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Knowledge sharing and strategic capital

The importance and identification of opinion leaders

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Abstract

Purpose – This article seeks to propose that the success of an organization's knowledge-sharing strategy and the magnitude of its strategic capital are critically dependent on its having the capability to visualize relationship-networks among its employees, and means to identify and leverage, as appropriate, patterns of positive or negative influence.

Design/methodology/approach – The paper is based on the author's own experiences and those of other authors in the same field.

Findings – There seems no evidence in the literature that programs can be mounted to deliberately develop opinion leaders by helping them acquire such meta-capabilities or assume archetypical characteristics.

Originality/value – Utilization of the NVA-based approach described here will provide an enhanced real-world understanding of how the various sectors and network layers of an organization coalesce, and relate to one another, at micro and macro levels.

Keywords Knowledge sharing, Leadership, Social networks

Paper type Viewpoint

Characteristics of knowledge sharing

Most managers and executives will concede that their organization's Strategic Capital, the capability to successfully plan and execute strategy (Smith, 2005a), is heavily dependent on the knowledge of their organization's workforce. Nosek (2004) follows Fitzgerald (1992) in proposing that there are three significant categories of this knowledge, and all three are relevant to the organization's capacity to act:

(1) *Static knowledge*. Unchanging, facts, existing independently of the knower, located in the world as discoverable "truths".

(2) *Dynamic knowledge*. Changeable facts, cognitions, feelings, and emotions, dependent on the knower, located in the mind (tacit) with possible various "correct" versions of the truth; knowledge may be created and is inherently subjective.

(3) *Static or dynamic knowledge*. The product of the knowledge system at the point where the knower interacts with the world.

Nurturing and "managing" these categories of knowledge with regard to an organization's business imperatives must therefore be a critical strategic priority, although such initiatives have proven complex and often ineffective (Despres and Chauvel, 2000; Storey and Barnett, 2000; Fuller, 2001). At the same time, the traditional notion of knowledge as the creation and property of strictly defined "professional"

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groups and their members has become very limited when set against the organization's broad knowledge needs (Heiskanen, 2004). In spite of setbacks, the understanding that knowledge-bytes must be shared and distributed has gained ground in the past decade (Nosek, 2004; Kafai and Resnick, 1996; Resnick *et al.*, 1993; Salomon, 1993). This has helped to add weight to demands to share knowledge within and without specialized expert domains (Nowotny, 2003), and develop theoretical and practical methods to transcend organizational boundaries.

At the same time there has been an ever growing interest in the dynamic aspects of knowledge husbandry, in part driven by the conviction that the knowledge-sharing process itself may effect the creation of *new* potential/capacities (knowledge) for action (Churchman, 1971). For example Bereiter and Scardamalia (1993) have explored how knowledge-building communities might be developed and maintained, and Boland and Tenkasi (1995) embellished the concept with their notion of perspective-taking – the taking of others into account in light of a reflexive knowledge of one's own perspective (Boland and Tenkasi, 1995; p. 362). Nonaka and Konno (1998) extended these ideas by modeling the acquisition and construction of knowledge as a cyclic social process based on four modes: socialization, externalization, combination, and internalization. Socialization includes the essential social interaction that is needed to learn new knowledge; externalization converts tacit knowledge to explicit; combination facilitates transfer of explicit knowledge to explicit knowledge, for example through meetings or discussions. The last mode is internalization that converts the explicit knowledge back to tacit knowledge. These authors also emphasized the need for social opportunities where the cycle would be facilitated. Nosek (2004) considers this a group process of sense making, rather than an individual process. This author asserts that we must move away from the concept of knowledge sharing as transmitting data, to the notion of "… effecting the right 'cognition', in the right agents, at the right time" (Nosek, 2004, p. 54).

Sensemaking here is interpreted as "the process whereby people interpret their world to produce the sense that shared meanings exist" (Leiter in Gephart, 1993, pp. 1469-70), and the group process involves people actively engaging in interpreting the social world through conversations and textual accounts, explanations offered and accepted, and ongoing dialog that describes and make sense of the social world (Gephart, 1993; Weick, 1979).

