

# Understanding the difference between Information Management and Knowledge Management

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## Abstract

This paper discusses the important differences between Information Management (IM) and Knowledge Management (KM). One of the key premises advanced in this paper is that tacit and explicit knowledge are not the same knowledge in a different state. The act of writing and making one's knowledge available to others is in itself an act of learning and transformation of the nature of knowledge. In a general sense, it can be said that the "human element" is much more relevant from a KM perspective than from an IM perspective. Traditionally, IM has not taken into account how people learn, create, validate, codify, share knowledge and make decisions. Its focus has been on the manipulation of data and information. Conversely, KM, as a more recent discipline, has a much broader ambition. The goal of this article is to discuss not only how KM and IM are different or similar, but also how and why these two disciplines intersect. The risks involved in KM projects that do not clearly take these differences into account are also highlighted in this paper. The paper is based on a literature review and authors' own experiences with KM initiatives.

## Key Words

Information Management, Knowledge Management, Information Technology, Tacit Knowledge, Intuition, Incentives, Risks, Reengineering

## Introduction

It is commonplace these days to say that knowledge is the most critical asset to be managed. Yet not many people – particularly not practitioners – invest very much time in learning about what knowledge really is and how different knowledge management is from information management. Particularly IM-focused individuals or software vendors tend to treat IM and KM as the same thing. However, the very act of managing and management science itself can be seen, to a large extent, as the application of human knowledge in an organizational context to achieve desired outcomes. Thus, managing knowledge can be defined very narrowly or broadly depending on a person's specific goals or perspective.

A narrow definition of KM is usually associated with the deployment of information management systems, while broad definitions are usually associated with the softer side of management such as leadership style, organizational culture, rewards and recognition programs, etc. In this article, we will argue that despite the growing focus on information management systems as a key enabler of KM, knowledge management as an emerging discipline depends on the fusion of the contributions of many disciplines, including philosophy, psychology, sociology, management and economics that until recently did not cross paths.

## **Defining Information and Knowledge**

In order to fully understand the differences between IM and KM, it is important to review basic definitions of information and knowledge. There has been no shortage of authors providing their own definitions of these terms. Thus, in this paper, we will not present our own definitions, but rather discuss the management implications of definitions provided by some leading authors. In general, the definitions of information tend to be far more uniform and less complex than the definitions of knowledge.

Information is usually defined as:

- ✓ “Organized data” (Saint-Onge, 2002);
- ✓ “Data endowed with relevance and purpose” (Drucker, 2001);
- ✓ “Interpreted data” (Probst et alii, 2002).

These definitions are similar to many others that point to the fact that information includes human participation in the purposeful organization of raw data.

Defining knowledge, however, is a much more complex task. One way to tackle this task is to go back to the roots of the Greek word *episteme*, which means absolute truth. That seems broad enough to include many subsequent definitions. What is absolute truth and how to reach it, however, have been questions plaguing many generations of philosophers since Aristotle and Plato. We will not discuss all the perspectives that many great thinkers have offered since then, but highlight that two main views have been put forth about how we learn and acquire knowledge: empiricism and rationalism (Gordon, 2002). The interplay between authors coming from these two camps offer us the current more accepted understanding about knowledge. Namely, knowledge can only reside in one’s mind and is the result of human experience and reflection based on a set of beliefs that are at the same time individual and collective.

The same complexity is highlighted by some of the leading authors in the emerging field of knowledge management. For instance, Davenport & Prusak (1998) define knowledge as a mix of fluid experiences, values, contextual information and intuition that provides a structure to evaluate and incorporate new experiences and information. It originates and is applied in the minds of individuals. This is similar to Nonaka & Takeuchi’s definition (Nonaka & Takeuchi, 1995): “Knowledge is true and justified belief”.

We could highlight many other definitions, but in our opinion, they would not add significantly to further clarifying the difference between information and knowledge. In general, all authors point to the complexity of knowledge compared to information. The key difference can be

summarized by the role played by human beings. In the case of knowledge, as simple as it may seem, individuals play a prominent role as creators, carriers, conveyors and users. In contrast, in the case of information, these same functions can happen “outside” humans and without their direct influence.

## **Key Differences Between Information and Knowledge Management**

We will analyze the differences between IM and KM according to five different dimensions:

1. Interplay Between Information and Knowledge
2. IM and KM Projects: different scopes, approaches and measurement systems
3. Organizational Learning and KM
4. Broad Concepts of KM
5. Protecting Intellectual Capital: IM and KM Perspectives

### ***Interplay Between Information and Knowledge***

From a management perspective the key difference between information and knowledge is that information is much more easily identified, organized and distributed. Knowledge, on the other hand, cannot really be managed because it resides in one’s mind. Thus, KM is essentially limited to creating the right conditions for individuals to learn (using information and experiencing the world) and apply their knowledge to the benefit of the organization. The application of one’s knowledge can, hopefully, thereby be translated into relevant information that is shared and used, new products and actions that create value.

