

ISExpertNet: Facilitating Knowledge Sharing in the Information Systems Academic Community

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Abstract

In this study the global Information Systems academic community is viewed as a community of practice in which knowledge is resident but inadequately shared. The article begins by examining the application of knowledge management in communities of practice, especially the knowledge needs of shared work practitioners and conditions that facilitate knowledge sharing. The central part of the paper proposes an Information Systems Expert Network (ISExpertNet) as a solution for the global IS academic community to use in sharing expert knowledge. Especially, appropriate incentives to encourage knowledge contributions and operations of ISExpertNet are discussed. The article concludes by offering several suggestions for future research and development of ISExpertNet.

Keywords: knowledge management, communities of practice, information systems

Introduction

Most knowledge management (KM) research has been intra-organizational: examining an organization's ability to capture, codify, store, distribute, and utilize internal knowledge (e.g., Allee, 1997; Bennet & Bennet, 2003; Davenport & Prusak, 1998; Skyme, 1999). Research on these intra-organizational knowledge management systems (KMS) has focused on incentives to encourage knowledge sharing, procedures to codify this knowledge, and information systems to facilitate storage, distribution, and access to the knowledge base (e.g., Alavi & Leidner, 2001; Davenport & Prusak, 1998; O'Herron, 2003).

Some intra-organizational KM research studies examine knowledge sharing in communities of practice within the organization (e.g., Davenport, 2001; Smith & McKeen, 2003; Warner, 2001; Wenger & Snyder, 2000). Very little research has been conducted on extra-organizational knowledge sharing within broad, professional-oriented communities of practice, despite the recognition that a key aspect of knowledge management is facilitating communication between people (Hildreth & Kimble, 2002), regardless of where they work. Pan and Leidner (2003) note that "a goal of many KM initiatives is to develop a global knowledge community where knowledge is shared and utilized across various communities of practice in the organization". This study extends this goal beyond organizational boundaries into an extra-organizational context

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The purpose of this paper is to examine how knowledge sharing can be facilitated within a global, extra-organizational community of practice. First, the paper discusses knowledge sharing in communities of practice and the global IS academic community is identified as an extra-

organizational community of practice. Second, incentives for knowledge sharing are examined and peer recognition is identified as a strong incentive for facilitating knowledge sharing. Third, the IS academic community is defined as a community of shared work practitioners and implications for this study are identified. Fourth, the practice approach to knowledge management is identified as the best approach to facilitate knowledge sharing in this community. The main contribution of the paper is to propose the development of ISExpertNet, a knowledge-sharing tool for the global Information Systems academic community. The paper concludes with suggestions for further research and project development of ISExpertNet for the community's consideration.

Knowledge Management in Communities of Practice

Relatively little knowledge management research focuses on extra-organizational knowledge management systems. This is understandable given the predominant view that knowledge is a proprietary asset or competitive weapon that offers strategic advantage to the organization (e.g., Davenport & Prusak, 1998; Holsapple, 2003; Spender, 1996). However, if a knowledge worker is viewed as both an employee of the organization in which s/he works and also a member of a professional community of practice, then there is a dual opportunity for knowledge inquiry and sharing.

Communities of Practice

Professionals, academics, and other knowledge workers have both organizational and community affiliations. For example, an enterprise software consultant may be employed by an ERP consulting agency and be a member of an ERP professional association. For this consultant and other knowledge workers, sharing of organizational knowledge is most likely to occur through an internal knowledge-sharing network. However, questions of a non-proprietary nature (e.g., for professional development) are linked to the employee's community of practice.

Specifically, communities of practice can be defined as "groups of people who share similar goals and interests. In pursuit of these goals and interests, they employ common practices, work with the same tools, and express themselves in common language. Through such common activity, they come to hold similar beliefs and value systems" (Collaborative Visualization Project, n.d.). Communities of practice can exist within an organization (e.g., all enterprise systems consultants at Ernst & Young) but communities of practice that extend beyond organizational borders are of primary interest here. These extra-organizational communities of practice are groups of individuals who are linked by what they do rather than where and for whom they work.

