

Social networks and socio-technical information systems research

Social-network-based information systems have become well known among a large audience, thanks to web-based services such as Facebook, Twitter, FourSquare, and LinkedIn. The manifestation of relationships among friends and business acquaintances provides an easier means to render interpersonal relationships by making the connections involved more transparent and traceable. Social networks can reflect communities, teams, organizations, businesses, or even geographical regions, and ultimately have the power to influence end-user behaviors. Organizations can investigate the structure and dynamics of these online social networks, helping to better understand their internal workings and the decision-making processes involved. As inter-organizational collaboration and user participation have been found to be central to organizational effectiveness and innovation, insight into social networks continues to be increasingly important for organizations of all types.

The main areas of research concerning social networks in information systems (IS) are (cf. Oinas-Kukkonen *et al.*, 2010):

- 1) Studying increased network awareness at the individual and organizational levels;
- 2) Studying advanced uses of social networks in organizations;
- 3) Developing software platforms for establishing and managing social networks;
- 4) Verifying previous research from reference disciplines;
- 5) Developing information systems specific theories on social networks and their influence on human behaviors.

Awareness of one's social networks, whether professional or private, helps users recognize their own strengths and weaknesses. Social-network-based information systems can help in finding jobs and promoting one's career, and in a similar manner potential employers can use those systems to fill in gaps and seek out individuals with similar or complementary viewpoints and expertise. Social networks may also allow individuals to feel closer to loved ones who live far away. The primary methods for studying increased individual and organizational network awareness resulting from social networks are field studies and qualitative studies.

Advanced organizational uses of social networks include areas such as knowledge management, strategic management, business intelligence, and innovation. Linkages within and outside of an organization, including with regard to specialized knowledge, can support collaboration in strategic business units, new

product development teams, communities of practice, and joint ventures (Majchrzak *et al.*, 2007), and build collective intelligence. With this in mind, companies should determine suitable strategies for seeking out new knowledge and innovation. In reality, harvesting these networks is still poorly understood and rarely well supported within organizations, despite their growing interest in the area. Case studies offer a natural means of researching the advanced use of social networks in organizations.

We believe that, thus far, we have seen only early forms of social-network-based information systems, and that such systems will likely continue to dramatically grow and change. The research and development of platforms for managing social networks is important at the individual, team, organizational and inter-organizational levels (Lyytinen, Yoo, 2002). Potential areas for research include which software features social-network-based information systems should support in different settings. Because the technological playing field keeps rapidly changing, new opportunities for both research and design are likely to emerge. Even though the web has already received widespread attention from the general public, we believe that it will continue to be a major driver for the development of social-network-based information systems in the future. Extending the web with mobile and other pervasive internet technologies is opening up new research opportunities. Primary research methods used in studying software platforms for establishing and managing social networks include design science and experimental research.

While studies on social networks have been conducted in reference disciplines such as sociology for decades, recent developments in the web provide a rich and unparalleled opportunity to reexamine some of these assumptions and findings. We believe that many of the specific manifestations of social networks through information systems have not yet been discovered (see, for example, Ridings, Wasko, 2010), and that many ethical considerations within social-network-based information systems have not yet played out. Although there are other dedicated researchers working on related issues, for the most part they are studying them from very different viewpoints or at a level too broad to significantly advance research into the core of information systems. IS researchers need to engage in more activity in this area. Many different research methods can be used to effectively verify previous results produced by reference disciplines, and to develop IS-specific theories on social networks and their influence on human behaviors.

In our view, the most central topic in the study of social networks and information systems, whether in organizational, individual, or other contexts, is the impact of the involved services, features, and related strategies on human attitudes and behaviors. This implies the conjunction of social networks with the persuasive systems design approach (Oinas-Kukkonen, Harjumaa, 2009). This type of research concerns social networks, but also more general methods of influence through technology-driven social aspects. Moreover, it not only involves building on traditional IS research but also updating it. With regard to how professional and private social networks affect decision-making, new avenues of research could be

aimed at developing new types of applications, such as “socio-technical information systems with psychological and behavioral outcomes designed to form, alter or reinforce attitudes, behaviors or an act of complying without using coercion or deception” known as behavior change support systems (Oinas-Kukkonen, 2012). These and other socio-technical information systems may greatly benefit from the new knowledge being created about social networks.

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