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## Panel 2 Research Opportunities in Knowledge Networking

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## PANEL 2

# RESEARCH OPPORTUNITIES IN KNOWLEDGE NETWORKING

**Chair:** Ramesh Sharda, Oklahoma State University, U.S.A.

**Panelists:** H. C. Chen, University of Arizona, U.S.A.  
John King, University of California, Irvine, U.S.A.  
Rob Kling, Indiana University, U.S.A.

### 1. INTRODUCTION

Recent advances in information technology make the creation and transfer of knowledge faster than ever before. Nevertheless, support of knowledge workers with the right knowledge in the right format, and at the right time still remains one of the biggest challenges of knowledge management. This challenge is present for different kinds of knowledge, at different organizational levels, and for different knowledge management processes such as the creation, accumulation, and use/reuse of knowledge.

Knowledge networking (KN) is defined as the set of technologies and processes for knowledge creation, accumulation, and sharing. By facilitating knowledge sharing, it directly or indirectly addresses two other related problems: information overload and organizational memory. Knowledge networking is the concept that multiple sets of discipline expertise, information, and knowledge can be aggregated into a “cohesive enclave” for the analysis of a particular problem.<sup>1</sup> Knowledge networking focuses on the integration of knowledge across space and time.<sup>2</sup> In this context, a knowledge network can be defined as a cooperation of individuals who produce, share, or use a common repository of knowledge (Baets 1998). Thus knowledge networks may or may not embody development of new technologies, but these networks will certainly entail integration of existing technologies and systems for promotion of knowledge sharing. At the same time, the information overload problems have to be addressed.

The National Science Foundation (NSF) has initiated a program to encourage and support research on knowledge networking. In a number of NSF workshops and related activities, researchers have started to look for ways of focusing research toward an integrative solution to the knowledge management problems mentioned above.

This panel will aim to enhance our understanding of knowledge networking first by examining the knowledge management problems mentioned above, namely knowledge sharing, information overload, and organizational memory. To offer a comprehensive view of the research opportunities and challenges in knowledge networks, the panel is comprised of researchers in organizational and behavioral dimensions as well as technical aspects. The panelists will discuss the future of knowledge networking from the perspective of IS researchers and professionals. Particular examples regarding research on organizational and behavioral aspects of KN, the application of artificial intelligence in KN, and the cooperation of KN research and OR/MS will be elaborated by the panelists. The expected result of this discussion is a research agenda in knowledge networking from the

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<sup>1</sup>Knowledge Networking Workshop, May 8-9, 1997 (<http://www.scd.ucar.edu/info/KDI/KDIworkshop.html>, July 18, 1998).

<sup>2</sup>“Knowledge Networking (Abstract),” <http://www.scd.ucar.edu/info/FORMS/KPN1-6.html> (July 17, 1997).

perspective of information systems professionals. There are research opportunities in KN for disciplinary as well as interdisciplinary work where the IS researchers and developers can make a contribution.

## 2. PANEL PARTICIPANTS

**Ramesh Sharda** will introduce the panelists and the three problems of information sharing, information overload, and organizational memory. He will also talk about the opportunities for the cooperation of knowledge networking research and OR/MS. So far, the knowledge networking objectives of increased information sharing and decreased information overload have been treated at a conceptual level. However, the modeling practices that have been successfully applied by OR/MS researchers to a myriad of problem domains can be used for the quantification of the knowledge networking objectives and related problems. This way, knowledge networking researchers can gain a more systematic approach to the elaboration of their research problems. On the other hand, OR/MS models are not immune to low-quality information and their results are only as good as the information that the models are built on. This suggests that OR/MS research can benefit from the better information knowledge networks promise to provide. Therefore, there are opportunities for the cooperation of these different research disciplines that will result in mutual gains. Sharda will also moderate the question and answer session and develop a summary of the panel remarks and discussion.

**Hsinchun Chen** will elaborate the following theme: In the past decade, we have seen the emergence of knowledge management as a subfield within computer, information, and social sciences. Traditional computer science, electrical engineering, information systems, library and information sciences, and management and policy are being combined to create a unique, integrated perspective on identifying, capturing, retrieving, sharing and evaluating an enterprise's information and knowledge assets. In this panel, Chen will:

- Review the need for multidisciplinary knowledge management research teams in the context of the NSF Knowledge Networking Initiative, Digital Library Initiative, and Integrated Graduate Education and Research Training programs; and
- Present examples of results from recent research (e.g., Project OOHAY) sponsored by NSF, DARPA, and NIH in an attempt to build the next-generation Knowledge Management Systems based on artificial intelligence, information retrieval, and HCI research.

**John King** will provide a perspective view of knowledge networks along the following lines: Knowledge networks sounds like a cool and exciting new idea. It's completely old hat. There is no such thing as "knowledge" that exists outside "networks," simply because knowledge is an inherently social construct and has meaning only within social networks. The issue isn't whether we will have knowledge networks—it's too late to talk about that. The question is what kinds of new knowledge networks we might evolve in the coming years as a result of the affordances of information technology and the growth of knowledge about how to manage knowledge. The exciting part of this discussion lies at the intersection of what we might gain from these new networks and the question of how we go about building them. The two issues are highly reciprocal and deeply connected to the nature of existing knowledge networks. It seems likely, given experience with the impacts of IT so far, that the greatest short-term (i.e., 10 years out) effects of new knowledge networking will come through enhancement and leverage of existing knowledge networking.

**Rob Kling** has a project funded by the NSF's Knowledge Networking Initiative to study how the scientific community employs various means of communication to integrate and exchange knowledge. His discussion will focus on this research study and its results thus far.

## 3. FORMAT OF INTERACTION

The ICIS panel session will be a beginning of the discussion of knowledge networking research in the IS community. The panel chair (Sharda) will begin by introducing the panelists and will describe the challenges of the problems of information sharing,

information overload, and organizational memory. As described in the previous section, each panelist will then give an overview of the research in their domain. A question and answer session with the audience and the panel will follow. We also plan to devote a bulletin board to continue this discussion beyond the ICIS meeting. The bulletin board will be accessible through the following URL: <http://mgmt.bus.okstate.edu/faculty/ozgur/KN>.

#### **4. REFERENCES**

- Baets, W. R. J. *Organizational Learning and Knowledge Technologies in a Dynamic Environment*, Norwood, MA: Kluwer Academic Press, 1998.
- Sharda, R.; Frankwick, G.; and Turetken, O. "Group Knowledge Networks: A Framework and an Implementation," *Information Systems Frontiers* (1:1), 1999.