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ABSTRACT

The networks of communication and interpersonal relationships that develop naturally within an organization form channels for the flow of organizational knowledge and can also promote organizational learning. These informal social networks are significant mechanisms for both innovation and change management. However, until recently, very little has been done to try to facilitate or leverage social networks to take advantage of what they can do to deliver organizational value.

Today, pressures on modern business to continually innovate and the increasing capability of information technologies to enable broader and more far-flung communication are driving organizations to look for ways to leverage social networks to improve business performance. Social networking concepts combined with a group of new and powerful interactive technologies, known collectively as peer-to-peer (P2P) computing, have the potential to profoundly change how companies work and deliver value. The effective harmonization of knowledge management with P2P technologies could therefore be the "killer app" that makes executives realize the importance of knowledge management (KM) to their organizations. However, their contribution to this partnership in the future will largely be dependent on knowledge managers' ability to demonstrate their skill at leveraging and facilitating social networks today.

This paper combines the ideas and experiences of a group of practicing knowledge managers with research from the academic literature on social networks to create an overview of the issues and practices that are critical to facilitating the development of social networks and understanding their value in organizations. It examines the different types of social networks currently operating in organizations and the value of these networks to the enterprise and then looks at ways of developing and facilitating social networks in organizations. Finally, it examines the strategic potential of networks in organizations and how KM might help realize this value.

Keywords: social networks; knowledge management; communities of practice

I. INTRODUCTION

We have long known that social interaction is the "grease" that keeps the wheels of the organization turning. The networks of communication and interpersonal relationships that develop naturally within a formal organization structure form channels for the flow of organizational

knowledge and can also promote organizational learning [Floyd and Woolridge 1999]. These informal social networks have also been identified as being significant sources of knowledge that can lead to innovation [Tsai 2001] and the means whereby changes can be rapidly transmitted and assimilated [Gladwell 2000]. However, until recently, very little has been done to try to facilitate or leverage social networks to take advantage of what they can do to deliver organizational value.

Today, the pressures on modern business to continually innovate, and the increasing capability of information technologies to enable broader and more far-flung communication, are driving organizations to look for ways to leverage social networks to improve business performance. Knowledge managers are therefore beginning to explore how they can take advantage of the propensity of people to connect with others. If knowledge can be transmitted between people like germs in an epidemic, or if networks can be used to change people's behavior and improve products and services, there are huge opportunities for organizations to promote organizational flexibility, responsiveness, and gain competitive advantage [Gladwell 2000]. Furthermore, social networking concepts combined with a group of new and powerful interactive technologies, known collectively as peer-to-peer (P2P) computing, have the potential to profoundly change how companies work and deliver value. P2P computing will enable new types of connections to be formed across many geographic regions, among people who have never met and in ways not possible in person or with existing technologies.

Knowledge managers are already learning how to take advantage of networks within their organizations. Their growing understanding of the social side of networks places them in an ideal position to work with IT departments to develop new and effective business strategies for P2P applications that can help their companies work and compete in new ways. The effective harmonization of knowledge management with P2P technologies could therefore be the "killer app" that makes executives realize the importance of knowledge management (KM) to their organizations. However, their contribution to this partnership in the future will largely be dependent on knowledge managers' ability to demonstrate their skill at leveraging and facilitating social networks today.

To explore how they are currently approaching the development and facilitation of social networks to deliver value, the authors convened a focus group of knowledge managers from a variety of organizations in the United States and Canada. In a day-long session, these managers were asked to discuss the ways they are building and/or leveraging social networks in their organizations. To help them explore a wide variety of networks, they were specifically requested *not* to discuss communities of practice (which have previously been examined in detail as a particular instance of networking – see Smith and McKeen 2002) but to select another type of network in their organizations. Each member was asked to briefly describe their network – its purpose and who is involved. Then, each was asked to evaluate its benefits – how they are measured and how they are monitored – as well as to describe the outcomes being achieved and what is not working well. Finally, the managers were asked to discuss the role of KM in facilitating this network in their organizations.

