

Chapter 9

Technology Support for Knowledge Management in Industrial Settings: Issues and Implications

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ABSTRACT

The rapid innovation rate of industrial equipment, coupled with diversity of industrial processes and application areas, has introduced new constraints for management and workers in industrial settings. As a result, it is difficult to present a generic framework for knowledge management (KM) support in industrial environments. In this contribution, the authors briefly discuss KM in customer based organizations and highlight, in some detail, the factors that make Information Technology (IT) support particularly specific for KM in industrial settings. In order to design IT tools for effective knowledge sharing, there is a need for researchers to go beyond the theoretical frameworks and concepts. This requires a deep look at the knowledge sharing practices embedded in the work settings. It is suggested that there is a need for more empirical work in industrial settings to have a practice based analysis. The chapter also reviews the literature and provides guidelines for future research in the domain of technology support for KM in industrial settings.

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INTRODUCTION

The post-industrialization era forecasted the importance of knowledge (Drucker, 1993) and, lately, the notion of knowledge society (c.f. Lytras and Sicilia, 2005) has re-emphasized the importance of knowledge and advocated for effective knowledge access to every stakeholder. Traditional production industries have remained a backbone of the economies for a long time but the information age paved the way for information based economies. As a result, organizations and companies became conscious of managing knowledge in their organizational settings. Although knowledge has become a prime asset for the companies (c.f. Grant, 1996; Spender, 1996), but fostering knowledge sharing is quite a complex process, even at intra-organizational level. As a result, the knowledge management (KM) paradigm has gained significant importance. KM could be defined as a set of activities required for knowledge creation, acquisition, capture, codification, sharing, and use to enhance organizational performance (c.f. Quintas et al., 1996; Prusak, 1997; Swan et al., 1999). Lee and Yang (2000) define KM as a set of organizational principles and processes that help knowledge workers (i.e. employees involved with the processing of information and knowledge) to leverage their creativity and ability to deliver business value (Roy and Stavropoulos, 2007). In a business environment, KM refers to the management of an organization's knowledge assets to share and deploy information in an organization's processes to provide better decision making (Bose and Sugumaran, 2003). In fact, there are two aspects to KM:

- To acquire, store, locate and update the information - for the organization itself for the purpose of process and product improvement as well as innovation
- To share and disseminate contextual information and expert insight - for the benefit of the organization's customers and partners as well as the organization itself.

Information technology (IT) advances have revitalized the importance of KM and technology support for KM in organizational settings has become an emergent area for research. Despite KM being a buzz word, a clear set of practices, required to implement KM, is still ambiguous, this makes technology design for KM quite complex. Wilson (2002) concludes that KM is associated with different organizational tasks which have no relation with management of knowledge. So, it is very important to understand the context and meaning when referring to KM.

Mostly, the term 'industrial setting' is referred to the manufacturing industry but, in reality, industrial settings are quite diverse. The industries could be classified on the basis of different parameters such as industry type (household, small and medium scale enterprise, heavy, agro based mineral based, consumer, service etc.), ownership (public, private, cooperative etc.) and investment (small scale, large scale etc.). International standard industrial classification proposed by United Nations categorizes the industries in 21 main categories as shown in Table 1 (UN, 2011).

A closer look at these types will highlight that KM needs of all these different type of industries are quite different from each other and, as a result, technology appropriation to foster KM in these settings is quite difficult. In order to foster a suitable KM process, it is pertinent to understand their organizational practices to design appropriate IT systems. The objective of this chapter is to highlight the obstacles in technology support for KM in industrial environments. The remaining chapter is structured as follows: section 2 discusses the motivation for technology support for KM in industrial settings, whereas sections 3 and 4 summarize the existing literature on knowledge management in customer focused and industrial settings. Section 5 discusses the knowledge flow in industrial environments, followed by section 6 on conclusions, where we discuss the differences in industrial settings which could affect system design.

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