Comparative Study Regarding Information Management and Knowledge Management

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Abstract: The information revolution is the basis of the new economic changes, making the transition to the new economy. The engines of economic growth are increasingly diverse, mobilization and mobility of capital, speculative trends and the growing diversity of instruments specific to the last century that resulted in the globalization of markets and in some cases "blurring" the boundaries, are now completed (and even replaced) by information and communication technologies and by scientific research as interdependent areas of a new economic system. Drucker's visionary capabilities regarding the role of the Internet were confirmed, especially if it is considered profoundly transformative role that the Internet plays on the economies, industrial structures, products and services, influencing in the same time the social activities. Under the impact of information and communication technologies there are imposed new organizational paradigm and "chaos" avoiding will not be possible but through identifying, designing and implementing tools that allow administering it.

Keywords: information management, knowledge management, innovation, competitiveness

Introduction

Knowledge and information are not static but rather they are moving within the organizations in various ways. A way to separate knowledge management (KM) and information management (IM) is to identify the processes or the stages involved in both areas. Strictly speaking, IM focuses on "plans and activities that must be performed in order to check the records of an organization" [1]. For Wilson [2, 203-210], IM is the management of informational resources of an organization also involving the management of information technology. Choo [3] proposed a process model of IM. Presented as a cycle Choo's IM model involves five basic steps: identifying information needs, acquisition of information, organization and storage of information, distribution of information and its use. Each step requires planning, organization, coordination and control of a number of activities supported by information technology. According to Choo, IM is the key to knowledge creation and their use in organizations, and should lead to the so-called "intelligent organization". Although his opinion is not recent, Cronin [4] considers that the IM initiatives focus on the control of systematically recorded information and less on the use of these records.

The attempts to define KM processes are numerous. Nonaka and Takeuchi [5] described four knowledge conversion processes: socialization, externalization, combination and internalization. Each process involves the conversion of one form of knowledge (tacit or explicit), to another form of knowledge (tacit or explicit). This model focuses on how knowledge can be created within the organization and how useful it is for identifying and evaluating certain key activities in knowledge management.

Hlupic and others [6, 90-102] refers to Ruggles who identified three main types of activities: (1) the generation of knowledge which involves the creation of new ideas and models, (2) encoding and (3) the transfer of knowledge, which means ensuring the exchange of knowledge between individuals and departments. None of these models is comprehensive enough to allow a full analysis of the organizational knowledge flows, because they omit several important steps in the chain of knowledge, such as knowledge acquisition and storage. Another model, proposed by Olicic-Vukovic [7, 54-61] highlights five steps in the manufacturing chain of knowledge: collecting, organizing, refining, representation and dissemination. This model covers the full range of activities involved in the flow of organizational knowledge, by tying it to the processes of the information life cycle, suggesting again interrelated aspects of IM and KM.
This typology helps, despite its limitations, to the understanding of some aspects of the special nature of KM, compared with IM. Primarily, strategies facing different organizational processes that are intertwined with the processes of KM. Secondly, it suggests that knowledge managers are concerned about the dynamic size of knowledge not only of data, information and technology. Finally, this typology can be useful to gain the skills that should be addressed in a curriculum of KM.

The dissemination of knowledge is in itself an act of learning and transformation of the nature of knowledge. In a general sense, we can say that the human factor is more relevant in terms of KM than from a perspective of IM. Traditionally, IM does not take into consideration how people learn, create, validate, encode, share knowledge and make decisions but focuses on the manipulation of data and information. Instead, KM, as a more recent discipline has a much wider ambition. The purpose of the present approach is to discuss not only how KM and IM are different or similar, but also how and why these two disciplines intersect, taking into account the risks involved in KM projects that do not clearly highlights these differences.

Nowadays there are increasingly more discussions about the importance of knowledge and its management in an organization. However, few organizations are trying to find out what knowledge means and what are the differences between knowledge management and information management.

In order to identify differences between information management (IM) and knowledge management (KM) it is important to review the definitions related to information and knowledge.

