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STRATEGIC KNOWLEDGE MANAGEMENT: A CONCEPTUAL FRAMEWORK

ROBERTO CAMPOS DA ROCHA MIRANDA

Universidade de Brasília, Brasil

Instituto de Educação Superior de Brasília, Brasil

SELY MARIA DE SOUZA COSTA

Universidade de Brasília, Brasil

A conceptual model of Strategic Knowledge: Management (SKM) is presented as the main result of a research concluded in 2004, which aimed to develop a conceptual model of SKM. Thus, this paper, complete its model and establish the difference between Strategic Knowledge Management (SKM) and Knowledge Strategic Management (KSM). Using the inductive and deductive methods simultaneously, the methodology consisted of integrating general models of knowledge management with different strategic perspectives. Results seem to indicate a new topic of study in the organizational context, bringing together Business, Information Science and Psychology. In this regard, the model built up comprises three basic parts, namely: management features, kinds of knowledge and strategic issues. The research results point out the difference between SKM and KSM, based on its essence.

1. Introduction

One of the most important things in any theory is to establish the concepts and definitions, in order to build up a framework from which it is possible to propose a new model. That is the aim of the piece of research reported in this article. It has been observed that, although there are a number of papers about Knowledge Management - KM, the concept of knowledge is approached in a general way. Topics appear to be looked at as a great landscape where it is possible to identify a range of ways to cope with knowledge, from a specific aspect of knowledge to the way of creating knowledge itself. Both and all are important. But the point seems to be: which is the knowledge that really interests us? And also, how do we manage that? These questions constitute the basics of this article. The focus is to discuss the difference between Strategic Knowledge Management - SKM and Knowledge Strategic Management - KSM. In a second way, an integrated, threefold SKM model - in the sense that it comprises a conceptual, quantitative and systemic versions - is presented.

2. Theoretical Framework

It is important to present the basis of the SKM Model in order to understand its complexity. Likewise, it is also important to highlight the fundamentals of the study about Strategic Knowledge Management, which involves three major aspects:

- Strategy, focusing on strategic perspectives;
- Knowledge, evaluating different views of knowledge such as tacit and explicit, as well as individual, group or organizational knowledge; and,
- Management, involving the practice and the evolution of studies about Information Management — IM and Knowledge Management — KM.

2.1 Strategy

Porter (1996) considers strategy as the creation of a unique position to an organization within its environment. When an organization develops a group of activities differently from its competitors, or when it has similar activities performed in a different way, it can get a unique position. In this case, strategy is something that makes an organization to become different and special by:

- Offering a unique product or service; or,
- Acting differently from its competitors in the market.

Choo and Bontis (2002) see strategy as the “outcome of organizational sense- making, knowledge creation, and decision making”. In this paper, strategy is defined as an action, based on information that leads to creativity, originality and innovation. This action allows an organization to be unique in its market. An organization becomes different from the others when it has an exclusive process, a unique product or service to offer or when it explores a specific market (Miranda, 1999).

- Whittington (2000) establishes four perspectives through which strategy can be looked at:
- Classical: strategy is seen as a long term rational process;

- Evolutionary: the future is mutable yet not predictable. Then, strategy must consider the maximum effort for an organization to survive in a specific moment; Procedural: strategy is defined as an emergent process of learning and adapting; and,
- Systemic: strategy is an outcome of a sociological sensibility. In other / words, the development of strategies must consider the social environment.

2.2 Knowledge

The knowledge conception in this paper is based on Nonaka and Takeuchi' work (1997) that comprises an epistemological dimension and an ontological dimension. The epistemological dimension involves two different kind of knowledge: tacit and explicit. Tacit knowledge is a difficult knowledge to be expressed in words, and it is formed by the intuition, insights, job experience and so forth. Explicit knowledge is related to the whole body of knowledge already expressed in books, journals, proceedings, repositories etc.

- In the ontological dimension, Nonaka and Takeuchi (1997) classifies knowledge in four categories, as follows:
- Individual, the process of generating knowledge by a person;
- Group, the process of create knowledge trough the interaction of a specific group of employees in organizations;
- Organizational, the process involving the total body of knowledge created in a organization, and,
- Inter-organizational, when two or more organizations share knowledge create a new knowledge.

The discussion about SKM includes both classifications.