This paper combines the managers' ideas and experiences with research from the academic literature on social networks to create an overview of the issues and practices that are critical to facilitating the development of networks and their value in organizations. First, it examines the wide variety of different types of networks currently operating in organizations. Next, the value of networks to the enterprise is discussed. Then, it looks at ways of developing and facilitating networks in organizations. Finally, it examines the strategic potential of networks in organizations and how KM might help realize this value.

II. SOCIAL NETWORKS IN ORGANIZATIONS

Social networks can take many forms and serve many purposes. Some (e.g., Napster, supply chains) can be almost entirely based on technology. Others (e.g., the proverbial water cooler) are

entirely interpersonal. Increasingly, we are recognizing that there is a time and a place for both technical and personal interaction, and we are trying to learn how and where each is appropriate. However, as the telephone, Napster, and e-mail have demonstrated, technologies are an important component of many networks because technologies can extend and change traditional ways of interacting, working and dealing with customers.

We use the term "social network" to represent interpersonal, non-hierarchical connections between individuals, business units, or organizations along which knowledge (i.e., information plus interpretation) flows. This includes everything from internal groups of individuals operating at various levels in an organization [Charan 1991], to formal and informal connections between individuals and groups beyond the boundaries of a single organization [Tapscott 2000], to interactions with and between groups of customers without benefit of an organization[1] (e.g., Napster). This broad definition often results in confusion over what others mean by social networking and in problems implementing social networks appropriately to address a particular business need. It is important, therefore, for those working with and writing about these networks to be clear about the type of network involved.

In contrast to the formal hierarchical view of an enterprise, a "network view" suggests that we are all linked together in an intricate spider's web of connections. These connections are a fundamental, if unrecognized, part of how work gets accomplished [Brown and Duguid 2000]. Networking initiatives are thus a formal recognition and an extension of the way we have always worked in organizations. Ideally, social networks should connect people across functional, geographic, or organizational boundaries in a dynamic and as-needed fashion, making enterprises more responsive to changing customer needs and industry trends.

Although efforts to facilitate social networking are relatively recent, much of our knowledge is built on what we have learned about communities of practice. All of the knowledge managers in the focus group are currently working with a wide variety of networking initiatives in their organizations. These include:

- **Functional Networks.** In networks of this type, people performing similar functions in different parts of an organization are given the opportunity to interact and share knowledge and experiences about their work. For example, a bank enabled selected employees from different regions to meet online to discuss a business problem. This led to further smaller face-to-face meetings to address common concerns. In another case, representatives from different teams in a health and safety organization are meeting online weekly to share similar experiences and solutions to common problems.

- **Cross-Functional Networks.** Another popular model of networking links people from different parts of an organization to address their work in common. For example, one government department is bringing together scientists from a variety of disciplines to discuss large complex problems (e.g., climate change, children's health) that cross many different bureaucratic functions and are being addressed from different points of view. In another organization, everyone involved in different parts of a new product development process is linked together electronically to share information about the decisions being made.

- **Interpersonal Networks.** Some companies feel that facilitating social connections between staff members will provide the basis for other types of networking in the future. For example, an insurance company has created a collaborative networking e-space for its agents to interact with each other informally. A bank has created a monthly online

[1] The term network is also used to refer to the technology platform that enables these types of interactions. However, unless otherwise specified, technical networks *per se* will not be addressed in this paper.

newsletter that lets employees in a particular geographic region share news about social activities and personal accomplishments.

- **Innovation Networks.** Connecting individuals with diverse backgrounds and knowledge can lead to innovative new approaches to work [Tsai 2001]. One organization is trying to spur innovation by connecting people from many different parts of the company on a monthly basis to share ideas on a wide variety of issues with no particular agenda in mind. These meetings, both face-to-face and by video conference, are designed to stimulate discussion and brainstorming about future opportunities for the firm.

- **Inter-Business Unit Networks.** Different parts of a company may operate in complete isolation from each other even though they have common problems. One firm brought together the people involved in a similar process from two different business divisions in a face-to-face meeting where they were able to address common issues and develop solutions while building new working and personal relationships that have given them a new perspective on their work and challenges.

- **Customer Networks.** A few firms are also trying to connect with their customers in a different way. One company provides professional online facilitation for groups of clients with a common medical condition to exchange tips and advice. Company staff monitor conversations to discover ideas for new products and services.