The emerging emphasis on the importance of socialization for effective knowledge sharing has focused attention on an issue fundamental to essentially all significant organizational undertakings – the prevailing organizational culture. Culture here is defined as the shared values, beliefs and practices of the people in the organization (Schein, 1992), and includes the impact of non-rational "people-factors" that are so often un-discussable in organizations (Smith and McLaughlin, 2003). Most managers and executives will agree that their organization's Strategic Capital is not only heavily dependent on the knowledge of their workforce as stated above, but that it is also heavily dependent on the attitudes of their organization's workforce with regard to the business plans of the enterprise. They will further admit that their employees have personal opinions and insights that are shaped for better or worse through their everyday activities and human interactions, in other words through formal and informal knowledge sharing. Such mindsets are not easily changed (Smith and Saint-Onge, 1996; Argyris, 1991) and indeed many well-designed knowledge management efforts have failed because of people's non-supportive beliefs (McDermott and O'Dell, 2001).

McDermott and O'Dell (2001) point out that companies that successfully implement knowledge management do not try to change their culture to fit their knowledge management approach. Such companies build their knowledge management approach to fit their culture. They do this by: linking sharing knowledge to solving practical business problems; tying sharing knowledge to a pre-existing core value; introducing knowledge management in a way that matches the organization's style; building on the existing networks that people use in their daily work; and encouraging peers and supervisors to exert pressure to share. These successful companies repeatedly emphasize that databases, knowledge systems, and knowledge initiatives and the like have a clear business purpose. A case study at Bharti Tele-Ventures (Hariharan, 2005) provides excellent practical confirmation of the success of this approach.

In other words, there is no "one right way" to get people to share, and these various forms of knowledge sharing are facilitated in scores of different ways reflecting the values and style of the organization, the category of the knowledge to be shared, and the efficiency and effectiveness of knowledge sharing tolerated by the organization, e.g. computerized knowledge repository/query systems; libraries; internet and/or intranets; training; conferences; communities of practice; communities of interest; modeling the way; meetings; announcements; gossip; and so on. The success or failure of these or any other knowledge sharing activities will depend on:

- how individuals and/or groups feel about the process, e.g. the rumor mill shares knowledge highly effectively if not necessarily accurately because people enjoy the social activity; and
- how they feel about the network of people with whom they are socializing (if any) in sharing knowledge.

The relevance of social networks

In private life, our process for buying something as simple as a book, or as complex as a car, typically involves turning to people we trust in our personal networks for help, advice, and dialog, or as models to be emulated. In business, organizations display this same behavior, and "core groups" (Kleiner, 2003), "gatekeepers", "translators", and "internal knowledge brokers" (Seely Brown and Duguid, 1998) all have immense influence on what people think and do, and how knowledge is transferred. All organizations are awash in these informal human networks that people use not only to get help and advice, but to fulfill psychological needs (McDermott and O'Dell, 2001; Maslow and Toward, 1962). Rather than trying to develop entirely new networks to facilitate sharing knowledge, the successful companies McDermott and O'Dell (2001) studied built knowledge sharing on those networks that already existed. Not only did these best-practice companies essentially only legitimize already existing networks, they took pains to focus these networks on topics important to the company i.e. knowledge that the organizations deemed worth sharing. This activity should not preclude the continued formation of new informal networks, or the continued existence of mature ones, but rather targets networks that the organization wishes to have focus on particular knowledge-sharing themes.

Social capital and the importance of opinion leaders

In stable networks, individuals learn to trust each other and form the kind of groups capable of sense making and knowledge sharing noted above. As Smith (2005b) counsels: "It is not just 'What you know' (Human Capital) or even 'Who you know'

(Relationship Capital) that ensures a successful outcome – it's 'Who you know well enough to trust for advice, or have confidence in to get things done efficiently and effectively' (social capital)." Although there is no uniformly accepted definition of social capital (SC), its meaning in an organizational setting has been captured by Gabbay and Leenders (1999; p. 3): "The set of resources, tangible or virtual, that accrue to a corporate player through the player's social relationships, facilitating the attainment of goals." Each individual's relationships with other individuals in an organization form that individual's SC for better or worse; close relationships enhance SC, whereas distrust and lack of openness cause low SC (sometimes termed Social Liability). Furthermore, the SC of individuals in an organization aggregates into the SC of the organization. In other words an organization's knowledge sharing success largely depends on its aggregated social capital or Social Liability.

