

Original article

## Knowledge Management: is it still an obscure object of desire?

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**Abstract**

The lack of a central theoretical and methodological criterion that defines a referential to the Knowledge Management could be the cause of informational chaos that is observed in this field. In this article, we argue the importance of using the term Knowledge Management as a way to distinguish it from the approach of Information Management. Knowledge sharing is one of its basic assumptions, but to understand the Knowledge Management as a process to support decision making can not be ignored. Knowledge Management has never been an exclusive practice of private organizations. In Brazil, the Federal Government initiatives show that this subject is part of his agenda and, notwithstanding the different stages of implementation that it appears to be in the institutions, there is a concern about building a policy with guidelines and strategies clearly defined. This view makes clear that what is important for the development of societies, organizations and individuals today is the knowledge and its application. In the case of public institutions, applied knowledge is propelling productivity process and innovation.

**Keywords**

knowledge management; information management; public administration

Knowledge Management (KM) as an object of research or practice to be adopted in corporate environments makes it necessary to review and analyze all the scientific literature in this field, so that despite of been widespread and risen, it still presents itself as obscure and vague in their fundamental precepts.

The perception that revolves around the area, although as an empirical statement, is that despite the growing interest of organizations in projects and initiatives in KM, as well as, the growing number of publications, events and specialized courses, it still prevails the lack of consistency about the

theoretical and methodological criteria that defines a central reference on the field.

A theoretical consolidated basis is essential reference to legitimize and consolidate the area as scientific knowledge. Controversy will always exist, since they are inherent to the process of knowledge production. However, different schools of thoughts, reflections and applications should be articulated so as to result in an integrated and evolving knowledge about the issue.

As a contribution to this review on the subject of KM this essay begins from the bases term that contributed to

the relevance and necessity of KM today. Next we seek the understanding of KM as an evolutionary process related to Information Management. In the third topic, without intent to perform an exhaustive literature review, we make a critical analysis of major issues that underlie the concepts of KM. Some examples of initiatives in the development of KM in public administration and its meaning are explored in the fourth part, as a way to broaden the scope of application of KM in addition to private organizations. Finally, we conclude by pointing out perspectives that could, if implemented, to contribute to the consolidation of KM.

### Network Society: new paradigm

We live a unique moment in human history. A moment of transformation designed by Information and Communication Technology (ICT) in which a new economical, political, social and cultural setting has not been fully unveiled and the old order has been already profoundly changed. The impact of those changes is felt in many dimensions of human activities, including work processes, due to an ever wider access to information and communication ability, independently of time and distance.

From the early 1990s, dissemination of the Internet as a communication and information access, coupled with the massive use of other ICT-based computer, have been affecting all areas of society. The Internet in particular has become a transition lever arm to a new form of society, the network society.

The watershed is about the year 1970. It was this decade that three cases have opened a new social structure based on networking: economy requirements for administrative flexibility and globalization of capital, production and trade, the society demands in which individual freedom values and open communication became supreme, and the extraordinary advances in computing and telecommunications made possible by microelectronics revolution (Castells, 2003).

According to Castells, the concept of technological paradigm - designed by Carlota Perez, Christopher Freeman and Giovanni Dosi, with the adaptation of the classic analysis of scientific revolutions by Thomas Kuhn - helps organize the essence of current technological change as it interacts with the economy and society.

*An economic and technological paradigm is a grouping of technical, organizational and administrative inter-related innovations, whose*

*benefits should be found not only in a new range of products and systems, but also and besides all, in the dynamics of the costs structure for all the possible inputs for production (FREEMAN apud CASTELLS, 1999).*

Freeman sees the paradigm contemporary change as the transfer of a technology based primarily on cheap energy inputs to another which is based primarily on cheap information inputs derived from technological advances in microelectronics and telecommunications (FREEMAN apud CASTELLS, 1999).

In the wake of technological revolution, has emerged in recent decades a new economy on a global scale. Castells (1999) classifies this new economy as global informational because under new historical conditions, productivity is raised and the competition is done on a global interaction network. According to the author, it is informational because productivity and competitiveness depend on our ability to generate process and apply efficiently knowledge-based information. And it is global because the main productive activities, consumption and circulation as well as their components (capital, labor, raw materials, administration, information, technologies and markets) are organized on a global scale, directly or through a network of connections among agents economic (CASTELLS, 1999).

