KNOWLEDGE MANAGEMENT, COGNITIVE CARTOGRAPHY AND VALUE CREATION IN THE ORGANIZATION

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Abstract: From the value of knowledge established in a disciplinary field by more specialists are moving to value theoretical knowledge in terms of utility that a company can hold in terms of a competitive advantage. Knowledge Management has been, to its appearance, an important response to knowledge management and knowledge to the enterprise. He was still lacking in knowledge management and knowledge-level departments and organizational level. Department of Human Resources remains the most involved in the implementation of Knowledge Management approaches, but has difficulties in their implementation, as used do not give the expected results in terms of value creation. The study proposes an inventory of the Knowledge Management difficulties in the enterprise in the process of creation and proposes a useful solution, represented by cognitive mapping. This tool and its methodology promote the emergence of knowledge and enable networking of heterogeneous knowledge. Through the analysis of example an cognitive card is shown the potential but also its limit.

JEL classification: M10, M21

Key words: knowledge management, knowledge assessment, cognitive cartography, human resources, potential

1. INTRODUCTION

The knowledge-based society success depends on intelligence are cultivated. Companies are no longer limited to adaptation and improvement of products and technologies taken from strong competitors, but it creates itself through description and innovation. From the value of knowledge set in a disciplinary field trial based on the contributions of theorists, knowledge evolves towards the utility value that a company can retain in terms of competitive advantage. Such a context claims innovative activities in management knowledge control and of knowledge in the enterprise. Knowledge Management was, by his appearance, an important response to these problems. Its primary objective aims the management of knowledge life cycle, from the emergence of an idea, the formalization, validation, dissemination, reuse and recovery of specific knowledge and creating the conditions necessary for this process to generate value.

Research in the domain of knowledge evaluation started in the early 1990s, when more current were formed, the most important being "Strategic Management", "Intellectual Capital Management,"Knowledge Management" and "Human Resources". The scientific literature and in the leaders climate Knowledge Management has a strategic character, but a study made during 2001 by RH-info pointed that he is still a problem almost exclusively related to human resources function. The context is favorable to this function, which can thus strengthen their role as major player in creating value for enterprise.

Human resources director has difficulty putting into practice the steps of Knowledge Management, as the devices used do not work in terms of value creation. Among the factors that oppose to some convenient results of Knowledge Management we can mention two, which are the most important:

- difficult access to all forms of knowledge available in the organization, especially tacit knowledge, which concentrates a significant source of value creation;

- Knowledge Management databases full of heterogeneous information regarding the shape and quality of their content, making a laborious consultation, comparison and synthesis of information, getting a real added value.

To surmount these difficulties a solution taken into account is the cognitive mapping, which is a suitable tool to study these representations. Through it explicit or tacit knowledge, can be done analysis, comparison and synthesis between heterogeneous representations. After exploring in detail the difficulties Knowledge Management of making explicit knowledge and made them for reuse, the cognitive mapping method will be presented and how it can become a source of value creation.

2. KNOWLEDGE MANAGEMENT AND VALUE CREATION

The results of Knowledge Management cannot be challenged, because they were accompanied by several successful episodes to much more companies such as Dow Chemical, Toyota, Chrysler, etc. Skandia. Today we discuss about the third generation of Knowledge Management, depending on the level of acceptance and penetration in the organizations. The first level reveals its acceptance as a potential management tool, then use in the consulting firms, for the Knowledge Management efforts to become a habit in the enterprises performance. With all these accumulations, Knowledge Management remains weak in managing and evaluating knowledge in knowledge management system, in configuring, in selecting and choosing those which bring the best long term results. Selection involves evaluating Knowledge Management alternatives, chapter in which so far have not achieved acceptable results, due of various kinds of difficulties.