Some individuals in networks, and/or groups and communities, achieve particularly elevated prestige or influence with their peers. They form "core groups" and their names come up time and again in their peers' hearts and minds and stories, not so much because they have authority but rather because they have attained legitimacy (Kleiner, 2003). Individuals demonstrating such characteristics have accumulated considerable SC and are termed here "Opinion Leaders". In a sense they assume archetypical characteristics within an organization through emergent stories and myths, or attain their status by matching existing "trust norms". If we assume that organizational members see "opinion leaders" as having a label or an "identity" rather being viewed as an "individual", then Snowden (2004) maintains that dealing with such core groups overcomes serious issues associated with the analysis and interpretation of social networks..

Butcher *et al.* (1997) posit that such influential individuals gain elevated SC by having well-developed meta-abilities such as excellent cognitive skills, self-knowledge, emotional resilience, and personal drive. These authors claim that the development of meta-abilities results in improved interpersonal influencing skills. They argue that this contributes to these individuals being more astute and insightful, able to make better judgments, and identify more alternative actions. This means that they can better navigate the typical complex and dynamic organizational reality and influence effectively within it.

There seems no evidence in the literature that programs can be mounted to deliberately develop opinion leaders by helping them acquire such meta-capabilities or assume archetypical characteristics. Rather opinion leaders are highly trusted as advisors by other individuals for a variety of complex and often systemic reasons, e.g. personal attributes, expertise, knowledge, longevity, local deployment, power etc. They are frequently seen as removing risk from organizational situations by providing a positive evaluation of "local fit". Opinion leaders usually have greater exposure to mass media, are more cosmopolitan, have more change agent contacts, have a higher socioeconomic status, participate more in their social system than their followers, and are especially important for interpersonal networks whose members differ in many aspects (Kautz and Larsen, 2000).

The particular difficulties associated with sharing tacit knowledge due to its subjective nature have been discussed by a number of authors (Selamat and Choudrie, 2004; Haldin-Herrgard, 2000; Augier and Vendelo, 1999). Harvey and Butcher (1998) address factors that inhibit people from sharing their tacit knowledge such as, lack of confidence, anxiety, unwillingness, confusion and being carried away by strong feelings. Given the skepticism typically associated with a personally threatening

activity such as tacit-knowledge sharing, the attitudes of opinion leaders will critically impact its success or failure.

If an organization has identified its opinion leaders, their views regarding all aspects of the organization's knowledge sharing agenda and content may be ascertained, and they may be more formally organized, e.g. in advisory groups, communities of practice and the like. Where knowledge to be shared is congruent with the beliefs of the opinion leaders, local workforce "buy in" is more readily assured, and sharing is accelerated as demonstrated in the next section. When the SC of the organization is poor, and/or the opinion leaders are negative or apathetic to the knowledge to be shared, it is no less important that the organization's decision makers be aware of the situation.

The role of opinion leaders in knowledge sharing

The primary role of opinion leaders in knowledge sharing is based here on the framework for innovation diffusion progressed by Rogers (1995) over more than 20 years. According to Rogers, an innovation is an idea, object or practice, which is seen as new by an individual or another group, and diffusion is the process by which an innovation is communicated through certain communication channels over time among the members of a social system. The meaning of diffusion has been clarified by Warner (2003) to include the process of understanding that follows reception of information. Although Rogers originally based his diffusion framework on the study of agricultural innovations, the work of a number of authors (Ortt and Schoormans, 2004; Hivner *et al.*, 2003; Kautz and Larsen, 2000; Garcia and Calantone, 2002; Matinez et al., 1998) indicate that it has been used as the starting point for diffusion process research in many fields. In addition Hivner *et al.* (2003) quote a number of sources to indicate that the term "innovation" may be defined broadly in terms of a new or innovative idea relevant to a product, process, or service.

Rogers proposes that the innovation diffusion process takes place in five stages:

(1) *Knowledge* is the stage where a potential adopter learns about the existence of an innovation and gains some understanding of it.

(2) *Persuasion* is the stage where a favorable or unfavorable attitude towards an innovation is formed.

(3) *Decision* is the stage where activities are undertaken which lead to the adoption or rejection of an innovation.

