KNOWLEDGE CYCLES AND KNOWLEDGE MANAGEMENT

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Abstract: *The increasing importance of knowledge for companies come along with the increasing concerns about the way organizations cope with the exponential growth of available knowledge and the increasingly more complex products and processes that incorporate knowledge. Given the importance and impact of knowledge activities on the knowledge-based management, various models, approaches or frameworks require a more analytical approach, centred on how knowledge can be effectively managed. This paper analyses several knowledge cycle models and discusses their importance in relation with the knowledge management, even though it seems to be few models that bring something truly new in understanding knowledge and knowledge cycle activities. That is the reason we chose to address some of these, starting with the first most influential one, the Wiig model, and finishing with a less structured but very comprehensive approach, the Heisig model.*

Keywords: knowledge management, knowledge cycles, competitive advantage

1. Introduction

The knowledge significance for the competitive advantage has been recognized, even though traditional economic theories still ignore the knowledge as an asset [1]. The recognition of the increasing importance of knowledge was followed by increasing concerns about the way organizations meet with the exponential growth of knowledge availability and organizational processes incorporating knowledge [2]. Hence, the knowledge cycle emerges as a concern in knowledge management.

In this context, Drucker [3] and Strassmann [4] emphasized the increasing importance of knowledge as a critical resource for organizations, while Senge [5] argues that learning is a main source for achieving success. Argyris [6], Bartlett [7] and Ceptureanu [8] have examined different dimensions of knowledge processes or activities. The studies of Everett Rogers [9] on dissemination of innovation and the studies of Thomas Allen [10] about the transfer of information and technology have also contributed to the understanding of the way knowledge is produced, used and disseminated within organizations.

2. The knowledge cycle

There are many knowledge cycle approaches in the knowledge-based management related literature. We chose to discuss several of them, the most important ones in our opinion, from the perspective of KM.

Wiig's model

This model, developed in 1993, is characterized by four major phases: "build, hold, pool, and apply" [9].

a. The build phase [9] emphasizes the main activities performed by knowledge workers, such as acquiring, partition, codification, etc. of knowledge, basically

knowledge management activities. Acquiring knowledge means purchasing knowledge, learning from experience, from formal or informal sources, covering both individuals (company's employees) and collective sources (knowledge communities, collective memory of organization, etc.).

b. The hold phase [9] involves knowledge accumulation in various knowledge-based databases, other forms of repositories, making it available to employees by various knowledge tools.

c. The pool phase [9] refers to collective actions to access accumulated knowledge by using networks, IT-based technologies, social interactions, etc., coordinating, assembling, accessing, and retrieving knowledge.

d. The last phase, the apply one, involves capitalizing knowledge, making it possible for the company to achieve profit by efficiently use, sell or profit knowledge it possesses.

Meyer and Zack's KM life cycle model

This model, developed in 1999, focuses on the architecture of information products, where information conceptually includes knowledge. When discussing about information products, Meyer and Zack [10] include all types of knowledge, regardless of their source or form.

The five stages considered by Meyer and Zack are [10]: "acquisition, refinement, storage/retrieval, distribution, and presentation/use".

a. The acquisition stage covers information and knowledge accumulation, the authors emphasizing the need for a high quality of its sources as a prerequisite not to compromise the next stages.

b. The refinement stage further processes knowledge and standardizes it through analysis, interpretation, synthesis, etc. [10]. This stage creates added value in multiple ways: creates usable information and knowledge, allows flexible storage of it, in different formats and on different media.

c. Storage/retrieval is considered crucial because it is seen as the bridge between acquisition and refinement stages and the following stages [10].

d. The distribution stage deals with the knowledge delivery and additional features like frequency and moment of knowledge distribution. The main idea behind this stage is that environment and content are linked to each other.

e. The presentation/use stage covers establishing the value of information in the context of its use. Meyer and Zack [10] assert that the ease of use is as important as the usefulness of information.

Bukowitz and Williams' model

While the previous 2 models were sequential models, assuming that the stages are consecutive, Bukowitz and Williams [11] introduce a cyclical pattern of knowledge activities. This model describes the processes through which there are developed the assets of the knowledge of the organization, of both tactical and strategic importance.

Their model shares common features with Wiig (1993) and Meyer and Zack (1999) models. At the tactical level, the emphasis is on the development opportunities of knowledge arising on the market. At the strategic level, the development of the knowledge assets shall be made taking into account changes in the macro-environment where the firm operates [12], [13].

Processes with which the model operates are:

At the tactical level	At the strategic level
Capture of knowledge Use of knowledge Learning	Generation of knowledge Support of knowledge

The actual stages are:

At the tactical level	At the strategic level
Use Get Learn/contribute	Assess Build/sustain Divest

In assessing knowledge, the authors assert that the effectiveness of using knowledge declined. Hence, innovation becomes a key element in the knowledge activities and, as such, organization must provide tools that foster collaboration and allow knowledge to become an open resource for company's employees.

Furthermore, the build stage encompasses the knowledge availability, making sure it remains rigorous, updated, and ready for use. One of the main contributions of the model is the learn stage, comprising individual learning of employees from their past experiences and organizational learning, through organizational memory.

Heisig model

In 2009, Heisig used an empirical approach based on involving scholar and practitioners in KM to identify most common KM activities. Analysing more than 150 Knowledge Management frameworks and related papers, he identified 165 specific terms related to Knowledge Management and its activities, comprising various approaches to the knowledge cycle. However, Heisig [14] considered many of these terms to be essentially the same, and concluded that KM activities include: "use, identify, create, acquire, share and store" [14], without further explaining them.

