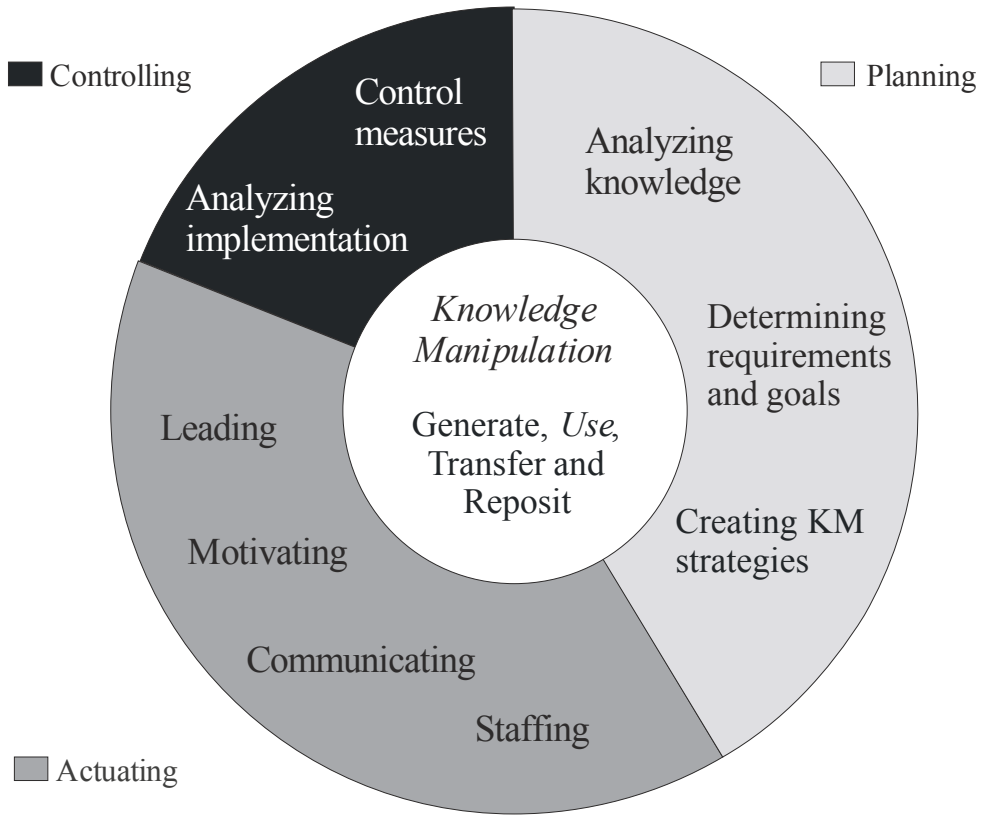
Knowledge management may simply be defined as *doing what is needed to get the most out of knowledge resources* (Becerra-Fernandez & Sabherwal, 2010, p. 4). Mishra (2009, p. 3) gives a more comprehensive definition stating that knowledge management is the deliberate and systematic coordination of people, technology, processes, and organizational structure within an organization in order to add value through reuse and innovation. There are no generally accepted definitions of KM, but most practitioners and professionals concur that knowledge management deals both with tacit and explicit knowledge with the objective of adding value to the organization (Dalkir, 2007, p. 21).

3. THE KNOWLEDGE MANAGEMENT WHEEL

Many different definitions and models of knowledge management exist. In this chapter, a new holistic model is presented that is based on the management process and originates in managerial science. The model is closer to the function of management and therefore close to the thinking of senior management. The knowledge management model named the Knowledge Management Wheel is presented in Picture 2. The outer circle presents the process of planning, actuating, and controlling knowledge manipulation. The inner circle shows the knowledge manipulation process (generation, use, transfer, and reposit of knowledge). Each phase is very important for the success of knowledge management and for the company as a whole.

Knowledge management is a systematic approach to planning, actuating and controlling the knowledge manipulation process in order to achieve the organization's goals. It is the decision-making and coordination of knowledge that makes it appropriate for an organization; it is more than simply a sum of many parts.