A first group of difficulties relates to the heterogeneity of accessible information and to identification of useful information and was revealed in many relatively recent studies and research (1). They show that there is a multitude of information and information sources in organizations potentially interested, but access to them is difficult for two reasons:

a) Knowledge Management systems accumulate large amounts of information, heterogeneous, where quality does not matter;

b) Collection of information under these conditions is slow and tardy for making decisions.

A study by Andersen in 2000 (2) revealed the following malfunctions:

1) the best option for knowledge was not available at the appropriate time, place and format where appropriate (55% of cases);

2) were repeated the same errors (53% of cases);

3) organization was not aware of important information available (34% of cases);

4) vital knowledge has been lost (32% of cases).

All these obstacles are due to the confusion that exists around the concept of Knowledge Management and rapid assimilation between information and knowledge. In many organizations, knowledge management was understood as a process of collecting information or knowledge / sharing of documents that rely on new technologies of information and communication. Von Krogh, Ichijo and Nonaka signals the main obstacle in the efforts of Knowledge Management is the accessibility of information. Or information are often coded is formats who are not adapted to understanding to those who is exploring the database and seeking to get knowledge.

From this point of view of Knowledge Management steps away from the concept of knowledge management emerged in the 1990s.

But information doesn't mean knowledge. Martins, Heisig and Vorbeck highlight this difference and continuously track during the time of knowledge via information: data and information answer the question who? why? when? where?, while knowledge aims to answer such questions how? what for?.

All these factors can provide problem solving and decision making in the organization, but each requires specific ways total levels: collection, processing and dissemination. Knowledge Management processes must use different forms of collection and dissemination, then there is data, information or knowledge.

Due to the heterogeneity of information that is collected in the organization, plus the limited cognitive capacities of individuals, is unavailable a processing of preliminary data. The simply reading of the documents and research techniques of database through keywords does not provide satisfaction, for sorting, filing and distribution of information is no longer enough. Value is created by the quality of information that have been selected and the structure analysis and how to repay them. Meaning of information depends on the ability to connect them, whatever is their nature.

From this perspective, Knowledge Management most tools currently do not allow a relationship of data to produce value. They process information likely to maintain, to retain knowledge, but not new knowledge, formalized, ready to be shared and analyzed.

Another process to be very well managed structure is related to organizational knowledge. It must distinguish here between fundamental knowledge for formulating and putting into practice their core strategy. Funded effort must focus on these skills to be identified, sighted and collected as a priority.

Major difficulties face the approaches to Knowledge Management in terms of access to tacit knowledge. Works of Polanyi, Nonaka and Takeuchi, Von Krogh, Ichijo and Nonaka revealed the importance of tacit knowledge in organizations and processes that favor their dissemination. Close to experience, skill, intuition and even unconsciously, these are common knowledge in both formal execution of tasks (art glass etc.), as well as in managerial skills, such as a group animation, management of situations crisis, design vision, etc.

The vast majority of useful data to individuals in gain of knowledge cannot be codified or written. This knowledge is distributed through exchange, dialogue, interaction within small groups.

Current information management systems have limited utility in solving some social processes, such as explanation of tacit knowledge. The current Knowledge Management tools encounter the problem of exteriorization and formalization of this knowledge, which can not be studied and transferred as the factual information. From the analysis of best practices in Knowledge Management practices (Mertings, Heisig, Vorbeck, Von Krogh) the enterprise processes to access the tacit knowledge do not go through information systems.

Tacit knowledge transfer is done through a process of socialization specific to communities of practices, small size groups of individuals, who share interests, experiences that are confronted with a series of problems in a particular field and are forced to discuss, to test, to seek new solutions.

As Ehlinger and Chaband point, another difficulty that is manifested in the tacit knowledge is the storage and their sustainability. If their transfer is done within small groups, their capitalization in the organization is more problematic, as outlined by Gery, when he mentions that: "achieve a true enterprise that is learning requires an effort of extracting from tacit knowledge to explicit knowledge and reformatted, used by a third and accessible in a database. This ambitious approach requires more resources, time and facilitators". From this point of view a cognitive mapping can be considered a solution taken into account.