- **Communities of Practice.** These were the first managed attempts to facilitate networking in organizations. They are designed to link together people who share a common interest, either inside an organization or across a professional (e.g., Linux programmers), recreational (e.g., quilters) or special interest (e.g., human rights) group in society as a whole.

SOCIAL NETWORKS IN BUSINESS TODAY

- Mostly experimental
- Mainly tactical in focus
- Largely internal to a single organization.

These examples illustrate the types of social networks that knowledge managers are establishing within their organizations. Most are in the early stages of development and are still considered experimental. With a single exception, these knowledge managers are developing internal networks focused on solving specific business issues and addressing immediate performance needs rather than on strategic, longer-term value. At this point, social networking is clearly in its formative stages. Few of the knowledge managers in the focus group appear to be using networks to market products and services externally or to sell new ideas and change within a company. Although all are aware of these possibilities for utilizing networking strategically, this is not their primary focus at present.

III. THE VALUE OF SOCIAL NETWORKS

While social networks hold out considerable promise to unleash significant organizational capability, they must be better understood and managed properly if a firm is to realize benefits from them. In trying to facilitate and leverage any type of social network, organizations must first move beyond an assumption that direct information-only approaches will suffice. That is, effective social networks involve more than simply providing information about a person and their skills and attributes. They must recognize and include mechanisms to deal with the “fuzzy stuff” around the edges of individual, business unit, or organizational work, such as, context, background, history, common knowledge, and social resources [Brown and Duguid 2000]. The knowledge managers within the focus group are still finding significant resistance in their organizations to doing this.

They therefore recognize that changing senior management's understanding of how their organizations work is critical to gaining their support for social networking initiatives and thus to delivering value.

The Short-Term Value of Social Networks

- Solving business problems
- Stimulating local action
- Motivating new ways of work
- Legitimizing cross-boundary communication.

At present, business managers in general do not appreciate the value and strategic potential of social networks. As Brown and Duguid [2001] point out, organizations have become dominated by a kind of tunnel vision that is fixated on technology and information. As a result, the other resources available to them, especially networking and other resources on the social periphery, are often overlooked. Thus, while the knowledge managers in the focus group believe that social networks are valuable, they have found it difficult to convince others that time taken away from their "regular jobs" to participate in networks is worthwhile.

Short-Term Value. Clearly, the closer links that can be made between networks and corporate goals, the more positively social networking concepts will be received. As the members of the focus group made clear, most of today's social networks are justified by having some immediate tactical goal: solving a business problem(s), improving inter-functional cooperation in a process, or collaborating on a project. The business impact of these more focused forms of networks has included stimulating action at a local level, motivating people to do things differently, speeding up work, and legitimizing cross-boundary conversation.

Many organizations still have a strong functional orientation where knowledge tends to stay in "silos." One of the most significant benefits of giving social networks an official stamp of approval by senior management is that it gives people permission to interact and share with others outside their immediate organizational group. While it would appear to be intuitively obvious to most senior managers that their staff should cooperate to improve practices and processes across the organization, this does not always occur easily because of strongly engrained traditions. When senior managers approve allocating time and resources to networking, it can therefore release these inhibitions and open the door to a host of ongoing interactions. The manager who facilitated the cross-functional network of scientists mentioned previously explained the value of this type of networking in government bureaucracy:

> *We have not yet generated any funding for the results of our cross- functional networking as yet. However, giving people permission to cross boundaries has changed how we work and how we organize for work. We have now recognized that many problems need to be looked at from a holistic point of view, and we are developing common taxonomies and common search engines to access each others' knowledge.*

Long-Term Value. Some managers are beginning to aim for longer-term value by focusing on areas of strategic importance. As one focus group member commented, "Our network was easy to justify because it focused on a strategic process." One large national company is facilitating online social networks within different geographic regions. While the knowledge manager's initial goal is simply to improve employees' identification with the company at a regional level and to enable them to make useful business connections, he also has longer-term goals:

> *Over the longer term, we have a plan to connect all of our staff via the Internet. Our online social network helps build their comfort level with the technology and therefore moves them up the learning curve. In addition, we are learning who the social connectors of our organization are. This information will be invaluable when we want to communicate other types of messages to our staff.*

