From Information Management to Knowledge Management

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INTRODUCTION

The continuous evolution of theory and practice has modified the existing organizational paradigms and has introduced new models which attempt to explain how information is created, transmitted, used, and managed within various organizations. Many authors have outlined the fact that information no longer represents the most important asset of a firm. In the present competitive conditions, the managers must also consider knowledge and its relationship with enterprise information systems (Gray & Densten, 2005; Jorna, 2002; Nonaka & Takeuki, 1995).

Using both a theoretical and empirical approach, this study attempts to investigate the implication of a new paradigm of *knowledge management* on an organization's structure and functioning, considering knowledge management in direct relation with data management and information systems. This article shows, using two organizational examples, that the development of effective *knowledge management* systems requires a well-organized information system, as well as the clear identification of the main knowledge and decision-making centers within the business organization.

After briefly defining the concepts of *information management* and *knowledge management,* the article presents a comprehensive literature review of the academic and professional publications that investigate the inter-relationship between these two organizational functions. Based on this secondary information, we propose a model that integrates both information and knowledge management systems, and provides an analysis of two UK business firms in order to illustrate the integration between these elements.

BACKGROUND

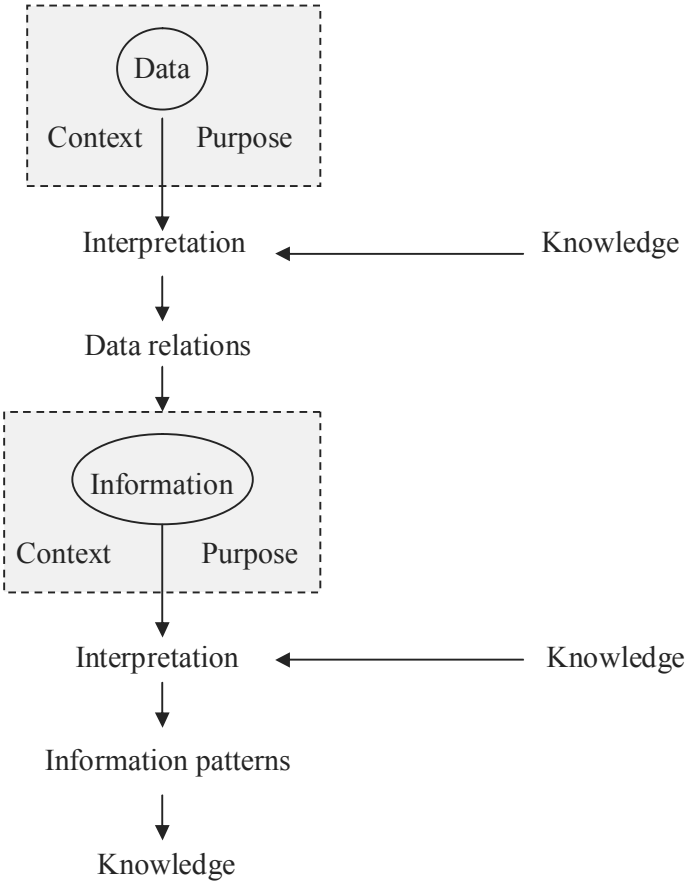
Before considering the research made on the relationship between *information management* and *knowledge management,* it is important to understand clearly the meaning of concepts such as data, information, and knowledge, and the progression from one to another within an organization.

A simple collection of data does not represent information, and equally, a simple collection of information cannot be considered as knowledge. An isolated datum has no meaning, and a collection of randomly combined isolated data is even more confusing (Schreiber et al., 2000). In order to transform a data collection into information, a person or a system must order the data, applying a specific interpretative pattern, which is determined by the context and the objectives of data analysis. Through the application of this interpretative pattern, specific relations among the collected data are discovered and defined, which transforms data in information, but only for a specific context and purpose (Bellinger, 2004). When the resulting information is ordered and interpreted in a specific context and with a specific purpose, patterns can be identified and defined as knowledge (Bellinger, 2004). Considering this transformation of data in information and then in knowledge, it is possible to draw a descriptive model (see Figure 1). It is interesting to note that in order to properly interpret the data and then the information, certain information patterns (knowledge) must be applied which create a dynamic cycle of knowledge creation and application within organizational systems.

However, this model is still too simplistic for several reasons. First of all, the knowledge used to define interpretation rules might not be created inside the organization, but rather acquired and transferred from outside (e.g., from a consulting firm), and it might be completely different from the knowledge resulting as an output of the entire process of interpretation.

Secondly, knowledge can be of different types (Wilson, 2002). Nonaka and Takeuki (1995) identify two types of knowledge—tacit and explicit knowledge—the first being derived from the second. On the other hand, Jorna (2002) defines three types of knowledge that are integrated into a dynamic model (van Heusden, & Jorna, 2001): (a) tacit or perceptual knowledge, (b) coded knowledge, and (c) theoretical knowledge. Perceptual knowledge is based on the perception of a specific difference in the environment, which allows one to identify and become aware of a specific situation or context (perceived as a pattern). Jorna (2002) considers this type of knowledge as uni-dimensional. The step towards coded knowledge is realized when the perceiver identifies a specific relation between recognized events or processes. This type of knowledge is defined as bi-dimensional. Coded knowledge is easier to communicate, because it can be represented and reproduced using specific signs (e.g., letters, mathematical operators, symbols, etc.). Finally, knowledge becomes theoretical when coded signs relate to the events represented not on a basis of a convention, but on the basis

Figure 1. The progressive transformation of data in information and information in knowledge



of formal or structural qualities (Jorna, 2002). At this level, abstract signs can be used as knowledge operators, in order to predict the development and evolution of real events or processes (e.g., scientific formulas).

Depending on the purpose and utility of knowledge, Zack (1999) classifies knowledge as:

a. *declarative knowledge* – knowledge about something;
b. *procedural knowledge* – knowledge of how something occurs or is performed; and
c. *causal knowledge* – knowledge of why something occurs.

On the other hand, considering the specific subject/object or the form of knowledge, Lemken, Kaler, and Rittenbruch (2000) identify:

a. *tacit knowledge* – you know it but you can't say it;
b. *experience-based knowledge* – physical experience;
c. *coded knowledge* – still available when people leave;
d. *conceptual knowledge* – cognitive ability, abstraction;
e. *social knowledge* – shared knowledge, culture, groups;
f. *event knowledge* – events and trends; and
g. *process knowledge* – operations and context.

Thirdly, the knowledge is mainly connected with people, and therefore human resource management is considered one of the main tracks of *knowledge management* (Parise, 2007; Sveiby, 2001), together with information systems. Choi and Lee (2003) make a clear distinction between a system-oriented and a human-oriented approach in knowledge management. System orientation emphasizes codified knowledge, focuses on codifying and storing knowledge via information technology, and attempts are made to share knowledge formally. On the other hand, human orientation emphasizes dialogue through social networks and person-