(4) *Implementation* is the stage where an innovation is actually put to use.

(5) *Confirmation* is the stage of reinforcement for an adoption decision which has already been taken.

Information about the existence of an innovation will be of interest to potential adopters in the early stages of the innovation-decision process, and evaluative knowledge is mainly sought in the persuasion and decision stages, e.g. the relative advantage of the innovation over, and its compatibility with, existing conditions; its ease of understanding; whether it can be easily piloted; and whether examples can be viewed elsewhere (Kautz and Larsen, 2000). This information is essential for reducing uncertainty about an innovation's consequences, and is most often sought from trusted peers. Rogers also indicates that interpersonal and local communications are relatively more important at the persuasion stage.

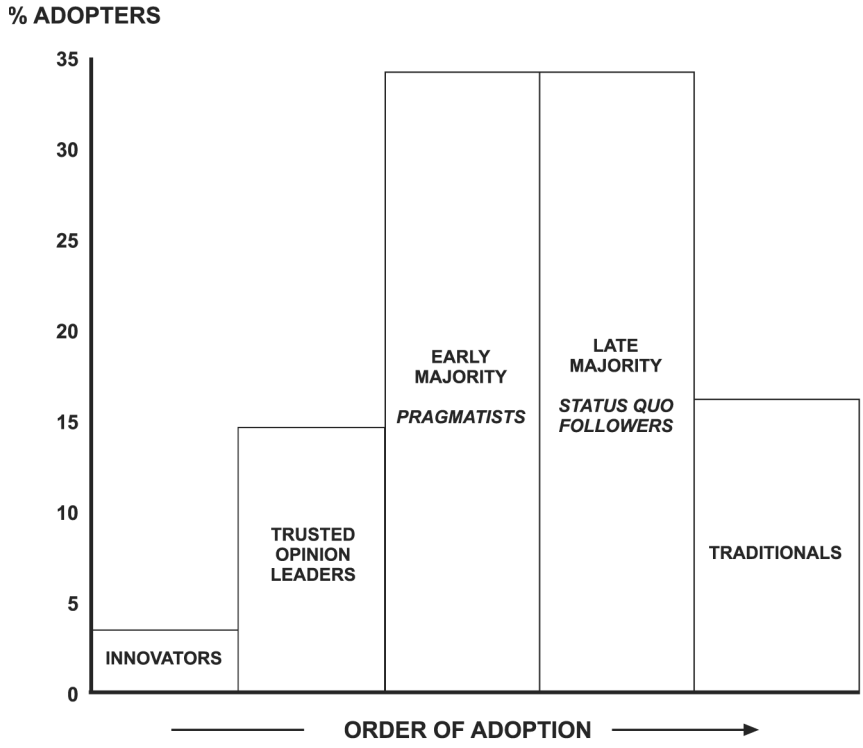
Rogers emphasizes innovativeness as another important aspect of his process. This is the extent to which an individual is relatively quicker in adopting an innovation than others. Rogers proposes five categories of innovativeness:

(1) *Innovators* who are gate keepers in the flow of new ideas into a social system.
(2) *Early adopters* that decrease uncertainty about a new idea by adopting it and by then conveying a subjective evaluation to near-peers.
(3) The *early majority* that follow in adopting an innovation and who through their position between the early and the late adopters are important links for further diffusion.
(4) The *late majority* that according to Kautz and Larsen (2000) often have scarce resources which means that almost all of the uncertainty about a new idea has to be removed before they adopt.
(5) *Laggards* that are behind, extremely cautions concerning awareness knowledge, and may never adopt the innovation.

These five categories are typically displayed versus time as an s-curved normal frequency distribution to predict diffusion of an innovation. According to Parthasarathy *et al.* (1997) multiple diffusions of a given innovation can be pictured as several sub-diffusion curves that together comprise the aggregate adoption curve for the innovation in question. A bar chart representation, based on Rogers (1995), is reproduced in Figure 1. In this chart the label Early Adopters has been replaced by the term Opinion Leaders. In the author's experience most of the early adopter community may be classified as opinion leaders, based on the description of their characteristics set out above; this is also consistent with the experience of Kautz and Larsen (2000) who provide a practical example confirming this re-classification.