The technological revolution, however, is also an information revolution. According Lojkine (1999), this is a revolutionary change for all humanity, changing only comparable to the invention of writing tool [...] and that goes well beyond the industrial revolution (LOJKINE, 1999). He argues that is the emergence of a civilization no longer divided between those who produce and those who command, but among those who have the knowledge and those who are excluded from this exercise (LOJKINE, 1999).

The ongoing revolution takes over in the relations between humans and their tools. Temporal, spatial, associative and identity-forming boundaries dissolve in the Internet. The learning goal of our civilization turned into a flood of information. If first, the Internet makes information instantly available across the planet, next the current problem lies precisely in the enormous poverty of substantial information content in relation to the enormous amount of insignificant information disseminated by mass media (LOJKINE, 1999).

The present is characterized as a revolution because of new possibilities that the union of technology and content can cause. Santos (2002) argues that just as technological networks alter completely the notion of space and time, technology plays a direct action on the entity information,

transforming it, or more precisely, creating new opportunities for application and use of this object ever seen before (SANTOS, 2002).

The phenomenon called “information explosion”, which represents the increase in volume and in pace that knowledge is produced, creates a new situation: the amount of information produced on a particular area of knowledge is difficult to administer, forcing the creation of tools and instruments that facilitate access to these informational stocks.

In organizations environment, the management of these informational stocks aims to use them as strategic resources, giving information to their true value: to help man to think, organize, decide and act.

### From information management to knowledge management: a brief history

The perception that information is the most important asset of an organization, both in respect of stocks registered, as well as on the individual knowledge, crystallized in the late twentieth century. The trajectory of the new paradigm began in the 1960s and its climax came in 1980 when the governments of the United States and Great Britain formalized through legal acts, the management of information as an organizational resource.

Until the first half of the 1980s, computer professionals and equipment were expensive, and the main objective of computerization was to model and standardize information handled by the systems. The low return of the amount invested determined change in direction. The U.S. government decided to adopt a new strategy, adding policies and procedures to manage the full cycle of information: from the generation, collection, organization and processing, to its dissemination and use.

From the publication of the Legal Act “No A-130” in 1985, by *Federal Register*, the processing of information gained new status and no longer be solely related to technological aspects. Result: the expanded range of issues for discussion on terminology, classification, classification level, timeliness tables, privacy and copyright.

The idea of information as a strategic tool evolved almost naturally after the management of information has shown results in terms of operational efficiency, avoiding waste and automating processes. The new vision went beyond the walls of government institutions and spread to large private corporations, which began to establish a formal structure,

generally linked to the Presidency or the senior hierarchy, to take care of information management resources.

In this new perspective, the term used changes from Information Management for Information Resources Management (IRM), in which the main purpose was monitoring processes efficiently, to support strategic decision making and achieving competitive advantage over competitors. To do so, and managing all information cycle, changes monitoring was included in the agenda of priorities.

In his article “Conceptual Schemes and Strategies for Information Management,” Cronin (1990) defines Information Resources Management as the effective way of dealing in integrated way internal and external information for strategic use by decision makers in organizations in order to optimize the performance of these institutions and tune them with the external environment (CRONIN, 1990).

Vieira (*apud* SANTOS, 2002) complements the vision of Cronin describing the information resources manager [...] as a strategist who should therefore have the ability to capture, understanding, critical analysis and interpretation of reality, within a perspective historical, as this reality is presented in the form of events, news, ideas, data or documents. This manager must work dialectically analysis and synthesis content, by measuring the relationship between his organization and the environment (VIEIRA, 1990).

While under investigation, IRM is a practice area of interest from different fields of knowledge. One of its areas of origin is Business Administration. In the new economic configuration, management spends time dealing with the growth of production units, inducing the creation and systematization of information flows, including administrators and managers rely on for an efficient administration. New theories and methods of organizational management, combined with the development of information technology, designed this new information-based expertise in the corporate environment.