3. KNOWLEDGE MANAGEMENT AND COGNITIVE CARTOGRAPHY

The cognitive cartography concept has been widely developed by Tolman, following his research in animal psychology and theoretical works were made known in Heider and Kelly works. A decisive contribution was to use cognitive cartography had Axelroad, who chose the field of political science. After this procedure many researchers have resorted to this analysis methodology in organizing and management sciences.

Cognitive cartography is a graphical tool that allows modeling representations, beliefs or knowledge of an individual or group on a particular object. The basic principle consists in revealing, stated in an oral or in writing speech, individually or collectively, all the assertions about a given object, and expressing the connections between concepts.

These assertions can thus be schematized like channels composed of concepts linked together to form the cognitive book.

A cognitive book consists of two types of elements, concepts and connections between these concepts. Concepts, called "variable", are elements which can take different values, such as more or fewer customers, increasing or decreasing sales volume, absence or presence of competitors, etc.

Defining the nature of links between two concepts is more problematic and subject to numerous reflections (Cossette, Allard, Poesie, Drucker-Goddard, Ehlinger).

Connections are identifiable, generally by verbs, and may be causal, influence, inclusion, etc. Designing the nature of each connection increases the difficulty of accurate coding and makes difficult the analysis and the comparison.

Research making use of cognitive cartography have shown also the purposes for which it was used, respectively support decisional process, communication and transmission of ideas, foreseeing, anticipating the behaviors or even facilitate the transition from "practical consciousness" to "discursive consciousness" (Allard-Poesi).

Knowledge is not limited to a data, a fact, but is rather a book, a board of information about an object, processed and connected to each other. One of the criticisms that are made about the current Knowledge Management tools is related to their inability to propose uniform formats and in processing information to synthesize different knowledge present in an organization.

By using cognitive cartography can be schematized similar form speeches resulting from and presentations texts of various forms. The cognitive cartography is a homogeneous unit of analysis, which besides including data and information, help to establish connections and get a graphic representation of a body of knowledge. Thus it becomes possible to make comparisons between synthesis and heterogeneous corpus of information, relationships and concepts highlighting the most significant of these representations and obtaining added value for a flux of undifferentiated information.

Besides these valences, the cognitive cartography reveals logic of action and can be used for operational purposes as meeting data is done according to their causality and influence, sometimes pointing and binomial means / objectives. Edrinsson, vice president of a subsidiary of Skandia AFS group underscores a pedagogical purpose of the cognitive cartography. Becoming a support of discussion and exchange, cognitive cartography allows the representation of different individuals or members of a group and detects the causes of perception differences and understanding of an object. By encouraging debates and discussions cognitive cartography allows explicit of knowledge. If the analysis is limited to a documentary or a structured analysis of size, the cognitive cartography doesn’t have access to tacit knowledge, which can occur only when there are interactions between individuals, when they have to argue, discuss, and seek solutions to various problems. Only in such a context of interaction the cognitive cartography help to structure thinking, to communicate or, as Audet highlights, to facilitate the transition from consciousness to the dynamic practice. In other words, it allows the subject to state practice that until then remains as tacit knowledge, and to discuss ideas that is browsing.

Besides Axelroad’s research, Eden's research on cartography program Decision Explorer is placed, also in a process of clarification of tacit knowledge. Rhodin's works have illustrated this process of clarification of tacit knowledge through a three step approach:

a) construction of a cognitive cartography for each individual of the group;

b) confronting the various individual charts,

c) construction of a collective charts.

The participants to its experiments revealed that his method allowed the explanation of some misplaced items for the speech that seemed obvious, but which were not expressed explicitly, or discover more things, a better understanding and ability to redeem better thinking.