In Figure 1, knowledge is traveling from left to right across the various subgroups of the community. About 14 percent of community members may be expected to be "opinion leaders" and about 84 percent of members will explore and rely on their advice. Each sub-group of the overall community shares knowledge with the sub-group that follows it, and each in their turn serves to reduce the risk of adopting the knowledge into the following individuals' personal knowledge base. In a sense opinion leaders are catalysts or inhibitors for intermittent or ongoing knowledge sharing efforts. In most mature organizations opinion leaders through their ongoing relationships will be well aware of who falls within the various categories, and will as a matter of course seek to share knowledge with pragmatists. This is not an insignificant factor, since without this insight, Murphy's Law almost certainly ensures that authorities trying to share knowledge will meet up with laggards, and face a barrage of "Yes, BUT ...." responses.

In building openness, Senge (1990; pp. 273-286) cautions us to be aware of the difference between "participative openness" and "reflective openness". The former is based on participative management, and is subject to the pitfalls of that approach, the chief of which according to Senge is that individuals feel free to speak out and state their positions, but that the unchanging nature of their dissimilar views precludes anything takes place as a result. Reflective openness on the other hand enhances the potential to take meaningful action by encouraging individual's to look inward to challenge their own assumptions as well as mutually examine the views of others. Senge (1990, p. 278) states that "Reflective openness is based on skills, not just on good intentions" and that these skills can be learned. In leveraging the influence of any



Source: Rogers (1995)

Figure 1.
Diffusion and adoption of innovation

network of opinion leaders therefore, it is essential to check that participative openness is balanced with reflective openness, or that appropriate remedial skill building is undertaken. Approaches based on action learning are very effective in this regard (Smith, 2005b; Smith and McLaughlin, 2003).

Activities are described in the next section that will generate the desired list of the organization's opinion leaders plus a more detailed sense of their roles, a visualization of the influence patterns across the organization's formal and informal social networks, and an assessment of the organization's social capital.

Identifying opinion leaders: network visualization and analysis

The notion of networks as a dominant organizing principle to explain how organizations work is attracting significant interdisciplinary interest (Cross and Parker, 2004). Farsighted managers are in the vanguard of those who are turning to network visualization and analysis for usable insights into the network dynamics that shape both threats and opportunities in their organizations. Cross and Parker (2004) provide many instructive examples from their practice, and a number of case studies are also available (Smith, 2005c).

Stakeholder relationships and knowledge sharing are important intangible assets that contribute directly to value creation. Subject matter expert networks, learning networks,

knowledge-sharing networks, and communities of practice are examples of organizational structures that contribute directly to value creation and enhanced Strategic Capital. In order to prosper, organizations must create as much value as possible from these and other assets. Network visualization and analysis (NVA), sometimes called organizational network analysis, is applied to surfaces these relationships and reveal the complexities of how people communicate and interact in social networks. In so doing, it opens them to better management. NVA consists of a flexible and adaptable set of routines (often computer based) to gather information, display patterns of relationships, and then carry out detailed mathematical/statistical analysis.

In NVA, data regarding "who influences whom", with respect to some indicator of interest, are first collected from the target organizational population or the whole organization. This querying and data-gathering constitutes a very important separate detail-designed "front-end" phase, and is not part of the analytical software. In the past this was a very time consuming manual task involving interviews and/or lengthy questionnaires. Today, NVA software exists to streamline and automate this function, e.g. KNETMAP^{TM} (Konverge Digital Solutions Corp., 1995).

A typical data gathering process would begin with a query sent by email to all individuals in the target community, e.g. "In getting your regular work done effectively, who would you go to share know-how and obtain advice? If no one, please do not answer the question". Each person selects from an online list of names that are recognizable as colleagues and co-workers. New names, e.g. external contacts, may be added online to the list. Based on data that each participant voluntarily provides in response to the query, NVA generates a map in real-time. Such real-time network maps are used as aids in monitoring assessment progress, and may be displayed to the community under review to enhance participation. An example of a network map is shown in Figure 2.