Since first comprehensively described by Wenger (1998) communities of practice has been the center of considerable strategic and managerial research (Papargyris, Poulmenakou, & Samiotis, 2002). Most studies concentrate on knowledge sharing in a community of practice inside a company. For example, in an international chemical company (Pan & Leidner, 2003), health care organizations (Marchetti, Lanzola, & Stefanelli, 2001), consulting companies (Uelpenich & Bodendorf, 2001), and advertising agencies (Ensor, Cottam, & Band, 2001).

A few extra-organizational studies have been conducted too, for interagency health and social care providers (Lathlean & LeMay, 2002) and in non-organizational on-line communities such as library reference service users, SME owners, and Web shoppers (Davenport, 2001).

No studies that focused on community of practice KM research in any academic community could be found. However, Sapsed, Bessant, Partington, Tranfield, and Young (2002) comment, "academic communities typify the dynamics of collectively sharing identity, know-how, and ways of working independently of local contact" (p. 79). This statement suggests that an attempt to introduce a knowledge-sharing system in the IS academic community is possible and may produce useful, practical outcomes.

Incentives for Knowledge Sharing

A major theme throughout the KM literature is the provision of incentives to use and, especially, contribute to knowledge management systems (e.g., Alavi & Leidner, 2001; Jarvenpaa & Staples, 2000; Wasko & Faraj, 2000). Specifically, knowledge management research suggests that necessary conditions for knowledge sharing include shared interest, trust, and language (Hanssen-Bauer & Snow, 1996), access to knowledgeable people in the organization (Brown & Duguid, 2000), and an organizational or community culture that promotes knowledge transfer (Nonaka, 1994).

Sharing knowledge also needs to be rewarded. “A knowledge management initiative will not get very far if – however actively you champion knowledge sharing – the existing remuneration system rewards knowledge hoarding” (Davidson & Voss, 2002, p. 99). Booz-Allen and Hamilton, for example, uses a variety of recognition and financial awards for knowledge sharing to the practice as a whole, including promoting developing intellectual capital as one of the four criteria used when determining promotion and bonuses (Galunic & Weeks, 1999). Similarly, knowledge sharing is a key performance indicator used in the evaluation of employee performance at the World Bank (Liebowitz & Chen, 2003).

A discussion of knowledge sharing at http://groups.undp.org/kmstrategy/documents/docs/week_four_summary.html emphasizes the need for a formal incentive program to encourage knowledge sharing:

A recurrent theme throughout the week was the question of whether a formal incentive system was necessary or not. Some felt that knowledge sharing is its own reward and that introducing formal incentive schemes might have the opposite of their intended effect. Others felt that an incentive scheme was necessary to "prime the pump" of knowledge sharing.

There were many descriptions of what is or should be the appropriate incentive for knowledge sharing. Among the incentives named were:

- recognition (this particular incentive was supported by many participants)
- duty or need
- a good frame of reference
- a sense of give and take, quid pro quo, you scratch my back etc.
- feedback mechanisms for letting knowledge sharers know their knowledge was being put to use
- the pleasure of helping someone attain their goals

What are obstacles to knowledge sharing at UNDP?

- people are simply too busy
- not have an appropriate mechanism to share knowledge
- not having the right technologies to support knowledge sharing

Many of these incentives, especially peer recognition, are incorporated into the ISExpertNet proposed in this paper.

Participants in Knowledge Networks

The emphasis in this study is in the area of knowledge reuse, which Markus (2001) defines as “sharing best practices or helping others solve common technical problems” (p. 59). Markus also describes four types of knowledge re-users: shared work producers (produce knowledge for their

own reuse), shared work practitioners (producers/consumers of knowledge for/of other's use), expertise-seeking novice (have occasional need for expert knowledge they do not possess) and secondary knowledge miners (seek new knowledge through analysis of knowledge records).

In the current study, the main contributors to and beneficiaries of the ISExpertNet data repository would be shared work practitioners and, secondarily, expertise-seeking novices and secondary knowledge miners.