The Longer-Term Value of Social Networks

- Facilitating a strategic process
- Developing staff
- Rapid communication
- Serendipitous uncovering of new sources of value
- Improved quality of working life

Since organizations still have only the most rudimentary understanding of how their networks really work, social network analysis is clearly needed if they are to be leveraged in this fashion [Smith et. al. 2003]. Research shows that not all people in networks are equal [Gladwell 2000]. Some, known as *connectors*, know lots of people and can therefore pass messages on or put the right people together faster than occurs through traditional means. Conversely, networks can also have *hinderers*, individuals who impede work by withholding valuable information and resources [Sparrowe et. al. 2001]. Other people (*mavens*) have exceptionally good connections to information and are willing to help others learn what they know. Still others, known as *salesmen*, are especially effective at persuading others to adopt their point of view. These people could be anywhere in an organization, not necessarily in positions one would naturally link to the roles they play. If these people and their skills can be identified through social network analysis, it is possible that it will become considerably easier for organizations to leverage their natural networks to help them communicate more effectively.

The insurance company in the focus group took an opportunistic approach to discovering the longer-term value of social networking. Its knowledge manager deliberately chose a hands-off, no-management involvement approach for its agent network to enable participants to feel free to explore and develop whatever interactions they wish. “We felt that having any other business agenda for the network such as training, or information delivery might inhibit more free-wheeling uses of the network. We wanted to see what developed,” the knowledge manager stated. The company provides facilitators to assist with the networking but does not allow executives to participate or collect statistics about agents using the network. “Our only rule is that complaints are not allowed.” The knowledge manager admits that this project has “tested the risk tolerance of our executives.” However, she believes that even without a direct business focus, this network has provided good value for the company’s agents. It has improved their quality of working life, assisted agents in making hand-offs to company representatives in other parts of the country, helped rejuvenate senior agents and improved agent retention. Building a base network is an important fundamental to utilizing networks to deliver long-term value, she believes. “Now that our network is in place, we can look for ways to leverage it,” she stated.

Senior managers are often impatient for networking initiatives to show results. The group agreed that knowledge managers need to develop strategies to build executive patience and to help them recognize the longer-term value of the platform that is being developed. This is essential to being able to use networks more strategically within organizations.

The people involved in the networks must also see their value. “All too often, people see networking as being simply more work,” stated one manager. This underlines the importance of context in achieving all forms of network value. Frequently, it is the little things about a network that will make the difference between success and failure [Gladwell 2000]. Time, place, and conditions of work will all affect how people behave. If management implies that networking is not valuable by not giving people the time they need to interact with others, it is unlikely that an initiative will be successful. In fact, “convictions and content of thought are less important than immediate context” [Gladwell 2000]. Knowledge managers therefore need to be sensitive to creating the right context for their networking initiatives and carefully consider how a network will reinforce desired behavior if value is to be realized. Unsuccessful initiatives should also be

carefully examined to consider whether or not unidentified contextual factors could be inhibiting the effective use of the network.

IV. FACILITATING SOCIAL NETWORKS IN ORGANIZATIONS

The members of the focus group described many different ways of building social networks. These variations make it clear that in order to effectively utilize networks for the benefit of an organization, a knowledge manager must be clear about what he/she is trying to accomplish with a network and make sure its design and context match the goal. Knowledge managers must therefore understand the variety of techniques and approaches that are available for facilitating networks and determine which ones will help them achieve their overall networking goals.

Networking Goals. There are two overarching goals of networking. The first is to facilitate knowledge search. Knowledge results from the interpretations people make that combine data with a sense-making framework. Therefore, connecting individuals and groups in a variety of non-routine ways can be an important source of new ideas and help organizations extend and develop their capabilities [Floyd and Woolridge 1999]. Networks can also be very effective in providing individuals and organizations with appropriate, "just-in-time" information to solve an immediate problem. Search networks are used to make sure that all relevant information is available when needed or that information can be quickly found to address an unusual need. These types of networks therefore need to be very broad in scope and connect diverse sources of information. They do not rely on strong social ties or in-depth relationships [Higgins and Kram 2001]. Some firms try to facilitate knowledge search by publishing "yellow pages" of "who knows what"; others identify key individuals who are well-connected and who are tasked with providing the necessary links as part of their jobs [Hansen and von Oetinger 2001]. Most of the cross-functional and interbusiness unit networks discussed previously would have knowledge search as a primary goal.