In the literature, the definition of information tends to be more uniform and less complex than defining knowledge. Information can be defined as "organized data group" [8, 12-18]; "data endowed with relevance and purpose" [9, 14]; interpretations of data etc. These definitions are similar to many other definitions, which indicate that the information implies the human factor involvement in order to organize the raw data.

Defining knowledge is, however, a more complex task. Without taking into consideration all the perspectives that the great thinkers Platon and Aristotle offered we can emphasize that there are important points of view regarding the process of learning and acquiring knowledge, namely empiricism and rationalism. The interaction between authors from these two schools of thought can provide acceptable understanding of knowing and implicitly of the knowledge, i.e. the knowledge can only be in someone's mind and is the result of human experience and reflections based on a set of beliefs that are in the same time individual and collective.

In general, all the authors agree the idea that the knowledge complexity is higher compared to information. The key difference can be summed up by the role played by the human factor. In the case of the knowledge, individuals play a prominent role as creators, owners, broadcasters and users. However, in the case of the information, these functions can be fulfilled "outside" people without their direct influence.

The differences between IM and KM will be analyzed according to five different dimensions:
1. The interaction between information and knowledge;
2. Fields of application, approaches and measurement systems;
3. Organizational learning and KM;
4. General concepts of KM;
5. Protecting intellectual capital from the perspective of IM and KM.

  1. The Interaction between Information and Knowledge
From a managerial perspective the essential difference between information and knowledge is the fact that information is more easily identified, organized and distributed. Knowledge, on the other hand, can not really be managed because it is in one's mind. Thus, KM is essentially limited to creating the right conditions for people to learn (using information and experimenting) and applying knowledge for the organization benefit. Applying knowledge can be translated into relevant information that is shared and used in new products and activities that create value.
This view of knowledge and KM can lead to well-known "spiral of knowledge creation", proposed by Nonaka and Takeuchi [10, 44]. Although most authors agree with the view presented by Nonaka and Takeuchi on how knowledge is created, must be emphasized that this does not explain clearly the difference between information and knowledge. In our opinion, the term "explicit knowledge" can be used almost as a synonym for the word "information". This could influence the specialists who study the contribution of both authors to think too much in terms of IM instead of KM.

One of the subtle differences between the two distinct approaches mentioned in the paragraph above is that, in the transposition of knowledge in information (documents, best practices, databases, etc.), there is a transformation. Such information is not knowledge in the other state (outside the mind of an individual). During the process of speaking and writing not only the human factor "download" (using the metaphor of typical Internet download) what he knows. The process involves actually the transformation of what they know into something that is reflected in the symbols that resemble what they know, as Polanyi said: "We know more than we can tell" [11, 11]. This difference is not so visible when the knowledge to be translated are easy to be coded (operating instructions), but if the knowledge is incorporated into a physical skill or knowledge is complex, requiring significant experience and analysis of multiple variables can occur difficulties of the conversion process and obvious differences between knowledge and information obtained by transposition.

A very interesting perspective that there are clear distinctions between IM and KM was provided by Von Krogh, Ichijo and Nonaka [12, 68]. These authors start from the initial studies developed by Nonaka and invokes the idea that knowledge management is not possible. According to this view, it can only prepare and positively influence the process of creating knowledge through many actions and management decisions. The key factor to these authors, it is the implementation of sophisticated information technologies, but also facilitating conversations between employees who are local and, increasingly more in different locations. Thus, KM consists in supporting conversations and supporting a humanistic perspective on the workplace. It is also the transmission of knowledge that should be deeply rooted in the values of the organization.

The perspective offered by these authors highlight another important difference between IM and KM: IM is not concerned with the actual process of knowledge creation.

KM systems are necessarily focused on people differing thereby IM systems. The KM practitioners must recognize that increasing the richness (diversity) and quality of available sources of information and interpretive ability of employees are more important than increasing the amount of information available.

The information itself can be meaningless and irrelevant if they are not "placed" in a proper context. Thus, two of the main concerns of KM (and not of IM) should (1) provide an appropriate context for the information available and their validation and (2) increase the connections between individuals (who have knowledge) that would not be possible without the support of KM systems.