The following characteristics of shared work practitioners (extracted from Markus, 2001) are especially relevant to the current study:

- Shared work practitioners are knowledge workers doing similar work in different settings. They are producers of knowledge for each other's use (i.e., knowledge sharing in a community of practice).
- Shared work practitioners seek new knowledge to understand how to handle a new and/or particularly challenging or unusual situation.
- Successful knowledge *acquisition* among shared work practitioners requires quality assurances (e.g., authorship), currency (e.g., freshness dating), appropriate indexing and searching capabilities, and decontextualized knowledge (but context information is provided with the content). Successful knowledge *contribution* requires appropriate incentives.
- Shared work practitioners use networks of contacts to locate experts/expertise.
- Shared work practitioners usually have little difficulty applying the expertise, once it has been acquired.

A Practice Approach to Knowledge Sharing in Communities of Practice

The principal approach used in traditional intra-organizational knowledge management is the process approach. The process approach is characterized as a formal and technologically-based process of gathering and storing explicit knowledge within the organization (Hansen, Nohria, & Tierney, 1999). KMSs such as "Ask Ernie" at Ernst & Young are typical of the process approach.

The alternative approach to managing knowledge sharing is the practice approach. This approach is more effective in gathering tacit knowledge through informal networks with moderate use of information technology. Table 1 (Alavi, Kayworth, & Liedner (2003), as cited in Turban, McLean, & Wetherbe (2004)) compares the two approaches.

Table 1: Process and Practice Approaches to Knowledge Sharing

| | Process Approach | Practice Approach |
|-----------------------------|--|---|
| Type of knowledge supported | Explicit knowledge: codified in rules, tools, and processes (DeLong and Fahey, 2000). | Mostly tacit knowledge: unarticulated knowledge not easily captured or codified (Leonard and Sensiper, 1998). |
| Means of transmission | Formal controls, procedures, and standard operating procedures with heavy emphasis on information technologies to support knowledge creation, codification, and transfer of knowledge (Ruggles, 1998). | Informal social groups that engage in story telling and improvisation (Wenger and Snyder, 2000). |

| | | |
|--------------------------------|--|---|
| Benefits | Provides structure to harness generated ideas and knowledge (Brown and Duguid, 2000). Achieves scale in knowledge reuse (Hansen, et al., 1999). | Provides an environment to generate and transfer high-value tacit knowledge (Brown and Duguid, 2000; Wenger and Snyder, 2000). Provides spark for fresh ideas and responsiveness to changing environment (Brown and Duguid, 2000). |
| Disadvantages | Fails to tap into tacit knowledge. May limit innovation and forces participants into fixed patterns of thinking. | Can result in inefficiency. Abundance of ideas with no structure to implement them. |
| Role of information technology | Heavy investment in IT to connect people with reusable codified knowledge (Hansen, et al., 1999). | Moderate investment in IT to facilitate conversations and transfer of tacit knowledge (Hansen, et al., 1999). |

The practice approach has the most application to knowledge sharing in communities of practice, especially in an extra-organizational context. This will be evident in the following section, which applies much of what has been said about knowledge management in communities of practice to a specific application: the ISExpertNet.

Information Systems Expert Network (ISExpertNet)

This section introduces the proposed Information Systems Expert Network (ISExpertNet). Through a series of questions and discussion, the operations of the network are described.

What is ISExpertNet?

ISExpertNet is a knowledge management system that facilitates knowledge sharing in the global Information Systems academic community. ISExpertNet is principally a Web site that includes the following features:

- A home page that describes the ISExpertNet concept, solicits visitor involvement in the network, and links to other key pages in the ISExpertNet site.
- Registration facilities for new ISExpertNet members, including provisions of acceptance of a membership fee.
- A “request for information” page that provides instructions and forms for individuals to issue a request for information (RFI) to the ISExpertNet community.
- A “RFI status” page that reports the status of all RFIs currently in process or under review.
- A keyword-searchable archive for access to previously-asked RFIs.

How does ISExpertNet Work?

Anyone can join ISExpertNet by paying US\$15. This is a tentative figure, subject to change based on the outcome of a fully developed business plan and potential ISExpertNet sponsorship. In return for their \$15, the new ISExpertNet member receives an ISExpertNet account and 15 ISExpertNet points.