2.3 Strategic Knowledge

It is important to add the knowledgeable perspective to Whittington's classification, in which strategy is seen as an outcome of the strategic knowledge created in organizations. Strategic knowledge is defined as a kind of organizational knowledge that involves wisdom, which, in this sense, is,

concerning with planning, describing, predicting, evaluating and generating strategies. Likewise, strategic knowledge comprises two major dimensions:

- An explicit knowledge dimension that involves strategic and non-strategic information; and,
- A tacit knowledge dimension, which involves experience, skills shared and built up by strategists and decision makers in the strategic formulating process and the strategic decision process.

2.4 Management

The term management in this paper refers to both information Management - IM and Knowledge Management - KM. Each one is involved with information (with emphasis on explicit knowledge) and knowledge (emphasizing tacit knowledge). Information Management is seen as an application of management principles to acquire, organize, control, disseminate and use relevant information to all kinds of organizational function, with effectiveness (Wilson, 2002).

On the other hand, Skyrme (1997) approaches Knowledge Management as an explicit and systemic way of managing crucial knowledge as well as the processes related to create, acquire, organize, share, use and explore knowledge. This involves a personal knowledge transformation into corporative knowledge, which can be widely shared and applied within the organization.

SKM uses techniques, methods and tools both the IM and KM approaches. The concepts of strategy, knowledge, strategic knowledge and management described above are depicted in figure 1, which shows how the concept of strategic knowledge management has been built up.

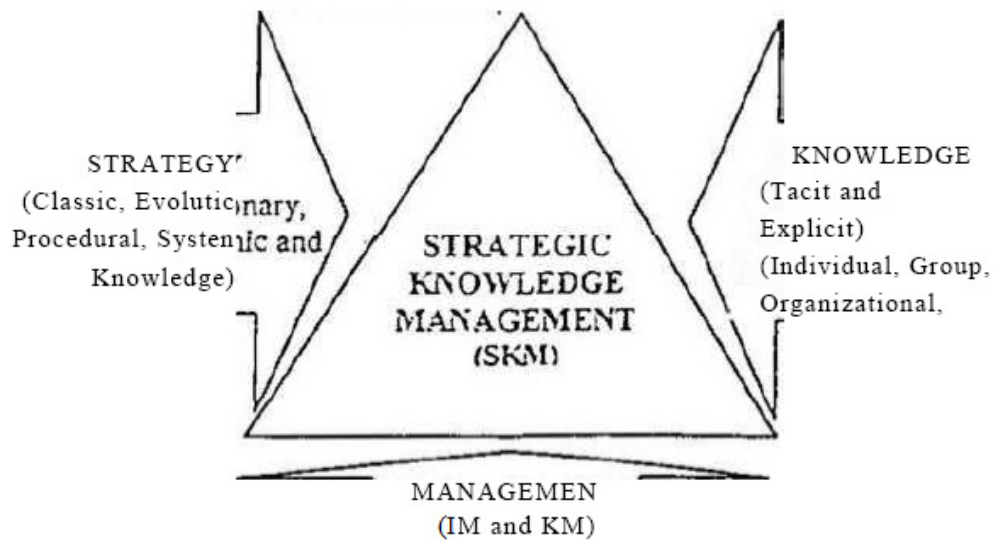


Figure .1 - SKM Major Embedded Concepts

3. Comparison of two Kinds of Knowledge Management

The literature about Knowledge Management discusses both Strategic Knowledge Management - SKM and Knowledge Strategic Management - KSM as if they were the same concept. Nevertheless, it may not be the right approach according to five basic points.

Firstly, there is the kind of knowledge involved. KSM takes into account all kinds of organizational knowledge. It also aims to manage knowledge strategically that is, to consider knowledge as a strategic resource in all its aspects. On the other hand, SKM deals with a small, but very important, part of organizational knowledge, concerned with both strategic formulation and strategic decision.

Secondly there is the focus. KSM is concerned with how to manage knowledge to support any kind of decision, at each organizational level. SKM, on the other hand, has its focus on two major organizational aspects, which are supporting strategic decisions and formulating strategies. Formulating strategies, in its turn, involves case studies, strategic advisors and strategic action databases. In this context, case studies constitute the description of situations about strategies adopted in organizations and their impact. Internal experts in strategic affairs as well as information providers are examples of strategic advisers. Strategic action databases are repositories that contain

records about strategic actions and strategic (and non- strategic) information, establishing links among them. SKM allows an expert to identify fundamental interactions between a specific kind of information (technological, legal, social, political etc.) and the strategic action adopted (Miranda, 1999).