This understanding of knowledge and KM can lead one to think about the well-known “spiral of knowledge creation” proposed by Nonaka & Takeuchi (1995). Although the authors agree with Nonaka & Takeuchi’s view of how knowledge is created, we find it important to highlight that they do not clearly explain the difference between information and knowledge. In our opinion they use the term “explicit knowledge” almost as a synonym for the word “information”. This interchange, in our opinion, may have led many practitioners that read their contribution to quickly to think too much in terms of Information Management (IM) instead of Knowledge Management (KM).

One of the subtle aspects of the two distinctive approaches mentioned in the paragraph above is that as knowledge is turned into information (documents, best-practices, databases, etc) a transformation occurs. Information is not the same as knowledge in a different state (outside an individual’s head). During the process of speaking and writing individuals are not just “downloading” (using the metaphor of a typical download from the Internet) what they know. They are, in fact, learning and transforming what they know into something that is materialized as symbols and that resembles what they know, but that is inherently different from what they know. As Polany (1997) once said: “We know more than we can tell”. When the required knowledge is somewhat more “easily” translated into codified information, we tend not to notice such an important difference (e.g. instructions to operate a coffee machine). However, when the required knowledge is embodied in one’s physical skills (e.g. soccer player) and/or is related to complex knowledge that requires significant experience and analysis of many variables (e.g.

family doctor), then the inherent difficulty of converting knowledge into information becomes more evident.

A very interesting perspective that clearly distinguishes KM from IM has been offered by Von Krogh, Ichijo and Nonaka (2000). These authors built upon Nonaka's initial work and put forward the idea that it is not possible to manage knowledge. According to their view, one can only prepare, and hopefully positively affect the knowledge creation process through many managerial actions and decisions. The key for these authors is not the deployment of sophisticated information technology, but the facilitation of conversations locally and increasingly among people in different locations. Thus, KM is about supporting conversations and supporting a humanistic perspective of work. It is also deeply ingrained in the values of the organization since knowledge in their opinion is also true and justified belief. In our opinion, the perspective offered by these authors highlights another key difference between IM and KM: IM is usually not concerned with the actual process of knowledge-creation or innovation.

KM systems are necessarily much more human-centric than IM systems or initiatives. Thus, KM practitioners must recognize that increasing the richness and quality of the available information sources and the interpretative capacity of employees is far more desirable than simply increasing the quantity of information available. Information *per se* can be meaningless and irrelevant without proper context. Thus, two of the main concerns of KM (and traditionally not of information management) should be (1) the provision of context for and validation of available information and (2) increasing the connections among people (who have knowledge) that would likely not occur without the help of a KM system. With these goals in mind, context about the main information sources (especially unstructured information) is significantly enriched by including additional details such as (Terra & Gordon, 2002):

- ✓ Who created the information;
- ✓ What is the background of the authors;
- ✓ Where and when was it created;
- ✓ How long will the information be relevant, valid and accurate;
- ✓ Who validated the information;
- ✓ Who else might be interested or has similar knowledge;
- ✓ Where was it applied or proved to be useful;
- ✓ What other sources of information are closely related;
- ✓ How to test some of the concepts (e.g. through templates and simulation).

### ***IM and KM Projects: different scopes, approaches and measurement systems***

Terra and Gordon (2002) have suggested that the term "KM project" should never be used as if it pertained to the same category as an IT/IM project. KM projects should take a holistic or organic view of the enterprise and should encompass different initiatives in many areas: certainly in IM, but also in HR, organizational design, internal communications and so forth. KM is more closely associated with the "act of managing" than IM. In this sense, KM is never-ending. It is defined by the identification of people's expertise and the interplay of people with people (tacit knowledge-sharing) and people with information systems (two-way road of knowledge capture,

reuse and recreation). Given that they are highly dependent on people's previous knowledge, motivation and willingness to create, act, share and/or codify their own individual knowledge, KM processes are far more complex than IM projects. However, KM is increasingly dependent on the support of a solid IT infrastructure. This dependence is particularly evident in large and geographically dispersed organizations where significant numbers of knowledge-workers need to collaborate with peers who are not in the same location and are constantly creating, applying and storing information for further reuse by people whom they may never meet personally.

It is our opinion that KM projects need to be a lot more value-driven than traditional IT/IM projects. Whereas the success of IT/IM projects is often judged based on technical achievements (besides cost and timeline considerations), the success of KM projects has less to do with technical achievements and more to do with changes in behavior or actions derived from connections or learning opportunities that the projects facilitated. In general, therefore, IM solutions should be considered as distinct from KM projects, but also key enablers of greater levels of collaboration and knowledge-sharing.

