

Knowledge Flow Identification

Oscar M. Rodríguez-Elias

University of Sonora, Mexico

Aurora Vizcaino

University of Castilla-La Mancha, Spain

Ana I. Martínez-García

CICESE Research Center, Mexico

Jesús Favela

CICESE Research Center, Mexico

Mario Piattini

University of Castilla-La Mancha, Spain

INTRODUCTION

Knowledge management (KM) is an important factor in organizational competitive advantage (Ichijo & Nonaka, 2007). Unfortunately, traditional KM initiatives frequently fail when they are included in the work processes of organizations (Stewart, 2002). One of the factors responsible for this is that these initiatives are not well aligned to the real knowledge needs of the organization's knowledge workers. Thus, it is important to seek approaches to help to align KM initiatives to the real work processes of organizations (Maier & Remus, 2002), considering what is important for their knowledge workers (Dalkir, 2005; Wiig, 2004).

In this chapter, we describe the knowledge flow identification methodology (KoFI), a methodology, based on process engineering techniques, that has been developed to aid in the study of organizational processes from a knowledge flow perspective. The methodology proposes a set of steps and tasks that can be carried out to analyze knowledge flows in business processes; thus, helping to identify issues such as the knowledge workers' needs, the knowledge (and its sources) that is principally involved in the processes, the working tools that may (positively or negatively) affect the flow of knowledge in the process, or the problems that may be restricting the good flow of knowledge in the process. To exemplify the usefulness of the KoFI methodology, we provide a brief description of some of the results obtained from the application of the methodology, in real settings, in which it was helpful for various purposes, including: the design of a multiagent-based KM system, the development of a knowledge map for a process, the identification of the manner in which to integrate a tool currently used in an organization as a basis for a KM strategy, and for the development of an organizational knowledge portal.

BACKGROUND

The integration of KM into organizational processes has been considered one of the most important research approaches for the present and future of KM (Scholl, König, Meyer, & Heisig, 2004). It can be found in literature, some works addressing the integration of KM in organizational processes. Maier and Remus (2002), for instance, have studied different approaches for process-orientated KM strategies, and have developed a framework that is useful for characterizing them. Some other authors have proposed process-modeling approaches for studying the knowledge involved in organizational processes, most of which have been designed to aid in the development of KM systems (e.g., Bera, Nevo, & Wand, 2005; Kim, Hwang, & Suh, 2003; Nissen & Levitt, 2004; Papavassiliou & Mentzas, 2003; Smith & McKeen, 2004; Strohmaier & Tochtermann, 2005; Woitsch & Karagiannis, 2002). Most of the approaches we have found in literature are orientated towards developing specific KM systems, or they require special tools for using them. We have not found work focused on understanding the knowledge requirements of a process rather than on proposing specific solutions. Before proposing a specific approach for managing knowledge in an organization, it is important to analyze the organizations' work processes from a knowledge flow perspective (Nissen, 2002), since supporting knowledge flow should be the main focus of KM (Borghoff & Pareaschi, 1998).

The KoFI methodology, presented in this chapter, uses process-engineering techniques to analyze organizational processes from a knowledge flow perspective. The main differences, between our proposal and others, that we have found in literature, is that our approach focuses mainly upon understanding the flow of knowledge and the problems that affect it, and not upon developing specific types of KM

systems. However, more importantly, our approach takes a special interest in the current technologies that might be involved in the flow of knowledge within an organization, to consider them as a part, and perhaps as the basis, of the KM strategies. This is relevant since, as Davenport (2007) states, the most promising way to integrate KM into organizational processes is to embed KM into the systems that people use to do their jobs. Even in organizations that do not have explicit KM initiatives, employees frequently tend to apply certain KM activities implicitly, and the information systems that they use in their daily work may serve to partially support such activities. We argue that if we base KM strategies upon the work being done by the members of an organization, and use their current tools to do so, then we will be in a better shape to design KM systems that are really useful for organizations.

THE KOFI METHODOLOGY

The KoFI methodology was designed to aid in the analysis of software processes from a knowledge flow perspective (Rodríguez, Martínez-García, Vizcaino, Favela, & Piattini, 2005; Rodríguez-Elias, Martínez-García, Favela, Vizcaino, & Soto, 2007). It was defined to assist in three main areas: 1) to identify, structure, and classify the knowledge that

exists in the process studied, 2) to identify the technological infrastructure that supports the process and affects the knowledge flow, and 3) to identify forms with which to improve the knowledge flow in the process.