Thirdly the process involved in both management methods has to be considered. KSM deals with any relevant process that impact organizational knowledge. SKM focuses only on two processes:

- Strategic Formulation, the process to develop strategic thought. It is an outcome of five cognitive processes, namely diagnosis, evaluation of options, selection, decision and implantation. It is influenced by a number of factors such as organizational structure, internal policies and power, organizational culture, and emotions. In other words, it is a process that takes place before strategic decision process does. Strategists are the most responsible actors in formulating strategies.
- Strategic Decision, the interaction between strategic objectives and strategic actions. The decision maker's cognitive boundaries, problem complexity and conflicts amongst decision makers influence it. In other words, it is the decision about how strategy should be adopted is an activity performed by a formal authority in an organization.

Fourthly is concerned to agents embedded in process of managing knowledge- KSM considers any decision makers, managers and employees that take part in the whole process of managing knowledge. SKM center the attention in two principal agents:

- Strategists, organizational professional without decision authority, which uses strategic knowledge to formulate strategies.
- Strategic Decision Makers, Chief Executive Officer, which has formal authority to select the best strategy to a specific situation. Both, strategists and strategic decision makers, can be classified in two groups:
- Experts are strategists or strategic decision makers that have large experience in strategic subjects. In this case, the emphasis is in

strategies and strategic actions adopted by the organization. They tend to use more tacit knowledge in their jobs.

- Novices are strategists or strategic decision makers that do not have experience in strategic subjects. They tend to use more explicit knowledge in their jobs.

The last principal difference refers to systemic factors. Those factors interfere in the results of management process. Generally, leadership, internal culture, technology, knowledge measure tools and employees benefits are factors that make KSM easier. SKM, in its rum, considers the following factors:

- Cognition is a factor concerned to mental process, experience, judge ability and other features that establish an individual performance pattern of strategists and strategic decision makers.
- Technology is a factor that interferes in the infrastructure of SKM. This factor is related to any Information and Communication Technologies — ICT used to support strategic formulation process and strategic decision process.
- Organizational Culture is a factor related to values and believes shared by employees in organizations. It represents the “way of life” of the organization. Motivation level of employees, formal and informal communication, environmental features, turn over, shared experience/knowledge/values are included in organizational culture factor.
- Managerial Style is a factor that includes strategic decision makers’ leadership, organizational power structure and clear proposition of values and objectives.
- Context is a factor that involves subjects concerned to internal and external environment of the organization. It is important to define the timing and opportunity to adopt specific strategy in an organization.

A summary of the differences between SKM and KSM is shown in Table 1.

Table 1 – SKM x KSM

Topic of Comparison	Strategic Knowledge Management (SKM)	Knowledge Strategic Management (KSM)
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Kind of Knowledge	Only strategic knowledge	Any organizational knowledge
Focus	Knowledge involved with the strategic formulation and the strategic decision	Organizational knowledge used support any decision makers
Process	Only strategic formulation process and strategic decision process	Any process in organization
Agents	Strategists and strategic decision makers	Decision makers, managers, employees in general
Systemic Factors	Cognition, context, technology, organizational culture and managerial style	Leadership; culture, technology, knowledge measure tools and employees benefits

4. SKM - Proposal of Model

A clear understanding of what SKM is implies to present three models:

- A conceptual model shows the main elements involved, as well as it gives a theoretical support to build SKM;
- A math model shows the relation among systemic factors and it allows to measure the performance of a SKM program implementation; and,
- A systemic model shows all integrated systems that take part in SKM.