Picture 2: Knowledge management wheel



Source: Various literature in the social sciences and knowledge management (Lipovec, Schermerhorn, Lettieri)

Planning is the process of setting objectives and determining how to accomplish them (Schermerhorn, 2010, p.186). The first phase of the planning process is analyzing current knowledge. Capturing and representing knowledge buried in people and an organization are the fundamental building blocks of knowledge management implementation (Sueyon, Suh & Hwang, 2003, p. 34). To identify the current knowledge generators, holders and storage places, a knowledge map needs to be generated to show them in a structured way. Only after knowing what knowledge the company has can it determine what knowledge it would like to have to support their plans. Knowledge requirements are best identified by using the Siemens Knowledge Strategy Process. The Knowledge Strategy Process consists of six basic steps which result in a knowledge management action plan and project plan (Hofer-Alfeis & van der Speck 2002, p. 28). In this process, the company must answer the following questions:

- What is the most significant business perspective for the near future?
- Which knowledge areas are significant for the selected business perspective?
- Which of the key performance indicators used for business apply to the selected perspective?
- What is the current and future impact of the knowledge areas on the key performance indicators?
- What is the status of our knowledge areas and where should we improve?
- What is our plan and how do we monitor our progress?

Strategies are ways from present knowledge to future knowledge requirements goals. A company has to determine the requirements for knowledge, which have to be derived from its strategic and tactical business plan. Strategy must include ways of manipulating knowledge with the goal of satisfying future knowledge requirements with the help of technology and organization.

To start actuating, workers have to be hired, communicated with, led, and motivated. Managing knowledge is becoming the art of management. This means that we do not manage people per se, but rather the knowledge they carry. Staffing, communicating, leading, and motivating are a part of the actuation process. Staffing, which includes the recruitment, selection, career planning and training of employees, plays a crucial role in the generation of new knowledge. With placement and promotion, it is possible to accelerate knowledge transfer, and rewarding is a useful tool for increasing usage of knowledge. Knowledge manipulation is practically impossible without communication. It is very important to remove communication barriers and get as much feedback as possible. Best knowledge manipulation is done with democratic leadership that allows freedom, fairness, and commitment. Workers must be motivated to take part in the knowledge manipulation process. The motivation has to be situation specific. It must offer the employees growth, advancement, responsibility, and achievement.

With control, we try to assure that actuation was in accordance with the plan. To see to that, we have to analyze the implementation and afterwards we have to propose some control measures if the implementation does not go as planned. Measuring knowledge management is not simple. The metrics should be extensively correlated to as many factors influencing the result as possible. Only when metrics is integrated into the current process of measuring the success of performing objectives, will it become an important part. It is recommended that control is in accordance with the stage (introductory, experimental, and institutionalized) in which the knowledge management process is in a certain organization and also with the depth of the analysis.