Any ISExpertNet member can initiate an RFI to the ISExpertNet community for 15 points. Next, the ISExpertNet moderator reviews the RFI for completeness, non-duplication, and proper for-

mat. RFI specifications (e.g., a deadline for responses) would also be set in consultation with the moderator. An approved RFI is posted at the ISExpertNet Web site and sent by e-mail to all ISExpertNet members.

Any ISExpertNet member can respond to an RFI posted through ISExpertNet, either by reply to an e-mail message or a form at the Web site.

Immediately after the deadline for submission of the RFI responses, a list of all responses is forwarded to the member who submitted the RFI for review and ranking. As much as possible, information that identifies the person submitting the response is removed, resulting in a semi-blind review in order to decrease expertise bias. Responses that are identical or not significantly different will be eliminated based on a first-submitted basis. The ISExpertNet member who submits the most useful response receives 5 points; the second most useful response gets 4 points, etc. for the top five responses.

Thus the 15 points deducted from the member's account when submitting the RFI is now distributed back into the ISExpertNet community according to who submits the most useful RFI responses. In this way ISExpertNet is a closed economy, members buy in with their 15 points and as questions are asked and answered the points get moved around. There are provisions for members to buy additional points, but only to submit an RFI, not to "buy" their way to the top of any ranked IS Expert list.

Over time ISExpertNet community members who provide the most and best responses to questions accumulate the most points and become "top experts". An ISExpertNet member can retain the points to keep their expert ranking or spend the points to ask a question. Members who accumulate few or no points are not stigmatized or even identified; they just never make it on any expert list.

The RFIs and all responses are archived at ISExpertNet for sharing with the IS community. Initially the archives will be searchable by keywords in title, keyword field, or text. Eventually a ranking engine may also be developed to identify frequently-asked RFI themes or frequently-accessed RFIs. An ISExpertNet visitor does not have to be an ISExpertNet member to access the archives, but only members are allowed to submit or respond to an RFI.

The registration fee is used to support the site in areas such as site maintenance, ISExpertNet promotion, and, if funding allows, a stipend to the ISExpertNet moderator. Once purchased, the 15 ISExpertNet points (and the \$15) are non-refundable, but a member may withdraw from membership and the account will be deleted (any points in the account will be lost). The registration fee also reduces the likelihood of frivolous RFIs.

ISExpertNet is not only a community of practice, it is also a community of interest. As such sponsorship funding will be sought from interest groups such the Association for Information Systems or industry-relevant firms such as IBM, Microsoft, and textbook publishers. Additionally, an accounting of all funds will be provided to all ISExpertNet members on an annual basis.

If adequate sponsorship cannot be found, then the registration fee may need to be adjusted. However, the points granted at initial membership or at subsequent purchases will always be 15 points to retain the closed economy (e.g., 15 points spent for a question is distributed to respondents in 5, 4, 3, 2, 1 point awards, equaling 15 points).

What are the Incentives to Share Knowledge?

As ISExpertNet members provide responses to RFIs and receive high rankings, the number of points in their ISExpertNet account grows. A box on the ISExpertNet home page will list the

“Top Ten IS Experts” and further lists (Top Fifty, Top 10 This Year, etc.) will be available elsewhere on the site.

One Web site in the IS practitioner community that does have a formal incentive program to reward contributors is www.metricnet.com. The purpose of Metricnet is to gather and share data related to computing metrics. Visitors to the site are invited to complete a survey and get “data credits” that can be spent to acquire information from the data submitted to the site. Metricnet describes their operations as a “data economy”: “We have our own currency called a data credit. You provide us with data relating to IT in your organization by filling out surveys on our site. You then receive data credits for each survey you complete. Then you use your data credits to access our data.” ISExpertNet operates in a similar manner, but with expert recognition as the reward, a powerful incentive in facilitating knowledge sharing.

Does Anything Like ISExpertNet Currently Exist?