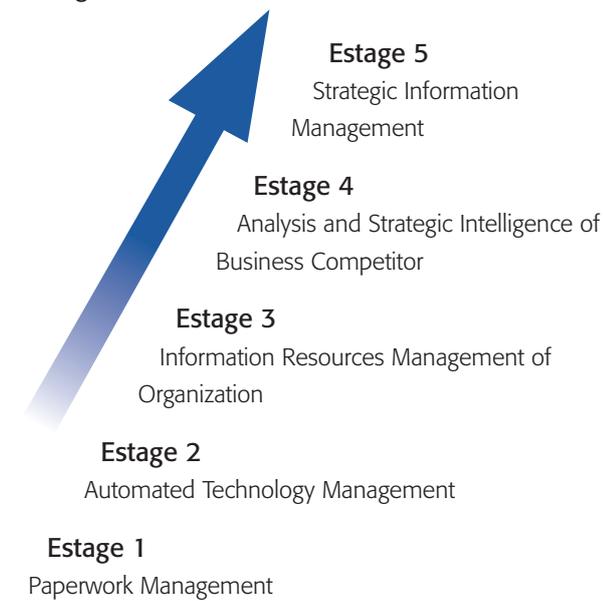
The Computer Science helped RMI to develop applications such as Management Systems, Artificial Intelligence and Expert Systems - technology tools and organizational methodologies to support key decision making and strategic planning in companies. The economy, in turn, highlighted as an object of study the new mode of capitalist development, characterized by informationalism, which regards information as the main source of productivity.

Finally, Information Science approach in relation to information and knowledge has emphasis in the management process, indicated by the knowledge management theme. The goal is to deal with problems related to organization, access and dissemination of information. Historically, information

science was constituted and officially recognized as a science in 1962, a period of great scientific and technological advances after World War II. This period was marked by "information explosion" - the exponential growth in production of recorded knowledge (PINHEIRO, 1997).

Marchand and Horton (*apud* SANTOS; 2002) present a framework that shows RMI evolution in the organizational environment:

### Developmental stages of strategic information management



Source: (SANTOS, 2002)

Just as information technology has gone through different stages defined according to its use, this framework shows the evolution of information processing in the business environment. Initially, the goal was to organize documents to provide access and minimize costs; with automation, the expectation was to give flexibility to this process. Information resources management stage is concerned with information management, not the paper. This approach emphasizes the clear content of the records, coming to the aggregation of intelligence information resources through analysis and data interpretation.

The trajectory of Information and Knowledge Management as a field of research and application has three distinct approaches: first, the emphasis was on data processing, then information assumes the character of strategic resource, and finally, in present time, the prospect has become the management of not only information, but mainly the conversion of tacit and explicit knowledge.

Until they realized the need to add knowledge to the process, companies have come a long way. It was the latest step in a chain of investments, which started with data valorization and then information valorization. The difference between data, information and knowledge leads to a question of degree. According to Pruzak Davenport (1998),

*[...] it was clear that what our customers wanted more than anything was insight. They were looking for best practices, new ideas, creative synergy and discovery process, something that information, however well managed it is, cannot provide* (DAVENPORT et al., 1998).

From this perspective comes the concept of KM, adding tacit knowledge as a resource to be managed.

### Critical analysis of key concepts

In this section we highlight some of the aspects which underlie most of the concepts and definitions on KM in order to draw a synthesis of elements considered consensual.

A current view of Knowledge Management, covering most aspects, is presented by Regina Cianconi (2003), in her doctoral thesis: Knowledge management can be understood as systematic actions to facilitate the sharing of knowledge, being associated with the process creation, organization, dissemination and use of knowledge, involving policies, methodologies and technologies for its share, mapping and assessment. (CIANCONI, 2003).

One of the motivations for KM was the finding that the stock value of companies incorporates "intangibles" such as the value of patents, the ability of innovation, employee talent, and their relationships with customers, among other factors.

The introduction of the idea of tacit knowledge as a resource to be managed is the major innovation introduced in the approach to Knowledge Management. Moreover, the notion that it is not sufficient to manage these resources, but to study their processes of creation, is introduced by Ikujiro Nonaka and Hirotaka Takeuchi in their book "The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation". According to the authors, although discussion about KM being a recurrent theme in Western literature, none of the authors bothered to discuss the process of knowledge creation, but only the processing of information and knowledge. This follows from the fact that Western organizations are seen as machines for information processing, while in Japan the companies are regarded as

living organisms. In view of the West, according to the authors, knowledge is understood as necessarily explicit - something formal and systematic.