Networks are defined by:

- "actors" who are individuals in the target community and who are shown as filled circles called "nodes" in Figure 2. Nodes may be labeled or anonymous;

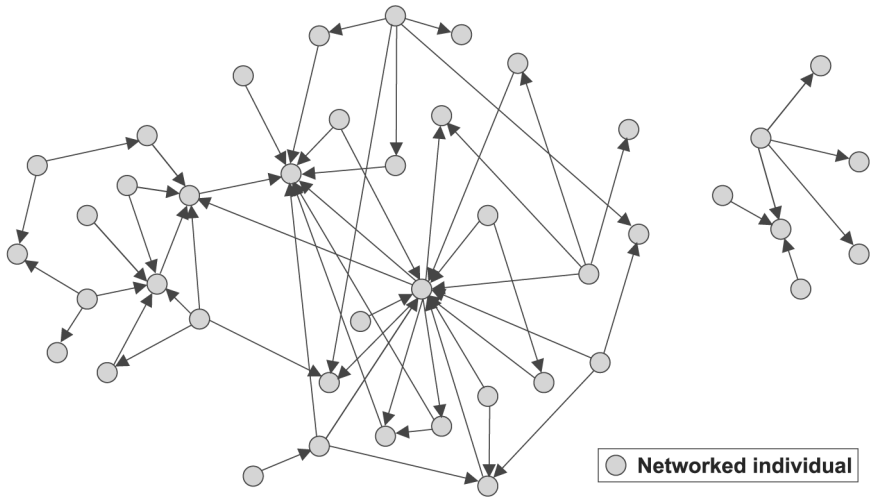


Figure 2.
Example of a network map

- "relationships" indicated by arrowed ties between nodes in Figure 2 where the direction of an arrow A → B indicates that A goes to and is influenced by B with respect to that query, or A ↔ B indicates that the activity is reciprocated. An absence of a tie indicates no relationship with respect to that query; and
- "attributes" associated with each node, e.g. role, tenure.

On completion of the information acquisition phase, further more specialized graphical mapping procedures, e.g. NetDraw (Borgatti, 2002) would be applied to the data to facilitate visualization of the relationship networks across the target community. Each network map depicts a particular dynamic in the organization by showing who goes to whom for specific information. The maps show not only how the individual employee operates within their team or department, but also show how teams and departments interact with one another, and how individuals/teams interact with external stakeholders. For example, in Figure 2 individuals who are sought out by many other actors are readily visible, as are individuals who are relatively isolated and whole groups that are networked together but un-connected to the larger network. The ability to map these concerns in a way that may be immediately shared throughout the organization is a vast step forward beyond conventional data gathering. Maps can be archived for retrieval at any date, either for decision support, location of expertise, or to monitor changes in existing networks.

The special techniques of Social Network Analysis (SNA) would be applied next. SNA is comprised of a number of complex mathematical/statistical routines (Borgatti *et al.*, 1999). Simplified descriptive texts are available, for example Scott (2000). Hampered by its earlier theoretical focus, SNA is only now emerging as a practical and dynamic approach to addressing real organizational problems (Kilduff and Tsai, 2003). SNA and graphical procedures are often applied in a cyclic process to promote clarity. The result is a detailed analysis of the relationship patterns across an organization's formal and informal social networks, and identification of opinion leaders.

The various influential network agents have recognizable characteristics that can be identified through detailed analysis using graphics and SNA, e.g. individuals who have influence as opinion leaders. When viewing opinion leaders from a social network perspective it is possible to identify four sub-roles for them (Cross and Prusak, 2002), all of which provide necessary healthy-network functions:

- *Central connectors*: recognized in a network because they link to many people directly;
- *Information brokers*: recognized in a network because they link to many people in-directly;
- *Boundary spanners*: recognized in a network because they link disparate people, areas, network clusters, e.g. departments; and
- *Peripheral specialists*: recognized in a network because they occupy positions as network outsiders even though they provide necessary specialist services.

Networks themselves may be characterized by graphics and SNA as displaying effective or in-effective social communications and collaborative archetypes. In this way social capital may be subjectively assessed, key informal and formal players identified, relationship networks visualized and compared to optimal patterns, and actions undertaken as necessary by the organization to more effectively realize the potential envisaged for the initiative at hand.