Considering these objectives, the context of the main sources of information (especially unstructured) is significantly enriched by including details such as [13]:
- Who created the information;
- Which is the experience of the authors;
- Where and when it was created;
- For how long the information will be relevant, valid and accurate;
- Who validated the information;
- Who else might be interested or have similar knowledge;
- Where it has been applied and proved to be useful;
- Of which other sources of information is related;
- How can it be tested.
2. Approaches and Application Fields

Terra and Gordon [14] suggest that the term KM project should not be used if it relates to the same category as an IT project. KM Project should have an overview of the organization and should include various initiatives in several areas: information management, human resources, organizational models, internal communication etc. KM is more closely related to act of management than IM. In this sense, KM never ends; it involves the identification of human expertise and interaction between people (sharing tacit knowledge) and the interaction between people and information systems (two-way street for collection, use and recreation of information).

Considering the fact that KM processes are dependent on previous knowledge of individuals, the motivation and the desire to create, use, share and / or encode their own knowledge, they become more complex than IM projects. However, KM is becoming more dependent on the existence of a robust IT infrastructure. Delayed dependence is more evident in large organizations or geographically dispersed, in which a large number of individuals are forced to collaborate with colleagues who are not in the same location and create, apply and store information for future reuse by people who probably will not meet again.

In conclusion KM projects are much more "value-based" than IT/IM projects. Since the IT/IM project success is often judged based on technical achievements (outside considerations of cost and deadlines), a successful KM project has less to do with technical achievements being linked more to behavioural change or action due to connecting or learning opportunities that the project facilitated. Therefore, IM solutions should be considered as separate KM projects but are key elements of improving the level of collaboration and knowledge sharing.

Without a clear understanding of how knowledge is created and used by individuals and how certain solutions implemented influence knowledge creation process, companies that implement such projects may fall again prey to the same pitfalls that affected IT initiatives during the 90's, related to re-engineering. These included [15]:
- the failure to take into account the issues related to old organizational learning of employees in the form of tacit knowledge and to future organizational learning based on the company’s ability to cultivate the capacity for learning and adaptation;
- developing solutions to redesign business processes without understanding how knowledge and judgment are related to these business processes without taking into account the desire or willingness of organizations to accept the changes;
- failure to take into account the needs of employees, putting instead focus on business process requirements. According to some authors Brown and Duguid [16] current redesign failed to understand that "there is a practice of people working in an organization to give life of processes."

Finally, one of the key differences between KM and the draft IM refers to the measurement results of such initiatives. IM follows a long tradition of information technology projects that tend to associate the financial results of the project (ROI) results with some quantitative and intangible results (so-called nice-to-have). In many cases, these projects determine the ROI positive results in short intervals (if considering studies undertaken by software companies). KM projects, on the other hand, requires a very different approach because it is based more on the desire of individuals to change their behaviour and to share, encode and use information and knowledge to the benefit of their own organization.

3. Organizational Learning and Knowledge Management

Although KM has distanced itself from the practice of organizational learning, it is possible to argue that, theoretically, KM discipline can be seen as a direct inheritor of the field of organizational learning. Argyris [17, 115-125], Senge [18], Schein [19] and others have made important contributions in the field of KM in terms of how individuals and organizations can learn continuously through self-knowledge, systemic thinking, openness and dialogue. Furthermore, the authors from KM domain emphasized the difference between knowledge and learning: knowledge includes what we know and what we can do, indicating status, and therefore the potential for action and decision. Learning, on the other hand, refers to any change of a state of knowledge data. Therefore cognition can be seen as a
"stock" and learning as a "stream" by knowledge. This distinction, though seemingly trivial, is of particular importance for the design of KM initiatives.