*Explicit knowledge can be expressed in words and numbers, and easily communicated and shared in the form of raw data, scientific formulas, codified procedures or universal principles (NONAKA et al., 1997).*

Dichotomously in Japanese companies, knowledge is understood as something primarily tacit - which is hardly visible and expressible. Tacit knowledge is highly personal and hard to formalize, making it difficult to transfer and sharing.

*Conclusions, subjective insights and guesses fall into this category of knowledge. Furthermore, tacit knowledge is deeply rooted in actions and experiences of an individual, as well as their emotions, values or ideals (NONAKA et al., 1997).*

The second aspect to underline is that this distinction between explicit and tacit knowledge marks the difference between the approaches of IM and KM. KM, in addition to knowledge as an object to be managed and shared processes, requires strategies to create new knowledge. A group of authors criticize the use of the term KM, arguing that knowledge is inherent in human beings and not subject to transfer directly. Its management by organizations occurs in facilitation sense, guidance, encouragement of learning, sharing and evaluation.

Undoubtedly, knowledge acquisition involves cognitive processes that individuals are not likely to be managed. However, the major difference suggests that KM is strongly marked precisely by the use of the term knowledge. In this sense, we consider KM as a new field, it brings an original approach. Still, it is important to consider KM closely related to Information Management, representing one of the links in the evolutionary chain of this area.

The relationship between KM and IM is often overlooked but cannot be ignored, since it reveals some considerations that deserve mention. The first is that there is no KM without IM. The KM should address both the management of information resources (explicit knowledge) and tacit knowledge, which in turn will go through the process of conversion to explicit knowledge. Otherwise, it will not submit results. If tacit knowledge must become explicit, it becomes more than obvious the need of IM.

Knowing a little about the development of areas of Library Science and Documentation, it is possible to draw a parallel between their approaches to information and knowledge objects and the development of IM and KM areas. At first, libraries were concerned with the ordering of documents

as physical support. The information retrieval mediated by technological and methodological tools were developed to handle this issue. So it was guaranteed to locate the document as a physical support through the leader boards, and not always the recovery issue had effective tools.

Subsequently, the tools of recovery began to be developed from the understanding that the document is housed in a universe of knowledge and this universe must be represented. Thus, the representation of information not only indicates the physical location of the document, but, above all, the universe of knowledge treaty. The focus becomes the information contained in documents and not the document itself.

Currently, information management units know that in order to meet the needs of their users it needs more than information coded and recorded. Users are in search of background information that contributes to the production of meaning and hence knowledge.

Likewise, organizations built approaches to information: first, focusing on document management then information detached from its physical support, and currently they are in search of what is meant by KM, outpacing stocks informational recorded and coded, and adding the tacit knowledge as an organizational resource.

The concept of KM causes a shift of focus in trying to develop intelligent systems to develop intelligent people. That's what makes KM so attractive to the organizations. While the focus of information systems is designed for the management of explicit knowledge, KM brings a new dimension, which reveals the need to manage tacit knowledge by focusing on people and their ability to transfer knowledge. This distinction can easily be seen in practices leveraged by each approach. This is because if the focus changes from information to knowledge, tools and processes for mapping and managing naturally also change.

The fourth point to be made in relation to the concepts of KM is its association with corporate environments. In these environments, KM is seen as a management model based on stimulating intensive experiences, skills and knowledge sharing, as well as, the management of informational inventories aimed to creating knowledge that support organizational actions. The first reservation that we do this kind of understanding is that we must extend this look. Considering KM, either in research or application field, has theoretical and methodological principles that can be applied in different environments. Santos, in his doctoral thesis "Knowledge Management of Scientific Practices: Strategic information networks construction for legitimating scientific

fields" (2002), investigates KM as a tool to support decision-making processes established for the purpose of legitimating scientific fields.

