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Mapping knowledge management and organizational learning in support of organizational memory

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ABSTRACT

The normative literature within the field of knowledge management has concentrated on techniques and methodologies for allowing knowledge to be codified and made available to individuals and groups within organizations. The literature on organizational learning, however, has tended to focus on aspects of knowledge that are pertinent at the macro-organizational level (i.e. the overall business). The authors attempt in this paper to address a relative void in the literature, aiming to demonstrate the interlocking factors within an enterprise information system that relate knowledge management and organizational learning, via a model that highlights key factors within such an inter-relationship. This is achieved by extrapolating data from a manufacturing organization using a case study, with these data then modeled using a cognitive mapping technique (fuzzy cognitive mapping, FCM). The empirical enquiry explores an interpretivist view of knowledge, within an information systems evaluation (ISE) process, through the associated classification of structural, interpretive and evaluative knowledge. This is achieved by visualizing inter-relationships within the ISE decision-making approach in the case organization. A number of decision paths within the cognitive map are then identified such that a greater understanding of ISE can be sought. The authors therefore present a model that defines a relationship between knowledge management (KM) and organizational learning (OL), and highlights factors that can lead a firm to develop itself towards a learning organization.

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1. Introduction

Dynamic theory of organizational knowledge introduced by Nonaka (1994), explains that organizational knowledge is created through a continuous dialogue between tacit and explicit knowledge. Such interaction takes place through four touch-points, namely, *socialization*, *combination*, *internalization* and *externalization*. Such interaction is transcendental, and as Sorensen and Katakura (2002) explain, simply encoding data in itself, does not provide a context for using information and the

harnessing of knowledge, effectively. There is a pressing need to understand the manner by which one uses and can learn from such information (i.e. the sublimation of information into useful data, or knowledge) codified and made accessible via an information system (IS). This need is often motivated by the desire to exploit data and its opportunity to craft information and thus knowledge. It is postulated that whilst organizational learning (OL) might be the *ideal* that organizations want to accomplish, knowledge management (KM) is the *reality* of what can be achieved. Indeed, King et al. (2002) note the results of a survey conducted by senior knowledge managers that reports the vast majority of practitioners focus their attention on the strategic management of *learning*, and harnessing of knowledge. In furtherance of such findings,

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there remains a need to not only define the contingent difference between knowledge management and organizational learning but also to provide an insight into those organizational factors that can support a business towards becoming a learning organization; where people at all levels within the business, individually and collectively, increasing their capacity to improve their personal and professional performance.

This paper derives its impetus and motivation through an established void in the literature that supports the need for an integrated model for KM and its relationship with OL, which in doing so, highlights behavioral and process issues surrounding information systems evaluation (ISE). The authors present the development of a model that highlights the factors for such an inter-relationship, which evolves from a case study research strategy that exploits qualitative information that is then modeled using FCM. While previous research showed that *experience* and *intuition* often served as the primary evaluation criteria (Kaplan, 1986; Lohse et al., 1995; Irani and Love, 2001), this empirical enquiry explores an interpretivist view of knowledge, within an IT/IS investment evaluation decision-making process. Through a classification of knowledge into three forms, *structural*, *interpretive* and *evaluative*, the given case attempts to elucidate the inherent, underlying explicit/tacit knowledge relationships that define key KM to OL factors.

The authors seek to establish such relationships through the application of a cognitive mapping technique; fuzzy cognitive mapping (FCM), to visualize aspects of the organization's decision-making approach, which leads to the identification of contingent knowledge factors and dependencies. In doing so, examining the dynamics of knowledge and the role that knowledge plays within the maturity of a learning organization. The authors seek to analyze the nature of explicit and tacit knowledge inter-relationships that exist within the ISE process, as a result of the FCM and case data. Such lucid tacit knowledge flows will, in turn, give way to the exploration of those aspects that may give rise to organizational learning within the context of a manufacturing firm. The conclusions are not seeking to offer generality but to allow others to draw parallels in constants and processes and thus, be supportive of decision-making processes.

2. Knowledge management and organizational learning

Information systems evaluation seeks to provide an understanding of decision-making tasks through a mapping of core factors to the investment justification process. Hence, there is a need to not only understand basic business principles but also a need to understand the specific nuances of a particular business case. Hence, the underlying theme of ISE is the influence of organizational culture and learning, on the decision-making of individuals. This has been a topic of much discussion, by authors such as Skerlevaj et al. (2007), who note that an organizational learning culture is impacted by the transformation of information across both internal and external company boundaries and environments that

often results from investments. Kess and Haapasalo (2002) also note the importance of including and imbibing knowledge and the review of organizational information within production-based company, if nothing else giving the organization “something to learn”. Saunders and Miranda (1998) expressed the criticality of acquiring and using information in the decision-making process, yet the form and type of knowledge required to make investment decisions has not generally been focused upon in the normative literature. Rather, there has been a tendency to pay attention to the methods and techniques employed via traditional cost accounting and financial methods (Ballantine and Stray, 1999; Irani et al., 1997). This is somewhat surprising given that the knowledge and experiential learning that is required within this decision-making process, is crucial to the outcome. It is here where this paper seeks to make a significant contribution to the extant literature, through *providing a deeper understanding of the relationship that exists between KM and OL, through the use of an FCM approach (when contextualized within an ISE process)*.

Advances in implementing information systems within the manufacturing sector, and the evolution and progression of cheaply available computing power, has meant that many manufactured goods and/or services, are now equally dependent upon the input of information and knowledge resources. In fact, information itself is becoming the product being sold, as explained by Järvenpää and Immonen (1998). Hence, over the years, it has also become increasingly important to understand the manner by which such resources are applied to, and used within the organizational context. The growth of the field of knowledge management has therefore seen the development of processes and tools that address the *codification, collaboration, dissemination and representation* of knowledge.

Nonaka and Takeuchi (1995) famously built upon the ideas of Polanyi, differentiating between so-called expressible, explicit knowledge; and inarticulate, tacit knowledge (knowledge which we find difficult to *articulate*). Whilst these approaches have been somewhat successful as compared to the purely *structural* and *interpretive* forms of knowledge, there remains a need to understand the context of *how* knowledge is used, specifically for human decision-making tasks. More importantly, the creation of internalized, organizational knowledge has been understood to be because of individual and collective experiences within the firm (Schumpeter, 1934). Thus, the concept of an organizational or “corporate memory” (Handy, 1990) has also become a very powerful and ubiquitous concept, and is seen by many as being an aspect of knowledge itself, being termed organizational learning. As King (2000) and King and Ko (2001) note, there is much confusion over knowledge management and organizational learning terms, which are often used interchangeably, however, Levine (2001) stressed the contingent differences between organizational learning; and a learning organization. For an organization to become one that is a learning entity requires it to overcome barriers of individual/team learning; be able to arrive at a common understanding

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