The competitiveness of an organization depends as much on the current stock of knowledge and on individual and organizational knowledge flow. If an organization should put more emphasis on stock or flow of knowledge depends largely on the type of industry, nature of job, etc. On the markets where there is greater stability and where work tends to be repetitive, the main objective of KM should be reusing existing knowledge, which has been translated into more detailed information. When the organization is essentially oriented towards innovation and activities tend to be very diverse, learning and orientation to the flow of knowledge will lead to getting better results. These two opposing models of KM are of course only two opposite poles of a whole. The reality is somewhere between these two poles.

4. General Concepts of Knowledge Management

After reviewing KM systems just as they are presented in the literature, Despres and Chauvel [20] shows that most models and perspectives include both a structural aspect and a prescriptive aspect. They suggest that the following themes are recurrent:

- The time - the knowledge are not regarded as a deposit (stock), but as a dynamic process, which may be best understood in terms of the processes taking place in a period of time;
- The social space - most authors admit that the individual is the holder of knowledge but that they become relevant only in a social space or in an activity;
- The context - most authors agree that everything makes sense only in a specific context;
- Transformations and dynamic - this issue has to do with practice and prescriptive definition of KM and include concepts and practices such as: socialization, externalization, combination, internationalization, inventory, audit, testing, articulation, codification and dialogue;
- Knowledge Culture: Many authors also highlights issues related to learning and the impact of different cultures on this process.

Multiple perspectives of KM were presented clearly by Terra and Gordon [21]. They argue that management practices that are related to KM and therefore, encourages learning, creativity and innovation are strongly associated with: leadership and organizational culture focused on experimentation; innovation and continuous search of great challenges; multidisciplinary teams; creating different opportunities to establish personal contacts aiming the development, dissemination and assimilation of tacit knowledge of employees; wide access to all information and knowledge; encouraging diversity; investment in professional and personal development and, ultimately the support for the establishment of close individual and organizational connections with the external environment and the use of performance indicators (in particular of those related to the intellectual Capital, knowledge flows and so on).

5. Protecting Intellectual Capital in Terms of Information Management and Knowledge Management

About protecting intellectual capital there are important differences between IM and KM. Protecting intellectual capital in terms of IM will determine organizations to focus on "front-door security" legitimating, firewalls, permissions and access levels etc.

Although in many cases these measures can be of major importance in many other situations, really important knowledge is in possession of individuals. That is why it is necessary to apply a strategy of active and systematic protection of this type of knowledge.

In practical terms there are only two types of strategies to protect this kind of knowledge: knowledge retention and knowledge circulation. Retention policies are clearly understood. Strategy of knowledge circulation refers to the continuous development of mentoring activities (junior learns from those with experience) and encouraging teamwork (in this way, the organization ensure the development of collective knowledge, reducing potential losses generated by the departure of an employee).
Conclusions
Towards the end of last century business management can be divided into six major areas:
- Human Resources Management;
- Operational management or Production management;
- Strategic Management;
- Management of marketing;
- Financial Management;
- Management information systems.

Today have appeared new directions of development of management through a more pronounced specialization, areas such as quality management and the niche developments such as change management, career management, performance management, risk management, crisis management, talent management etc. are some of the new approaches which includes information management and knowledge management.

Contemporary society, in which access to data and information is more easily achieved due to the development of information technology and telecommunications, requires the existence of methods and techniques for manipulation and control of information and knowledge that define generically in the literature, concepts of information management and knowledge management.

Sometimes the two concepts are confused because even at high levels of expertise, specialists highlight two distinct streams:
- Knowledge management = Information management, generally spread among those who have a background in computers (for them knowledge = object that can be identified, and work with in information systems);
- Knowledge management = People management, generally spread among those who have a background in philosophy, psychology, sociology or business. They are the main involved in assessing, changing and improving human individual skills and / or behaviour. They are generally involved in learning and managing these competencies individually - such as psychologists or organizational level - as philosophers, sociologists and the theoreticians in the field of organizations.

The distinction between knowledge management (Knowledge Management - KM) and information management (IM Information Management) is far from being well defined in the literature, mainly because there are still confusions around the concepts of knowledge and information.

Moreover, there is no consensus on the claim that KM is a new field with its own research base because a large part of the terminology and techniques such as mapping knowledge, seem to have been borrowed from IM and library sciences.