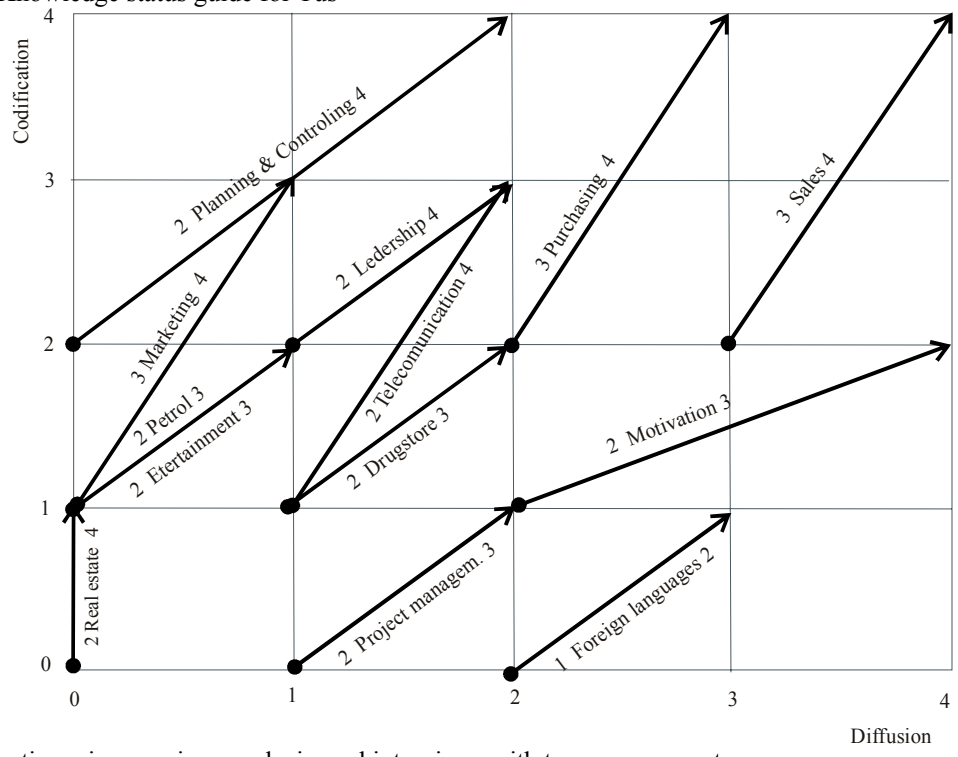
4. CASE STUDY: TUŠ

Tuš is a Slovenian-based holding company that also operates in three other countries. It employs more than 4,500 employees, and has nearly one billion Euros in revenues. Tuš operates in the fields of food retail and wholesale, petrol retail, telecommunication, real estate, entertainment, and the drugstore and restaurant business. The implementation of knowledge management is a strategic goal of the company. The company has started with the systematic implementation of the Knowledge Management Wheel in 2008.

The most important thing in the success of any change is gaining the top manager's acceptance and support. The model was first presented and explained to top management. Their enthusiasm and quick understanding of the model was a great head start for the project. Then, a thorough analysis of the whole company was carried out, including the analysis of its processes, goals, and strategies. After that, a questionnaire was sent to 570 employees (down to the store manager level) to analyze the current status of knowledge, knowledge manipulation, knowledge management, and future demands for knowledge. Based on the questionnaire results, a series of interviews with top management was done to set the knowledge requirements and goals. The result is the knowledge status guide for Tuš, based on the Siemens Knowledge Strategy, which is presented in Picture 3. The number before 'certain

knowledge' represents the present proficiency on the global level and the number that follows it represents the wanted future proficiency.

Picture 3: Knowledge status guide for Tuš



Source: Questionnaire, previous analysis, and interviews with top management

After setting the goals for 2009 shown in Picture 3, the company implemented many different strategies to achieve them. The reorganization of the company, empowerment, the hiring of experts, training, new IT, market research, the exchange of employees with top foreign companies, coaching, adding new metrics to current controlling, making these goals the personal goals of employees in annual goal-setting meetings, and many other things were planned in order to achieve these goals. Management started to communicate more, leadership became more democratic, and people were motivated and rewarded for acquiring, sharing, and using knowledge.

At the beginning of 2010, another set of questionnaires was sent to the same top managers who were interviewed. The result through the company metrics showed that the company's index in the achievement of knowledge goals was 76 and the overall index was 103. In the interviews, 11 out of 15 top managers clearly stated that they saw a positive effect of knowledge management on the results of the company and the remaining top managers had no negative remarks.

5. CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

This paper provides a model for knowledge management that is based on the management process and is close to senior management thinking. The conclusion of this research is that the Knowledge Management Wheel is partially validated and was implemented to generate some practical guidelines to design knowledge management in the company Tuš. The implementation of knowledge management is a long-term strategy for an organization, and with knowledge as an intangible asset, its usefulness usually cannot be seen in the short run.

As in all case studies, the limitation of this research is its context dependency. However, this research will continue through several fronts. On the one hand, there is an opportunity to carry out a review of the implementation of the Knowledge Management Wheel in Tuš in 2011 to see whether there are any new insights concerning the model; on the other hand, it has been agreed to start up this process in two more companies. We believe that the results provide us with the confidence to begin with the next phase of the study, namely the validation and the testing.

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