*The understanding of knowledge management according to the process by which strategic information are identified, analyzed and interpreted in order to generate new information and knowledge that support the processes of making and action decision, shows that this process can be applied in other environments than the business. The information flows are established for all human activities and knowledge management can be applied in accordance with the purpose of every enterprise, whether scientific, political or business (SANTOS, 2002).*

The fifth consideration of this analysis is that KM practices, although based on knowledge sharing, have a range of purposes, including generation of strategic information needed to assist decision making. In this case, strategic information may mean information of confidential nature. Therefore, not always KM is aimed to sharing information at ultimate purpose. This may be a step in the process of generating strategic information with a limited scope.

The final point I want to stress is that, in general, KM concepts associate this practice to the use of information technologies and communication. The definition of the technology role in KM process is not always clear. We note that many definitions of KM emphasize technology as a response to issues raised by KM. In the information economy, however, the greater need lies in managing information and knowledge and not on mere automation of information processes.

According to this view, a smart company is the one not only able to make use of more modern technology and complete, but especially the one that knows how to use the skills of analysis, interpretation and synthesis of information and knowledge, which are merely intellectual aspects. *Do not forget that technology does not produce ideas. Until proven otherwise, are the men who conceive them (author unknown).*

In line with KM fundamentals, it is clear that their practices approach knowledge as a social product and can be socially created and transformed by people action, through collaboration, sharing, in a collective way. Thus, KM can, if properly implemented, contribute to democratization, to a greater participation and to increase individual, collective and organizational knowledge. In this perspective, KM discussion in the public sphere is of great value.

## Government learning: KM in public sphere

The question is: which is the expected role of the public sector within the Brazilian society? Paul Fresneda, Embrapa researcher, said in a speech at the 2<sup>nd</sup> Congress of Knowledge Management in the Public Sphere (CONGEP) that the public sector has a very important feature in the debate on Knowledge Management. The major infrastructure that we have today - whether in transport, telecommunications or energy sector - were projects created in the 1970s by public organizations as Serpro, Petrobras, Furnas, etc..

No one disagrees that Brazilian public organizations are in debt with a lot of things. It lacks organizational memory, quality and process efficiency, lack of customer service culture, self-confidence and even hope in the future. But on the other hand, there is a wealth tacit knowledge and well-trained specialists with decades of experience.

The purpose of KM is to improve the performance of companies, whether private or public. Following the perspective presented throughout this article, in which KM represents changes focused on people's behavior and organizational culture, one must consider in its implementation process the specific constituents of different organizational environments.

With this assumption, we can say that there is no a single model for KM. Each organization should develop its own model, taking into account the specificities of its organizational culture and the motivations for a KM project.

In papers presented at CONGEP, companies have made clear that organizational profile was the first factor to be considered in their KM programs. The wide variety of skills to fulfill institutional mission has led the central bank, Caixa Econômica Federal (CEF) and Bank of Brazil to implement a competency management. Due to high employees' age and the retirement closer for many high-level technicians, Petrobras prompted stimulate mentoring practice and Virtual Practice Communities.

Also in CONGEP, the Coordinator of the Corporate University of CEF, Sonia Goulart, reported that over the next three years, seven thousand people from strategic sectors will retire. How can the company retain the knowledge of these professionals is the major concern of the organization at this time. Also in this event other initiatives underway within government sphere were presented and described below:

- Technical Committee on Knowledge Management in Electronic Government Action- Training of 100% of public sector managers of 19 ministries in Knowledge Management, called Public Management Development in Knowledge Management Program (PDGC).

- Corporate Education Workshops sponsored by the Ministry of Development, Industry and Foreign Trade;
- Lecture series on “Strategic Information and Knowledge Management 2004” - consisting of 15 lectures and more than 600 participants. The goal is to develop a KM and Information policy for the Chamber of Deputies.
- CEF has mapped 38 thousand people and their basic and specific knowledge aimed to knowledge transfer activities. The methodology of Caixa was the recognition of talents, through construction of a Talent Bank. The intent was to recognize and appreciate these talents, helping to end the external impression that “the government does not know anything.”
- Assuming that the public institution has to be useful to society and therefore focused on results, Embrapa, based on the concept of Innovation as Idea + deployment + result, has been developing its knowledge management program.
- Eletronuclear, following recommendation of the National Council for Foreign Policy, implemented a KM program that began with two projects: a) Engineering Document Electronic Management (EDMS) b) Tacit Knowledge Project - Tree of Knowledge;

Even though considering that programs and KM practices are developed in a particular way, we think a certain level of discussion is possible to add features that distinguish the public and private environments.