Based on the points of view expressed above, we believe that the fundamental objective of information management is the ensemble methods and techniques of processing information resources of an organization and their strategic use to ensure a competitive position on the market on the entire life cycle of information: collecting → processing → storage → using.

Considering the fundamental objective stated above, we can identify the following derived objectives:
- increasing the degree of substantiation both by providing accurate and real-time information to all stakeholders and by using complex mathematical and economic models in decision-making process;
- ensuring a high level of refreshing the database information, and definition of the rights of access to its users;
- establishing manual and automated procedures used for collecting, storing and transmitting information;
- define and implement the procedures to ensure the integrity and protection of information and the procedures of duplicating the information, in order to prevent their damage;
- an efficient use of software applications and hardware equipments.
Running a business oriented to produce and quickly implement high-quality knowledge is dependent on the ability to produce ideas faster and better than its competitors. The key elements in this process are the people, their relationship with the company and their ability to manage knowledge. In fact, most companies were not concerned only in a superficial way of managing this new resource, namely intellectual capital, blocking it in clichés like "model employees whose skills and abilities are crucial to business success...". 

Knowledge management is just one component of intellectual capital and refers to the storage, transfer and migration of knowledge. Knowledge holders, experts in Drucker's view, those who would "destroy" capitalism in that "portability" of knowledge will ultimately lead to a reversal of the possession of the production process, the employee is no longer just an asset in the company's possession, in the traditional sense, keeping it in the company becoming a real challenge and a transformation of the "chief" in a partner. The best example that can be used to highlight the importance of intellectual capital and the importance of proper management of this resource is the evolution of companies like Microsoft, Apple, Nokia and Google. 

Driving through coercion which is one of the most commonly used management methods applied today in Romanian companies have a number of drawbacks as rigidity, conformism, lack of initiative and increasingly proves its limits in terms of how to organize and how to deal with employees. 

In conclusion, knowledge as an asset or resource, unlike information and data is not easily understood, classified, shared or measured. It is invisible, intangible, and difficult to imitate. Expand the knowledge base within an organization is similar to expanding the information base. However there are a lot of confusion between IM and KM although clarified so many differences between the fields of application, depth of processes and variables involved. Perhaps software developers are the main culprits of this confusion, because there are many influences of the software industry on new techniques and management practices. 

During the last decades many of the "novelties" of management (reengineering, ERP - Enterprise Resource Planning, CRM - Customer Relationship Management, PRM - Partner Relationship Management, business intelligence, etc.) have their origin in the software industry. The speed of movement of these new concepts was frantic and in theory has become difficult to understand the real implications of each of these new "waves". A thorough understanding of each of these "waves" management becomes very important. However, it seems that the theoreticians should make more effort in the process of understanding of how these waves appear, develops and evolves and finally become management practices. 

In the context of the above discussion, the question arises whether KM is a temporary phenomenon, a new wave or really a new discipline. Professor Robert M. Grant from Georgetown University stated that "KM gives us an insight into aspects of management that we failed to understand properly because of our inability to take into account the nature and characteristics of knowledge" [22, 39]. 

So KM is not an entirely new discipline and has a positive impact on management theory and at the same time on the management information (MI). KM represents a shift from emphasis on information to focus on individuals who create and own knowledge. The challenge is the development of coherent, comprehensive, systemic and systematic KM, which takes into account the constant interaction between organizational strategy, values, human capital and information infrastructure. 

Finally, must be pointed that supporting knowledge creation and dissemination processes are not new concepts. However, after comparing IM and KM, it is important to note that the KM practice was deeply influenced by improving the ability to processing information and communicating, synchronous and asynchronous, using new devices and technologies. 

In the new economy, knowledge productivity is the determining factor of the competitive position of a company, of an industry, of a nation, totally democratic, in the sense that any country, any industry or any company does not have a "natural" advantage or disadvantage. The only advantage you can have
is the ability to exploit knowledge that is everywhere, because the value is now created by
"competitiveness" and "innovation", both of which are applications of knowledge.

References