4.1. Conceptual Model

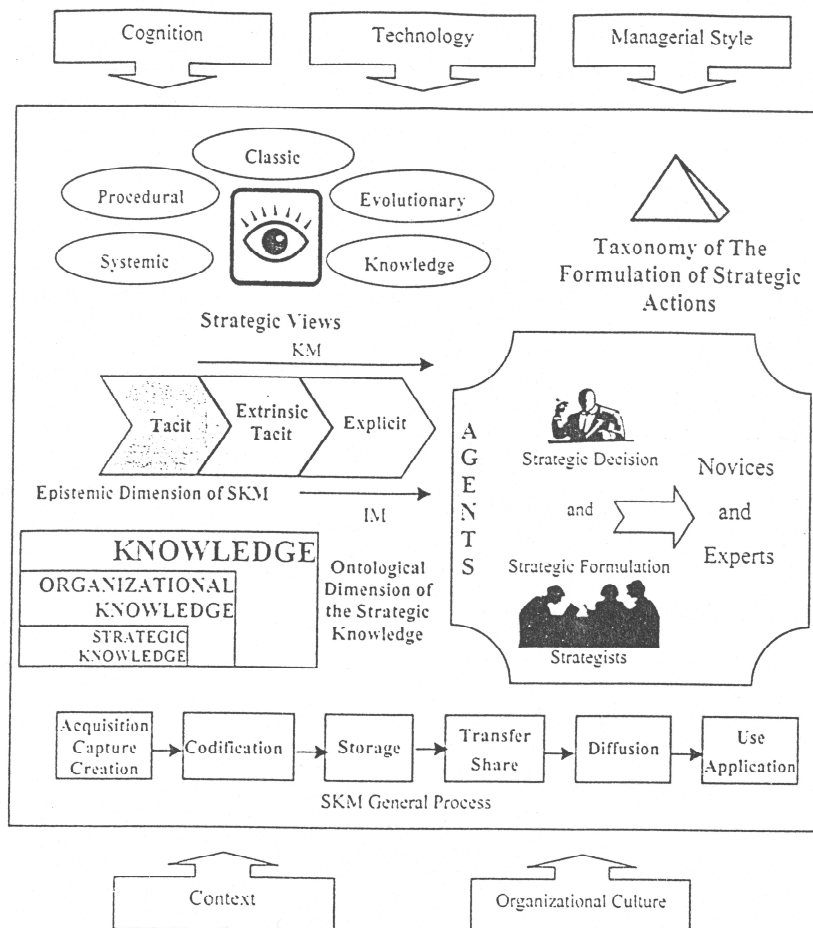
The conceptual model of SKM can be seen as a wide and synergic vision of many factors, elements, agents and process involved with the bottom of the strategic knowledge. The first point to consider is the ontological dimension of knowledge. Strategic knowledge is a particular kind of organizational knowledge and, consequently, part of Human Knowledge.

The second point is the epistemic evaluation of the strategic knowledge. In one side, there is Information Management treating the explicit strategic knowledge; on the other one, there is the Knowledge Management leading the extrinsic tacit' knowledge. Other view of SKM considers the strategic perspectives and it involves: classical, evolutionary, procedural, systemic and knowledge perspective. The link between

knowledge and strategy is made by the taxonomy of strategic formulation (Miranda, 1999). The results are evaluated by the strategic actions adopted.

A fourth vision is the process. The process of SKM begins with acquisition/capture/creation of knowledge. It is followed by codification and storage process, and the transfer and shared of knowledge. The diffusion of strategic knowledge between strategists and decision makers, as well as the use of this knowledge to formulate and decide strategically, finish the process.

Finally, it is important to mention the systemic factors interfere on SKM. They become easier or harder the process. Those factors are: cognition, technology, organizational culture, managerial style and context. All elements are shown on Figure 2.



Source: Miranda, 2004

Figure 2 – Conceptual Model of the Strategic Knowledge Management – SKM

4.2. Mathematical Model

A math model is built on using systemic factors. A relation among those factors can be expressed as shown in figure 3.

$$FG = \frac{\alpha_{CG} \cdot FCG + \alpha_{TI} \cdot FTI + \alpha_{CO} \cdot FCO + \alpha_{MG} \cdot FMG + \alpha_{CN} \cdot FCN}{\alpha_{CG} + \alpha_{TI} + \alpha_{CO} + \alpha_{MG} + \alpha_{CN}}$$

Source: Miranda, 2004

Figure 3 – General Function of Math SKM Model

Each “F” represents one systemic factor as follows:

- FCG is the cognition factor;
- FTI is technology factor;
- FCO is organizational culture factor;
- FMG is management style factor;
- FCN is context factor and;
- FG is general factor.

General factor (FG) allows a specialist in SKM to make a whole diagnostic of the conditions to implement effectiveness SKM program. It varies from 1 to 5. In this case, an FG equal or superior to 3 means that there is good conditions to implement a program of SKM. The other factors are calculated using a score that: each employee set to the component factor. The table 2 shows how each systemic factor is calculated.