Without a clear understanding of how knowledge is created or utilized by human beings, and how certain design solutions impact the knowledge creation process, companies implementing KM initiatives may fall again prey to the same traps that scuttled of the most disastrous IT-laden initiatives of the nineties: the re-engineering fad. These traps included (Hamel, G. & Prahalad, C. K., 1994):

- ✓ Not considering the issues of past organizational learning in the form of the (tacit) knowledge of employees and future organizational learning in terms of the need for the company to be continually learning and adapting itself;
- ✓ Developing technology-intensive business process redesign solutions without understanding how knowledge and judgment are related to such business processes and the willingness, or readiness, of organizations to change;
- ✓ Impeding lateral links and peer exchanges due to a single-minded focus on achieving longitudinal and cross-functional links and efficiency gains; and
- ✓ Failing to consider the practical needs of employees, focusing instead on meeting process requirements. In John Seely Brown's and Paul Duguid's words, the reengineering movement failed to understand that: "It is the practice of the people who work in [an] organization that brings process to life, and, indeed, life to process" (Brown & Duguid, 2000).

Finally, one of the most telling differences between IM and KM projects is related to the measurement of results of such initiatives. IM follows a long tradition of information technology projects that tend to associate results (or Return on Investment, ROI) with very quantitative results and some intangible results (the so-called "nice to have"). In many cases showing positive ROIs in very short timeframes (in studies often "sponsored" by software companies). KM projects, on the other hand, require a very different approach because they rely more heavily on the willingness of individuals to modify their behavior and share, codify and use information and their own personal knowledge to the benefit of the organization.

## ***Organizational Learning and KM***

Although KM practice has distanced itself from the organizational learning field, it is possible to argue that from a theoretical point of view, the knowledge management discipline can also be seen as a direct inheritor of the organizational learning field. Chris Argyris (1977), Peter Senge (1990), Edgar Schein (1993) and others have made important contributions to KM in terms of looking at how individuals and an organization can learn continuously through self-knowledge, systemic thinking, openness and dialogue. Further, Keating, Robinson & Clemson (1999, p.8), highlighted the difference between knowledge and learning: Knowledge – encompasses what we know and what we can do – indicates a state and, therefore, potential for action and decision. Learning, on the other hand, refers to any change in a given knowledge state.

Thus, knowledge can be seen as a “stock” and learning as the “flow” of knowledge. This distinction, although apparently trivial, is of utmost importance for the design of KM initiatives. The competitiveness of an organization depends both on its current stock of knowledge and on the flow of individual and organizational knowledge. Whether an organization should put more emphasis on the “stock” or “flow” of knowledge depends, to a large extent to the type of industry, nature of work and value proposition. In markets that are more stable and where work tends to be more repetitive, KM’s primary goal should be to effectively reuse existing knowledge that has been translated into detailed information. Where the competition is essentially innovation-driven and work tends to be more varied, learning and focus on the flow of knowledge will deliver better results. These two opposing KM models are, of course, just two extreme poles of a continuum. Reality often lies somewhere between these two poles.

## ***Broad Concepts of KM***

After reviewing KM schemes from leading KM authors (such as Nonaka & Takeuchi, Karl Wiig, Michael Earl, Edvisson, Snowden, Inkpen & Dinur, Van Buren and Despres & Chauvel) Despres and Chauvel (2000) show that most KM models and perspectives include both a structural and a prescriptive aspect. They suggest that the following themes are recurrent:

- ✓ Time: knowledge is not seen as a store, but as a dynamic process that can be better understood in terms of processes occurring in a frame of time;
- ✓ Types, Forms, Embodiments: knowledge has many classifications that are usually consequential in nature;
- ✓ Social Space: most authors recognize that the individual is the only holder of knowledge, but that knowledge only becomes relevant in a social space or in an action.
- ✓ Context: most authors agree that nothing has any meaning outside a context;
- ✓ Transformations and Dynamics: this has much to do with the more practical, abundant and prescriptive nature of KM definitions and includes concepts and practices such as: socialization, externalization, combination, internalizations, inventorising, auditing, experiencing, articulation, reflection, codification, dialogue and reflection.
- ✓ Carriers and Media: this theme refers to the infrastructure of transformative and dynamics processes and highlights the methods and the “how” of KM;
- ✓ Knowledge Culture: many authors also emphasize the learning aspects and impact of different cultures.