The second general networking goal is to facilitate knowledge transfer. Although it is often assumed that once knowledge is available it will flow around organizations, this is not always the case. Not only can certain individuals facilitate or hinder knowledge transfer, but the type of knowledge involved can affect the ease with which it moves [Hansen 1999]. More complex forms of knowledge will require more intense forms of interactions to transfer than more codified and simpler types of knowledge. Therefore, organizations seeking to transfer complex knowledge should seek to build stronger, closer ties between a few individuals. This is the type of network government scientists are using to address highly complex problems that cross many different disciplines. Conversely, less rich media and weaker relationships are appropriate for transferring less complex knowledge, e.g., the online newsletter to share social news [Hansen 1999].

Strategies for Facilitating Social Networks. Once the broad networking goal is known, focus group managers had a number of suggestions for how other knowledge managers could develop and facilitate effective networks in their organizations:

- **Develop absorptive capacity.** The ability not only to assimilate new ideas but also to apply them effectively is known as *absorptive capacity* [Tsai 2001]. Organizations that lack this capacity are unable to take advantage of new knowledge gained from a network. An organization that has the capability to take advantage of innovative ideas and transform them into practical reality will benefit much more from networking than those that do not. Organizations therefore not only need to develop networks, they also need to provide the ability to transform networking outcomes into larger scale learning and capability development. The innovation network described above not only connected a wide variety of staff from diverse parts of the company to generate new ideas, it also had the capability to take the most promising ideas and to explore them further. Conversely, the lack of funding for the recommendations coming out of the government scientists' network was likely the result of the departments involved being unable to readily adapt their processes to implement the innovative approaches the scientists wanted to take.

- **Create an environment where networks can flourish.** People form networks naturally, so in many cases all that is needed is to provide them with the basic tools to interact. These need not be expensive, the focus group stressed. Many networks can flourish through e-mail, conference calls or online. More importantly, however, people must be allowed to take time to interact. For complex types of knowledge transfer, people also need to be permitted to share what they know on a face-to-face basis.

- **Encourage people to interact with those they do not know.** Many people prefer to stay within their own social comfort zone. KM facilitation is often needed to help people move out of their circumscribed network. Focus group participants stressed that face-to-face contact is best for building these new connections. One knowledge manager held a large conference to discuss a business problem and then broke people up into small working groups, each with representation from different parts of the company. Another selected one person each from a number of different teams working in different parts of a process and then structured an ongoing meeting to encourage them to build relationships where they could share team learning and team problems with each other.

- **Find the right level for your network.** Networks are possible at all levels in the organization from executives [Charan 1991] to the grass roots. However, some managers believe they are creating a network for all staff when in reality they have built a dissemination or an oversight tool for senior management. If this is the case, they will quickly find out how little the network is used. One company started its network because an executive VP wanted an opportunity to communicate with her front-line workers. Unfortunately, the staff rapidly lost interest in participating. The company's knowledge manager then spoke with the people involved and found out that they simply could not relate to what was going on at headquarters. It was too remote. Instead, they wanted to learn what was going on in their own region. The restructured network was a great success.

- **Be prepared to take advantage of serendipity.** Companies should be prepared for their networks to evolve in new ways. One organization set up a pilot network for a specific purpose that was so successful that it quickly led to a much broader initiative with considerably changed objectives. Another, however, held for its global executives an intensive three-day face-to-face networking session, which came up with some unexpectedly innovative and cross-functional ideas. Unfortunately, none was followed up on or implemented, leaving the participants discouraged and disinclined to get involved in a similar exercise again.

- **Loosen controls.** Knowledge can be very "sticky" within organizations, often due to traditional command and control management styles [Brown and Duguid 2000]. Firms that wish to gain full value from their social networks will need to evaluate their coordination and control mechanisms and determine whether or not they discourage the greater degrees of interaction and individual responsibility that drive networking value. Furthermore, in many cases managerial intervention in a network can be an inhibiting factor to success [Malhotra et. al. 2001]. Knowledge managers should therefore take care as to how they incorporate management into networks.