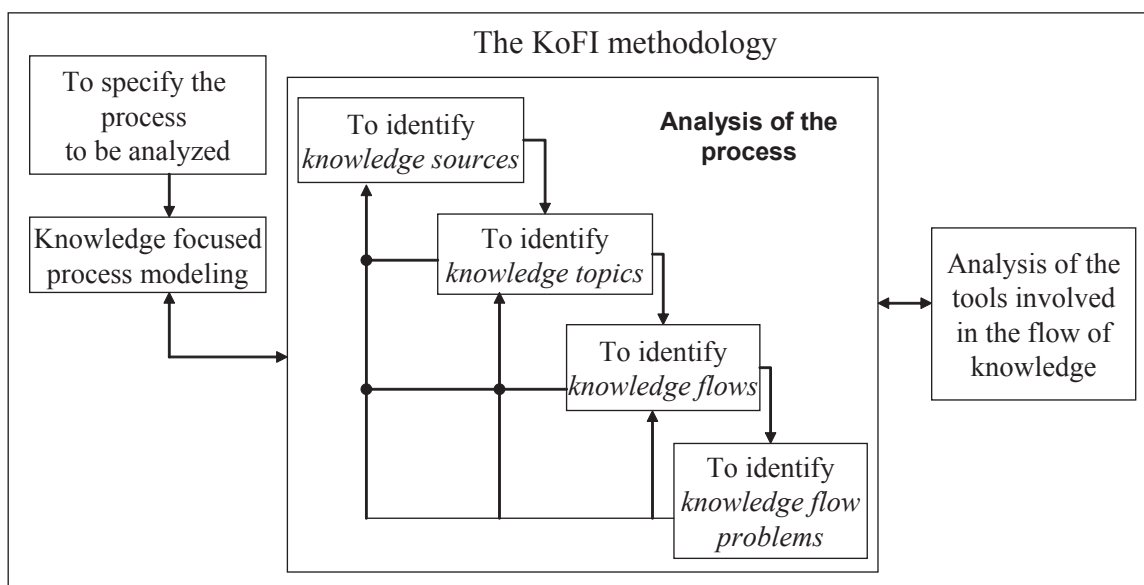
KoFI is orientated towards helping to analyze specific work processes. Therefore, it is necessary to define the specific process and model it. The process models are later analyzed following a four-stage process (see Figure 1) to finally identify and describe the tools that, positively or negatively, affect the flow of knowledge.

The process followed to apply the methodology is iterative, since each stage may provide information useful for the preceding stages. The process models are also capable of evolving while they are being analyzed in the different stages of KoFI. We shall now provide some directions about how each stage can be carried out.

The Knowledge-focused Process Modeling Phase

Traditional process modeling languages (PMLs) can be used to identify issues related to implicit knowledge flows, such as the information sources that are required, generated, or modified by an activity (Abdullah, Bennest, Evans, & Kimble, 2002). However, it is important that a PML used to analyze knowledge flow provides explicit representa-

Figure 1. General view of the KoFI methodology. KoFI has three main phases: knowledge-focused process modeling, analysis of the process (which include identification of knowledge sources, topics, and flows, and knowledge flow problems), and analysis of the tools affecting the knowledge flow.



4 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/knowledge-flow-identification/13908

Related Content

Design and Implementation of a Wide Area Network

Rohit Rampal (2002). *Annals of Cases on Information Technology: Volume 4* (pp. 427-439).

www.irma-international.org/article/design-implementation-wide-area-network/44522

Sociotechnical Framework for Participatory Flood Risk Management via Collaborative Modeling

Andreja Jonoskiand Mariele Evers (2013). *International Journal of Information Systems and Social Change* (pp. 1-16).

www.irma-international.org/article/sociotechnical-framework-participatory-flood-risk/78316

European International Freight Forwarders: Information as a Strategic Product

Hans Lehman (2006). *Journal of Cases on Information Technology* (pp. 63-78).

www.irma-international.org/article/european-international-freight-forwarders/3171

Information and Knowledge Perspectives in Systems Engineering and Management for Innovation and Productivity Through Enterprise Resource Planning

Stephen V. Stephensonand Andrew P. Sage (2010). *Information Resources Management: Concepts, Methodologies, Tools and Applications* (pp. 1036-1065).

www.irma-international.org/chapter/information-knowledge-perspectives-systems-engineering/54531

Telework Effectiveness: Task, Technology and Communication Fit Perspective

Bongsik Shin (2003). *Business Strategies for Information Technology Management* (pp. 1-13).

www.irma-international.org/chapter/telework-effectiveness-task-technology-communication/6100