To the best of our knowledge, there is no similar knowledge-sharing facility for any other academic community. There are numerous ask-an-expert sites, both general and comprehensive (e.g., www.askme.com) and specialized (e.g., Ask a Linguist at <http://linguistlist.org/ask-ling/index.html>). Most are free, but a few (e.g., Yahoo! Advice, Google Answers) charge a small fee. A comprehensive list of ask-an-expert sites is available at <http://www.refdesk.com/expert.html>. Only one ask-an-expert site could be found for Information Systems: CIO Magazine’s Ask the Expert at <http://64.28.79.74/expert/index.cfm>

The nature of ask-an-expert sites assumes that an individual is the best source of expert advice. In ISExpertNet the assumption is that the collective community of practice contains the best expertise. Thus a community-oriented, knowledge-sharing model distinguishes ISExpertNet from any other KMS known to us at this time.

Realistically, the only direct competitor for ISExpertNet is the ISWorld mailing list. Members of the ISWorld mailing list can submit RFIs at any time, responses are sent directly to the person who asked the question and collected responses are customarily posted back to the ISWorld list.

ISExpertNet offers the following advantages over ISWorld for exchanging knowledge among IS academics:

- Questions are not duplicative, are explicit about what is being asked, and usually show some effort of prior research. A moderator works with submitters to insure the RFI meets minimum standards before being circulated.
- Questions and responses are archived at ISExpertNet, making it easy for the community to find them again. This is a major improvement over current archive methods that depend on finding a certain e-mail message at the ISWorld Web site. Even then, response summaries are sometimes posted on an external Web site, usually the Web site of the person who asked the question, and over time these can become dead links.
- Responses to questions are never lost. An unscientific survey of ISWorld RFIs in 2001 found 70 percent of all RFIs do not have responses submitted back to ISWorld. Because ISExpertNet captures the responses, disseminating this knowledge back to the community does not rely on the follow-up efforts of the person who asked the question.
- Contributing expert knowledge is rewarded. This is the biggest and greatest contribution ISExpertNet makes to knowledge sharing efforts among IS academics. A difficult knowledge management problem is the lack of incentives for people to contribute to the knowledge base. ISExpertNet's point system and “top expert” lists puts those incentives in place.

In summary, the ISWorld mailing list poses difficult problems in managing the knowledge sharing process. A knowledge management system dedicated to this effort seems to offer a better vehicle for collecting, distributing, managing, and archiving this dynamic knowledge base.

What are the Prospects for Future Development?

ISExpertNet is a project in progress. Background literature has been surveyed, incentives for contributors have been assessed, and a competitor analysis has been completed.

A test deployment of ISExpertNet is being planned. Currently software options are being reviewed, such as:

- AskMe Enterprise offers “an easy-to-use web interface, employees can submit problems and receive solutions, insights, advice, and answers from the most qualified subject-matter experts throughout the company. The results are automatically captured in a searchable knowledge base so that other employees can benefit from the captured knowledge.”
- KnowledgeMail is a similar software product from Tacit Knowledge Systems. KnowledgeMail “automatically and continuously inventory the skills and talents of your entire organization, so people can dynamically find and connect with the expertise they need - when they need it to make decisions, solve problems and serve customers.”
- AskAgent is basically “ask-an-expert” software, but could be adapted to suit ISExpertNet needs.

Once a prototype site is developed, perhaps as a student project, the site is likely to be opened to the IS academic community, without charge, to test and refine the prototype and to establish a reputation. At the conclusion of a trial period, sponsorship for ISExpertNet and/or imposition of a registration fee will launch ISExpertNet.

In the long-range future, while the test deployment for ISExpertNet is within the Information Systems academic community, obviously the concept, and subsequent software development, can be extended to almost any community of practice within or external to an organization. This includes the possibility of commercial licensing of the product to large commercial organizations, especially when geographically dispersed communities of practice exist within the organization.

Conclusion

This paper has reviewed the progress to date in developing a knowledge-sharing tool for the global Information Systems academic community. While development continues, the publication of this paper and presentation at the 2005 Informing Science and Information Technology Education Joint Conference is an open invitation to the IS academic community to comment on the idea, its features and its prospects. Your feedback would be most welcome.

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Biography



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