4. AN EXAMPLE OF A COGNITIVE BOOK IN APPROACH TO KNOWLEDGE MANAGEMENT

Data collection for the preparation of cognitive cartography was performed after an unstructured method, by analyzing a successful article "Veil Magazine" no. 45/2001. Coding methodology was based on works of Wrighston, Huff, and Cossette and authors Lankkanen Ehlinger and Chabaud. When studying the article, at first reading all assertions have been identified that could be encoded, and then it was returned the assembly of relations aiming the order of text and keeping the original vocabulary under the next form:

Concept that influence or cause the nature of connection (+, - or?) ⟶ *Influenced concept or effect*

It came then the merger in terms of standard concepts, subject to very strict rules: it assigns concepts formulated in a different vocabulary, but with similar content, an identical specification. Although through the action is giving up a part of the initial wealth of discourse, this phase is essential to achieve a comparison of considerable large data that represent more cognitive charts.

The final stage is the actual construction of the chart, handmade because the small number of data processing, which is less than fifty variables. If the approach is more intense, you can use more specialized computer programs on the market, most notably CMAP2 and Decision Explorer. The chart can be presented in graphical form as a matrix. The latter form facilitates the analysis and mathematical and statistical comparisons. Charter presented in Fig. 1 is centered only on the concept of Knowledge Management, and was generated, starting from maintenance designed starting from a newspaper article written with a targeted, more specific and supported by a consultant.

Thus chart concentration around Knowledge Management concept may be essentially related to a process of rationalization of speech on writing support.

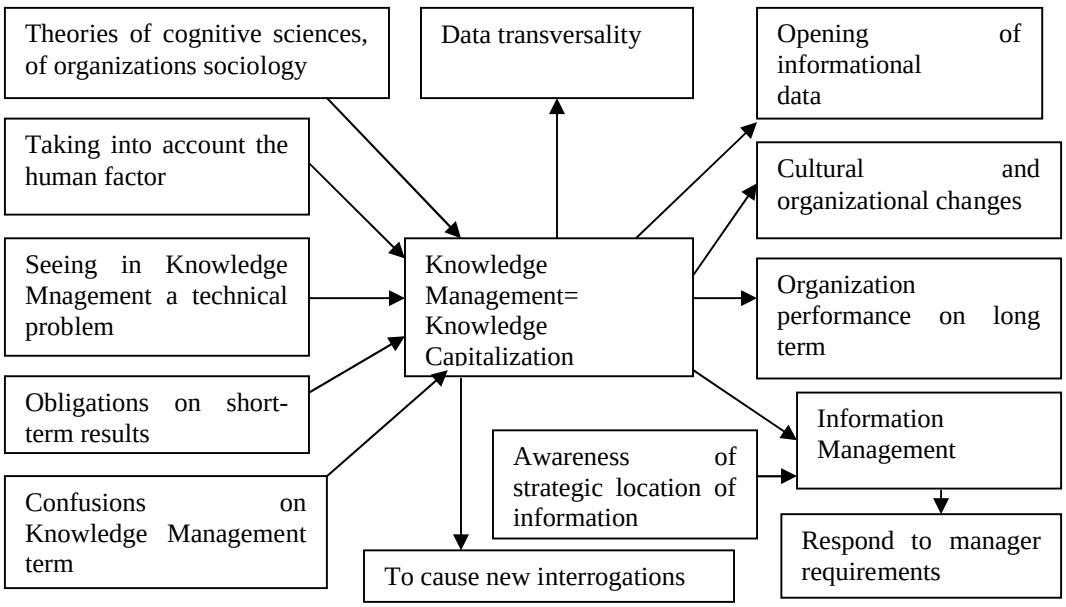

Fig.1.Cognitive Chart for entity Distribution, Transport and Tourism of Cap Gemini Ernst &Young

Extract from the following speech:

"People share information through meetings. There are meeting minutes, but then these meeting minutes do not hold anyone to make them live". "Should therefore take all this information, identify a formatting and a technology that could allow the existence of this knowledge."