3. Conclusions

Given the importance and impact of knowledge activities on knowledge-based management, various models, approaches or frameworks require a more analytical approach, centred on how knowledge can be effectively managed [15].

There seems to be few models that bring something new in understanding knowledge and the knowledge cycle activities. That is the reason we chose to address some of these, starting with the first most influential one, the Wiig model, and finishing with an approach based on a very

comprehensive approach, the Heisig model. However, it is our opinion that any knowledge life cycle should comprise, in one form or another, the following activities:

a) The knowledge identification includes both the organization and the environment. For organizational needs and individual needs (company's employees) different approaches must be followed, but the common thing is to discover the required knowledge with the best price-quality ratio.

b) The learning and knowledge assimilation is made possible by the employees of the company and sometimes by the organization itself [16]. The learning and assimilation of knowledge can take place in a formal manner, through special actions designed and implemented by the company, in an informal manner by eclectic efforts of company's specialists and knowledge officers or in a mixed manner, like in the knowledge communities case. Also, the type of knowledge is important in choosing the most appropriate manner to assimilate knowledge.

c) The knowledge creation is linked with the previous stage because learning is a prerequisite in knowledge creation. Usually, this stage is required when the existing knowledge is not sufficient and/or buying it externally is not possible and/or costs too much. Creating knowledge is widespread in the knowledge-based businesses due to their concentration on permanent innovation and the capacity of its specialists to generate new items.

d) Knowledge acquisition is necessary when knowledge is identified in organizations and/or individuals outside the company, usually requiring money to make it available for the company. The main role in knowledge acquisition belongs to professionals in the departments most interested/involved in the use of that specific knowledge [17].

e) The Knowledge storage must be so designed as to provide easy access,

flexibility for the searching tools, to reduce storage costs and protection of knowledge form third parties.

f) The knowledge sharing is one of the most difficult and complex stages of the knowledge cycle. Capitalizing knowledge and its value depends on the access itself, learning, debating them jointly being made by individuals and departments concerned. Sharing knowledge is achieved both through formal and informal approaches, relating to the actual organizational culture in the organization, setting examples of certain specialists and managers, etc.

g) The knowledge protection is an increasingly more common activity due to the widespread use of the explicit knowledge, especially due to its attribute to be easily multiplied and its storage on electronic documents, making it possible for highly skilled intruders to access it, despite the companies' protective measures. The protection of knowledge must be designed in such a manner as not to hinder the sharing and use by specialists because, otherwise, the knowledge becomes unproductive.

References

[1] Ceptureanu, S.I., Knowledge based economy in Romania: a comparative approach, *Journal of Applied Quantitative Methods*, Vol. 9, No.4, 51-61, 2014

[2] Evans, M., Dalkir, K. and Bidian, C., A Holistic View of the Knowledge Life Cycle: The Knowledge Management Cycle (KMC) Model, *Electronic Journal of Knowledge Management* Vol. 12, No. 2, 85-97, 2014

[3] Drucker, P. F., *Post-capitalist society*, New York: Harper Collins

[4] Strassmann, P.A., Taking a measure of knowledge asset", *Computerworld*, Vol. 32 No. 4, 74, 1998

[5] Senge, P.M., *Leading Learning Organizations: The Bold, the Powerful, & the Invisible*, In M. Goldsmith and F. Hasselbein (eds.), *The Leader of the Future*. San Francisco, CA: Jossey-Bass Inc., 1996

[6] Argyris, C. and Schon, D. A., *Organizational learning II: Theory, method, and practice*, Reading, MA: Addison-Wesley Publishing Company Inc, 1996

[7] Bartlett, C. A., The Knowledge-Based Organization: A Managerial Revolution. In *The Knowledge Advantage*, edited by Dan Holtshouse and Rudy Ruggles. Dover, NH: Capstone US, 1999

[8] Ceptureanu, S.I., Ceptureanu E.G., Tudorache A. and Zgubea F., Knowledge based economy assessment in Romania, *Economia. Seria Management*, 15(1), 70-87, 2012

[9] Wiig, K. M., *Knowledge management foundations: Thinking about thinking: How people and organizations create, represent, and use knowledge*, Arlington, TX: Schema Press, 1993

[10] Meyer, M. H. and Zack, M. H., The design and development of information products, *Sloan Management Review*, Vol. 37, 1999

[11] Bukowitz, W. R. and Williams, R. L., *The knowledge management field book*, Great Britain: Financial Times Prentice Hall, 1999

[12] Ceptureanu, E.G., Survey regarding resistance to change in Romanian innovative SMEs from IT Sector, *Journal of Applied Quantitative Methods*, Vol. 10, No.1, 105-116, 2015

[13] Ceptureanu, E.G., Employee's reaction to change in Romanian SMEs, *Review of International Comparative Management*, Vol. 16, No.1, 77-87, 2015

[14] Heisig, P., Harmonisation of knowledge management: Comparing 160 KM frameworks around the globe, Journal of Knowledge Management, Vol. 13, No. 4, pp. 4-31, 2009

[15] Ceptureanu S.I. and Ceptureanu E.G., Knowledge management in Romanian companies, *Quality- Access to success*, Vo. 16, No.145, 61-66, 2015

[16] Ceptureanu, E.G., Research regarding change management tools on EU SMEs, *Business Excellence and Management Review*, Vol.5, No. 2, 28-32, 2015

[17] Ceptureanu, E.G. and Ceptureanu, S.I., Change management survey on innovative ITC Romanian SMEs, *Quality- Access to success*, Vol. 16, No.144, 62-65, 2014