Table 2 – Calculate Formula of the Systemic Factors

CALCULATE FORMULA OF THE SYSTEMIC FACTORS	
FACTOR	CALCULATE FORMULA
FCG	Σ (Mental Process. Experience. Judge Ability) 3
FTI	Σ (Infrastructure o ICT. Techniques and Methods) 2
FCO	Σ (Motivation. Integration. Sharing) 3
FMG	Σ (Leadership. Power Structure/Influence/Authority. Clear Proposition of Value) 3

FCN	This factor is considered as whole, not an average.
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“α” is called “weighed coefficient”. Each “α” is calculated from a average of employees’ answers. They have to sort the systemic factors in an order of relevance. They have to put set a score, from 1 (less important) to 5 (most important) factor considered, without replication in the score. For example, if there is a group of 20 employees and 8 of them settled level 5 to cognition factor (the most influent in their opinion); 7 as level 4 of influence; 4 as level 3 of influence, 1 as level 2 of influence and no one considers the factor without influence. Calculation is made as shown in figure 4.

$$\alpha_{CG} = \frac{5.8 + 4.7 + 3.4 + 2.1 + 0}{(8 + 7 + 4 + 1)} = 4,1$$

Source: Miranda, 2004

Figure 4 – Calculating “α” (Example)

4.3. Systemic Model

Systemic SKM is the model that shows how each part of the Strategic Knowledge Management System - SKMS works. Explicit and tacit knowledge are the inputs to be processed into strategic knowledge. Strategic actions implemented are the concrete outputs of SKMS, and an evaluation of their effectiveness feedbacks the system to correct any eventual problem.

SKMS can be described as a process formed by systems that develop different activities. The picture 5 shows each integrated system of SKMS.

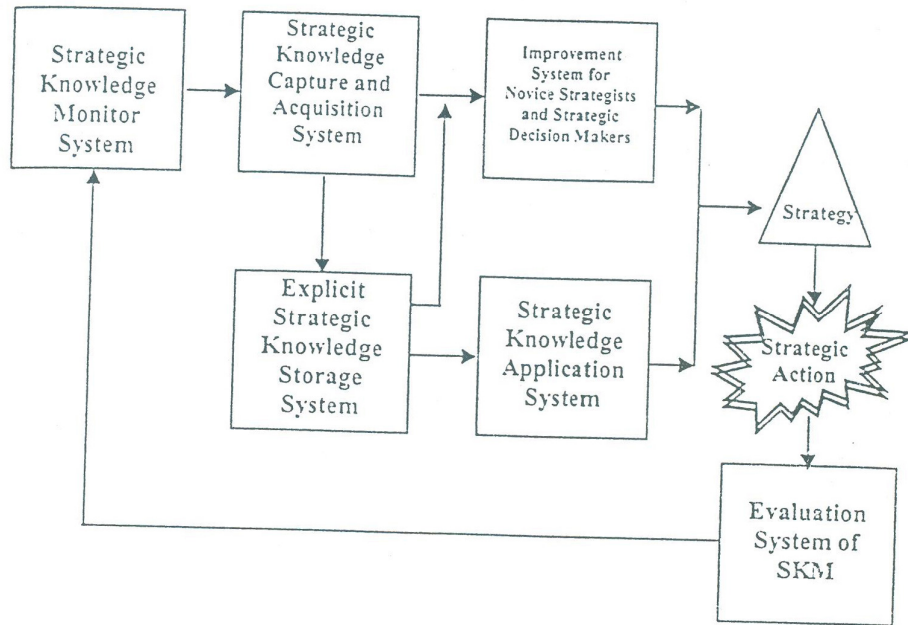


Figure 5 – Integrated Strategic Knowledge Management System - SKMS

The functions of each system are:

- Strategic Knowledge Monitor System is responsible by track and trace knowledge sources inside and outside of organizations. It tries to monitor those sources using tools of ICT and Methods of Competitive Intelligence.
- Strategic Knowledge Capture and Acquisition System transforms tacit and explicit not structured knowledge, as well as general strategic and non- strategic information into structured strategic knowledge. It is composed by: (i) the capture system for tacit strategic knowledge; (ii) the acquisition system for explicit strategic knowledge, (iii) the system to share and socialize tacit knowledge and (iv) the system codify the output tacit knowledge. Strategic Knowledge Capture and Acquisition System is the “heart” of SKMS, once it is responsible to take knowledge and information that will be as “blood” to the other parts of the system.
- Explicit Strategic Knowledge Storage System. This system put in right storage all explicit strategic knowledge went into organization, as well as strategic tacit knowledge captured from the strategists and

strategic decision makers. This system is composed by three databanks: (i) specialists and information provider's databank, (ii) strategic actions databank and (iii) strategic case study databank.