Has been codified in "natural language"

Finding a formatting of the information contained in minutes of meeting	(+) to do exist knowledge contained in meeting minutes

Which gives after the merger (in standard terms):

To create a form of collective information	(+) to transfer knowledge
Teaching tehnology	(+) to transfer knowledge

Under standard term "to create a suitable format for collecting information" have been merged these concepts (natural language):

- to find a formatting information for "meeting minutes";
- to define a simple template for the information;
- to create information-processing formats;
- to define trainers;
- to find an interesting template for people;
- to find templates that people will be obliged to use them in their work.

5. ADVANTAGES, DISADVANTAGES AND LIMITATIONS OF COGNITIVE CARTOGRAPHY

Regarding the use of cognitive cartography, the 12 MANAGE group, The Executive Fast Track mention its main strengths, namely:

- simplicity; ease of use it;
- visuality; easy to remember;
- radial layout; cognitive cartography allows to operate in all directions;
- synthesis; provides an overview and links between questions.

The limits of such a tool were highlighted by Allard-Poesi, Drucker-Godard, Ehlinger, who remember that he is just an imperfect and oversimplified graphic representation of the mental representation of the subject:

- filter associated with the production discourse (written or oral) and difficulty of subject to retransmit its deepest exact representations;
- filters about the context in which speech register;
- filter arise from the reconstruction work of researchers;

6. CONCLUSIONS

Using cognitive cartography in Knowledge Management in the enterprise has nothing in common with the progressive use of Knowledge Management IT solutions

available on the market. While programs can be used by a relatively automatic manner and on a large scale, cognitive cartography is more controlled and only applies to small work groups. Experiences developed in the enterprises with interests in the area have shown that knowledge management is better applied if there is a documentation database open to all.

Keys to success of a Knowledge Management approach consists of developing ad hoc solutions that meet not only the demands of each organization, but also the specific needs of groups of actors united in interest centers identified and adopted.

While current Knowledge Management processes have a technological nature, cognitive cartography process is based mainly on individuals and the human dimension of knowledge and allow taking into account management process. This way you get a better perception of Knowledge Management and its development more effectively.

It is thus conceivable that the structure of human resources must be located in the center of aiming Knowledge Management, as it may interfere with this process in two directions:

a) the position of intern consultant: design methodology, involving training, organization and animation of the pilot groups, so that will have appropriate and external operational directions;

b) human resources specialist position: motivating individuals to participate in the process, identification of individuals with time and knowledge to enable operational directorates carrying a Knowledge Management process adapted to organizational and individual requirements.

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Key words: critical; creative thinking; problem solving; accounting researches (minimum 5 key words, style 4_ANEC keywords)

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3. METHODOLOGY

The present study is based on the secondary data. In this regards, Neuman's (1997) document analysis is very useful for systematic analysis of a particular topic. Therefore, data were collected from published and unpublished materials, books, newspapers and ongoing academic working papers. The collected data may be processed and analyzed in order to make the present study useful to the readers, interested parties and policy makers of the concern area.. (style 6_ANEC Text)

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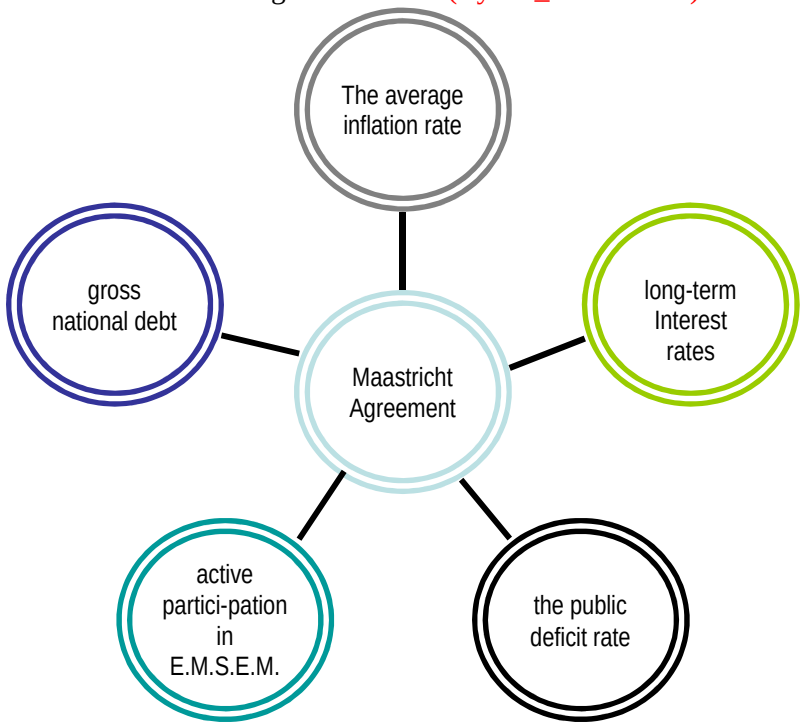
4. ANALYSES