A study published by the Institute of Applied Economic Research (IPEA), called “Government Learning: Knowledge Management in organizations of the Federal Executive” (BATISTA, 2004) reports that in the PPA analysis 2000/20003 it is shown that there is a direct link between public organizations management failures and government programs success. In other words, improving public organizations management is critical to the success of government management. Among the deficiencies highlighted by the report are:

- lack of focus on public service customer (citizen);
- non documented and non optimized processes and activities;
- servers who do not know the role of the organization;
- information not moving rapidly and correctly between servers and sectors; • lack of constant concern with innovation and change.

IPEA document aims to discuss the concept of KM and its importance for public administration and to identify the stage of implementation of KM in six organizations of the federal executive: Banco do Brasil, Central Bank of Brazil,

Caixa Economica Federal, Empresa Brasileira de Pesquisa Agropecuária (Embrapa), Serviço de Processamento de Dados (Serpro) and Petroleo Brasileiro (Petrobras).

These organizations were chosen because they are regarded as benchmarks in some KM practices. The author explains that there weren’t used organizations of Direct Administration in its analysis due to the low level of awareness among leaders about KM importance. And consequently, due to a lack of prioritization and resource allocation in project of this nature. Meanwhile, public enterprises and joint stock companies occupy a leading position in management development, and therefore are aware of KM. These are the most awarded companies by National Award for Public Management since its inception in 1998.

According to the author of the study, KM in these organizations should be viewed more broadly than in production companies. The role of KM in Public Organization goes beyond the purpose of improving organizational performance, playing important role in the function of a democratic society and the country’s insertion into the global economy.

### KM in private companies X public

Private Companies	Public Companies
Improve products quality and services	Deal adequately and quickly to unexpected challenges
Increase customer satisfaction	Prepare citizens, nongovernmental organizations and other social actors to act as partners of the State in formulating and implementing public policies
Innovate, increase productivity and profitability	Promoting social inclusion, reduce social inequality and an acceptable level of quality of life for the population through the construction, maintenance and expansion of social capital and intellectual capital of enterprises
Improve performance compared to competition	Make their organizations competitive in all areas of knowledge
	Create a competitive society for regional and global economy through education of citizens so that they become competent knowledge workers

Source: This board was made based on “Government Learning: Knowledge Management in organizations of the Federal Executive” (BATISTA, 2004) document.

Also according to Baptist (2004), critical factors to implementation of KM in public sphere are:

- KM practices must be aligned and should be part of the management model of organizations;
- KM practices should be disseminated throughout the organization;
- employees must be trained and acculturated to use KM tools;
- KM strategy should be continually evaluated;
- there must be formal support structure to coordinate initiatives
- there must be administrative continuity;
- it is necessary senior management commitment and sponsorship;
- a recognition system to support KM strategy should be chosen;
- one must have clear communication of objectives to be achieved.

KM in public organizations is a topic that has received little attention from analysts. We must move forward not only in mapping initiatives, but on meaning reflection and the benefits of KM in this context.

## Conclusion

We defend the relevance of the term knowledge management as a way to distinguish it from the approach of information management. In our view, KM is much more a new approach than a new field and cannot be separated from the IM. Knowledge sharing is not always the purpose of this process; it should be considered one of its stages. It was also said that the theoretical and methodological principles of KM can be applied in several ventures and not exclusively in corporate environments.

All information we brought about the government's initiatives in this issue show that KM is part of its agenda and, notwithstanding the different stages of implementation in which the KM is in organizations, there is a concern of building a knowledge management policy with clearly defined guidelines and strategies.

This KM view makes it clear that what is important for the development of societies, organizations and individuals today is the knowledge and its application. In case of organizations, applied knowledge is propelling the processes of productivity

and innovation. Undoubtedly, Knowledge Management is a way that can help us in this process, both in private and public organizations.

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