V. THE STRATEGIC POTENTIAL OF SOCIAL NETWORKS

Networks have the potential to profoundly change how companies view themselves. To date, however, most companies have yet to recognize the strategic potential of networks. In spite of their diversity, the examples described previously represent only a fraction of the powerful opportunity that networking offers organizations. Networks, based on multi-directional communication, mutual trust, and shared decision-making, can respond quickly to changing organizational needs. With the addition of P2P technologies, organizations will soon be able to reach beyond their corporate walls and easily build new types of relationships. Networking

technologies will enable organizations to consult with customers about what information, products, and services they would like to see. External social networks can also be built with suppliers to enhance supply chains and with consortia for new product development.

While P2P technologies are still quite immature [McGarvey 2002], it is likely that over the next five years, P2P computing will become a significant trend. P2P can give individuals access to their own and other people's documents anywhere, any place, any time, facilitate new forms of collaboration by dispersed teams, and help develop connections across the organization's boundaries with customers and suppliers. These technologies have already demonstrated their potential to change organizations and industries. Napster, the first P2P "killer app," showed that networks can redefine long-standing business relationships and undermine a whole industry. And we know from the tremendous growth of e-mail that people *want* to connect with each other. However, the means by which companies will mobilize P2P technologies to appropriate value from networking remains highly uncertain, and this is where KM will have a significant opportunity to prove its worth [Smith et. al. 2003].

Social networking and P2P technologies will also bring new challenges and risks [Smith et. al. 2003]. In the short term, knowledge managers should be prepared to facilitate connections between the periphery of their organizations and outside groups (e.g., through the sales, service, and event management functions). In the longer term, they may be asked to help organizations transform themselves. Future enterprises will likely become largely decentralized, composed of small teams of semi-autonomous individuals bound together by knowledge and technology. Clashes between formal and informal ways of working will likely occur. Core functions may move around the organization dynamically.

The changes that are possible with networking technologies are not straightforward or easy to conceptualize, particularly when neither the technology nor our understanding of networking principles is well developed. This means that it is of critical importance to find ways to explore and communicate the strategic possibilities of networks with management. Storytelling can be a good way to start helping people visualize the possibilities [Denning 2001]. The potential of social networks will only be realized if companies begin to think differently about their work. It is thus highly desirable for knowledge managers to begin an extended conversation about networks with senior managers.

More specifically, new types of networks will generate huge amounts of information and ever-increasing flows of knowledge into and out of the organization. Knowledge managers will be able to add considerable value to their organizations by filtering, analyzing, and distributing this information in ways that can benefit the organization or enable the creation of new knowledge. In addition, knowledge managers should become more aware of and knowledgeable in how information rights and assets should be managed between firms. For example, they should clarify who owns what information in any exchanges with other organizations and what will happen to any new knowledge that is created as a result. The more networked we become, the more important this will be. Taxonomies, (i.e., methods of structuring this information and understanding its context) will also become more critical because they will enable information to be effectively searched, indexed and managed by larger numbers of people. Finally, knowledge managers will also be called upon to address issues such as the development of shared meaning and resolving conflicting information structures between organizations.

The Strategic Potential of Social Networks

- New relationships with customers, suppliers and partners
- New sources of value
- New sources of knowledge
- New business and industry models

Many IT organizations are already beginning to experiment with social networking on their own. However, they have limited knowledge of what makes it effective or how they should be designed from a social perspective. If knowledge of both social and technical networks could be effectively combined through close collaboration between KM and IT, much could be learned that could benefit the organization's future development.

VI. CONCLUSION

Social networks are already a part of most KM functions these days. Although their full value has not yet been realized, knowledge managers are learning what makes social networks successful and how to manage and leverage them to achieve organizational value. To date, these networks are largely internally focused. Tomorrow, it is highly likely that, thanks to the rapid development of P2P technologies, social networks will extend beyond the organization's boundaries to include many more groups and individuals. Those enterprises that have a well-developed knowledge management program will therefore be in an excellent position to take strategic advantage of social networks. If knowledge managers recognize the potential of networks and begin to work with others toward realizing it, they will have a central role to play in how their organizations evolve to meet the challenges and opportunities presented by networking. And knowledge management will have found its "killer app."

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