Critical thinking, and its closely related concept of creative thinking, means different things to different people. The situation makes the specification of generally agreed upon definitions of critical and creative thinking difficult. Nevertheless, there are several common clues that can help define these concepts. In this section, these concepts are defined and their differences are identified. The analyses of findings have been discussed under the following sub-heads. . (style 6_ANEC Text)



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4.1 Critical (Style 6_ANEC SubSubtitle)

Critical has its root in the Greek word Kriticos, or critic, that means to question, to make sense of, to analyze, and to form judgments of the merits, faults, value, or truth of a matter. It is by questioning and analyzing that you can examines your thinking and the thinking of others. Because of this questioning and analyzing, the word critical is sometimes confused with the word criticize, which is to find fault with. This confusion results in a negative connotation for the word critical, but this is not the purpose of critical thinking. The word critical in critical thinking is used in a more constructive manner. It is used for making sense of and for analyzing for the purpose of developing a better understanding. . (style 6_ANEC Text)

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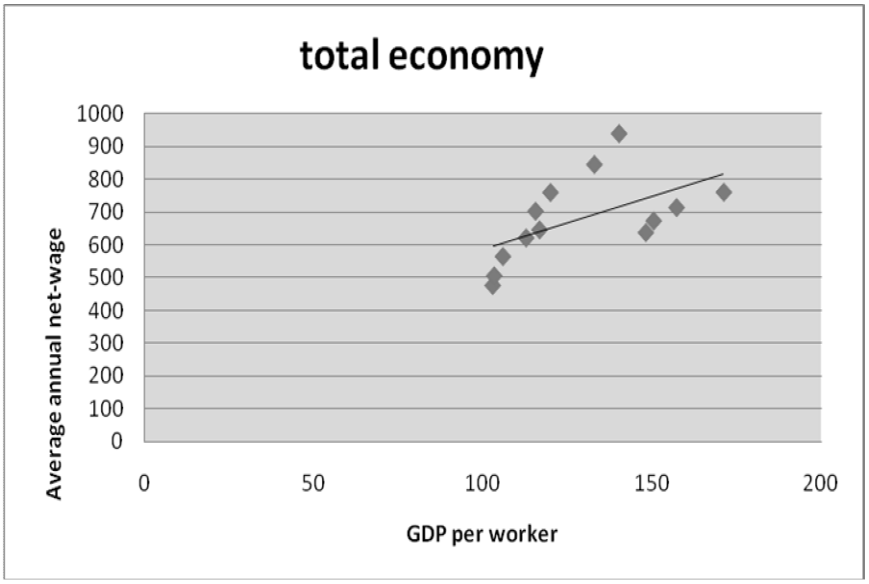

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5. CONCLUSIONS

Critical thinking is an active and purposeful thinking process that is required to perform contemporary accounting and auditing tasks. Several task characteristics (e.g., task novelty) were identified as those that require critical thinking. It was also noted that several action- oriented attributes such as meaning imposition are necessary to understand the tasks and to perform them effectively.

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