The multiple perspectives of KM have also been clearly presented by one of the authors' own thesis (Terra, 1999). He has argued that the management practices that are related to effective KM and, as such, to fostering learning, creativity and innovation, are strongly associated with: leadership and culture focused on experimentation, innovation and the continuous search for big challenges; multidisciplinary teams; the creation of different opportunities for establishing personal contact, thereby developing, diffusing and assimilating the tacit knowledge of employees; ample access by all to information and knowledge; encouragement of diversity; investment in professional and personal development; and, finally, support for the establishment of close individual and organizational links with the external environment and use of multiple performance indicators (in particular those that account for Intellectual Capital, knowledge flows, etc).

A broad KM perspective should also be closely linked with an organization's corporate/business strategy. Only knowledge that supports unique value propositions and core competencies is really worth pursuing and protecting. Unfortunately, various surveys (Zack, 1999) completed in the late nineties with hundreds of companies from the USA and Europe, demonstrated that this link is rarely established in most KM efforts. This brings us to suggest that KM necessarily involves two intertwined levels of action: strategic and tactical.

In organizations where KM is well structured, the actions in these two levels should be coherent and aimed at bringing coordination to the tasks of identifying, creating, organizing, sharing, disseminating and using the sources of knowledge available for the organization. The strategic level is a more analytical level of action that should have a top-management perspective. It should be focused on determining what types of knowledge will provide a competitive edge and how the organization will acquire, develop or maintain such knowledge advantages. Once the key decisions and strategies are formulated, companies can engage in tactical actions such as the implementation of organizational processes, HR policies and IT infrastructures that will support the chosen strategic directions (Terra & Gordon, 2002).

### ***Protecting Intellectual Capital: IM and KM Perspectives***

There are also very important differences between information and knowledge management when it comes to strategies for protecting of valuable intellectual capital. An IM perspective will lead organizations to put too much emphasis on "front-door security", badges, firewalls, permission and access levels, etc. Although in many cases these measures can be of utmost importance, in many other circumstances, truly important knowledge resides within people's heads and an active and systematic protection strategy of this type knowledge should be put in place. In practical terms, there are only two types of strategies to protect this type of knowledge: retention policies and the circulation of knowledge. Retention policies are more clearly understood. Circulation of knowledge strategy relates to actively developing mentoring (helping juniors learn from more senior people that hold strategic knowledge) and fostering teamwork & communities of practice (making sure a number of people develop knowledge collectively, therefore, reducing the potential of losing knowledge suddenly by the departure of a particular individual).

## Conclusions

Knowledge as an asset or resource, unlike information or data, is not easily understood, classified, shared and measured. It is invisible, intangible and difficult to imitate. Expanding the knowledge base within an organization is not the same as expanding its information base. Nonetheless, there is a great deal of confusion among information management and knowledge management.

If IM and KM are so different in terms of scope, depth and variables involved, why are the terms often misused?

It is our opinion that the software sector should be partially to blame for this confusion. Indeed, the influence of the software industry on the adoption of many new management practices and techniques has not been studied enough. The confusion between IM and KM is, in our opinion, just one of the latest symptoms of a much deeper trend: how the software industry is helping to shape management practice, language and theory.

In the last few years, much of the “buzz” in management practice – reengineering, ERP, CRM, PRM, permission marketing, collaborative commerce, etc – has originated in the software industry in the last few years. The pace of these developments has been frantic and Academia is having a hard time keeping up with and understanding the real implications of each one of these new “waves”. Developing a deep understanding of each one of these many “management waves” is certainly very important. However, it seems to us that Academia should put much more effort into understanding the general process of how these “waves” are developed, evolve and become a common fixture of management practice.

In the context of the above discussion, we believe that it is valid to ask whether KM is just a “buzz”, a new “wave” or indeed a new discipline. In order to answer this, we think that it is highly appropriate to quote Professor Robert M. Grant from Georgetown University. According to Grant (Grant, 2000, p. 39): *“What Knowledge Management offers us is insight into aspects of management that we have failed to understand properly because of our failure to consider the nature and characteristics of knowledge”*. We believe that although KM is not necessarily a totally new discipline, it is having a very positive impact on management theory and also on information management. Most importantly, KM represents a shift from a focus on information to a focus on the individuals that create and own knowledge.

Finally, we must highlight that supporting the knowledge creation and dissemination process is certainly not a new concept. This has been a major concern for management theory and humankind in general for a very long time. However, after spending much of this article comparing IM and KM, it is important to remember that KM practice has been deeply influenced by recent improvement in our ability to process information and to communicate through many new devices and technologies in synchronous and asynchronous modes. The challenge, then, is to develop a coherent, aligned, comprehensive, systemic and systematic approach to KM that takes into consideration the constant interplay among organization strategy, values, human capital and information technology infrastructure.

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