- Improvement System for Novice Strategists and Strategic Decision Makers is related to create conditions to develop core competencies in novice strategists and strategic decision makers. The objective of this system is to reduce the gap between experts and novices in formulation process and strategic decision process.
- Strategic Knowledge Application System concentrate all the activities related to formulate strategies, as well as to make strategic decisions. This system integrates tools like, for example, Decision Support Systems - DSS and Executive Information Systems - EES, as well as datamining and datawarehouse to perform all the activities related to strategy.
- Evaluation System of SKM is responsible to verify the effectiveness of SKMS. This system gets its goals when it is well-established parameters and standards to analyze the performance of the strategic actions adopted. The evaluations permits that it can be adopted actions to eliminate problems and to improve the system as whole.

5. Conclusions

Trying to establish a wide framework of SKM, this article can be finished presenting the major aspects of its contribution: the relevance of SKM, the condensed main points and a general concept of SKM.

The relevance of study SKM is focused on the discussion about a special knowledge: strategic knowledge. To complete description of the theme, it was necessary to get concepts of Business Management, when it talked about strategy; Psychology when it was considered cognitive aspects of SKM; and Information Science, when it was considered aspects of Information Management and Knowledge Management in SKM.

Some important points can be signed when all elements of SKM are putted together:

- Strategic knowledge is a organizational knowledge and ic has two dimensions: tacit and explicit knowledge;
- Strategic knowledge is not any knowledge: it is used to support strategic formulation and strategic decision;
- Cognitive aspects must be considered in the process of strategic formulation and strategic decision;
- Strategic formulation and strategic decision must consider different strategic perspectives: classical, evolutionary, systemic, procedural and knowledge perspective;
- There are different players on SKM: in one hand, the strategists that are responsible to formulate strategies; on the other hand, the strategic decision makers, responsible to make strategic decisions;
- The players on SKM are divided in: novices, strategists and decision makers that do not have much experience in strategic procedures and, experts; and,
- The systemic factors involved with SKM are: cognition, technology, organizational culture, managerial style and context.

Those elements lead to define SKM as a process of creation, capture, assimilation and diffusion of the organizational knowledge, It involves knowledge about planning, description, impact, prediction, evaluation and generation of strategies. This knowledge is formed by strategic and no strategic information, as well as the wisdom accumulated by strategists and decision makers in the process of formulate and make strategic decisions.

6. REFERENCES

- Choo, C. W. and Nick Bontis. 2002. Knowledge, intellectual capital and strategy: themes and tensions. In: Choo, C. W. & Bontis, N. (org) The strategic management of intellectual capital and organizational knowledge. New York: Oxford University Press. Available at <<http://choo.fis.utoronto.ca/oup/Chapter1.html>> Access in 25th Nov 2002.
- Davenport, T. H. and Laurence. Prusak. 2000. Working Knowledge. Harvard Business School Press, Boston, MA.
- Nonaka, I. and Hirotaka. Takeuchi. 1995. The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation, New York, NY: Oxford University Press.

- Miranda, R. C. R. 2004. Gestão do Conhecimento Estratégico: uma proposta de modelo integrado. Doctoral Thesis. Brasília. University of Brasília.
- Miranda, R. C. R. 1999. O uso da informação na formulação de ações estratégicas pelas empresas. Ciência da informação, Brasília, v. 28, n. 3, 254-290.
- Porter, M. E. 1996. What is Strategy? Harvard Business Review. Nov-Dec. 61-78.
- Skyrme, D. 1997. Knowledge Management: Making sense of an oxymoron. Management. Insight. n. 2. June. Available at: <<http://www.skyrme.com/insights/22km.htm>>. Access in 24th Jun 2002.
- Whittington, R. 2000. What is Strategy? and Does it Matter?, International Thomson.
- Wilson, T. D. 2002. Information management. Feather, John and Paul Sturges (org.) International Encyclopedia of Information and Library Science. 2nd ed. London: Routledge. 187-196. Available at: <http://informationr.net/tdw/publ/papers/encyclopedia_entry.html> Access in 17th Feb 2003.