Conclusions

Utilization of the NVA-based approach described here will provide an enhanced real-world understanding of how the various sectors and network layers of an organization coalesce, and relate to one another, at micro and macro levels. In particular, it affords means to identify the influential opinion leaders across a community and makes available the opportunity to leverage, as appropriate, their patterns of positive or negative influence. An organization that has this up-to-date assessment of its social capital, a visualization of the influence patterns across its formal and informal social networks, a list of its opinion leaders, and a picture of the way knowledge flows across its networks, will clearly be well placed to begin to sort out how to effectively evaluate and enhance its knowledge sharing systems.

It is conceded that the approach espoused here provides only a subjective, even though important, understanding of the potential flow of knowledge across the channels identified, and does not help an organization directly assess the knowledge sharing capacity of its networks. If we take the position suggested by Choo and Bontis (2002) that organizations are essentially formed of collections of knowledge assets that must be managed for competitive advantage, one can readily envisage knowledge sharing capacity as having a significant impact on strategic capability, and posing a serious potential threat to enterprise viability, e.g. when key players and networks are overburdened. Following Kowch (2005), it is strongly recommended that this ability to assess knowledge sharing capacity be considered an important objective in future research by knowledge sharing authorities.

It is never-the-less asserted that by adopting methods reviewed in this article, and in particular, by identifying and leveraging as appropriate the influence of opinion leaders (Smith, 2005c), an organization will significantly enhance its knowledge sharing capabilities, and aid and accelerate implementation of its strategic undertakings. In other words the organization will significantly enhance its Strategic Capital.

References

Argyris, C. (1991), "Teaching smart people how to learn", *Harvard Business Review*, May-June, pp. 99-109.

Augier, M. and Vendelo, M.T. (1999), "Networks, cognition and management of tacit knowledge", *Journal of Knowledge Management*, Vol. 3 No. 4, pp. 252-61.

Bereiter, C. and Scardamalia, M. (1993), *Surpassing Ourselves*, Open Court Publishing, Chicago, IL.

Boland, R.J. Jr and Tenkasi, R.V. (1995), "Perspective making and perspective taking in communities of knowing", *Organization Science*, Vol. 6 No. 4, pp. 350-72.

Borgatti, S.P. (2002), *NetDraw: Graph Visualization Software, Analytic Technologies*, Harvard, Cambridge, MA.

Borgatti, S.P., Everett, M.G. and Freeman, L.C. (1999), *UCINET 6.0 Version 1.00*, Analytic Technologies, Natick, MA.

Butcher, D., Harvey, P. and Atkinson, S. (1997), "Developing business through developing individuals", Cranfield School of Management, Cranfield University, Cranfield.

Choo, C.W. and Bontis, N. (Eds) (2002), *The Strategic Management of Intellectual Capital and Organizational Knowledge*, Oxford University Press, Oxford.

Churchman, C.W. (1971), *The Design of Inquiring Systems*, Basic Books, New York, NY.

Cross, R. and Parker, A. (2004), *The Hidden Power of Social Networks*, Harvard Business School Press, Boston, MA.

Cross, R. and Prusak, L. (2002), "The people who make organizations go – or stop", *Harvard Business Review*, Vol. 80 No. 6, pp. 104-12.

Despres, C. and Chauvel, D. (2000), *Knowledge Horizons*, Butterworth-Heinemann, Boston, MA.

Fitzgerald, J. (1992), *Towards Knowledge in Writing: Illustrations from Revision Studies*, Springer-Verlag, New York, NY.

Fuller, S. (2001), *Knowledge Management Foundations*, Butterworth-Heinemann, Boston, MA.

Gabbay, S.M. and Leenders, R.Th.A.J. (1999), "The structure of advantage and disadvantage", in Leenders, R.Th.A.J. and Gabbay, S.M. (Eds), *Corporate Social Capital and Liability*, Kluwer Academic Publishers, Boston, MA.

Garcia, R. and Calantone, R. (2002), "A critical look at technological innovation typology and innovativeness terminology: a literature review", *Journal of Product Innovation Management*, Vol. 19 No. 2, pp. 110-32.

Gephart, R.P. (1993), "The textual approach: risk and blame in disaster sense-making", *Academy of Management Journal*, Vol. 36 No. 6, pp. 1465-514.

Haldin-Herrgard, T. (2000), "Difficulties in diffusion of tacit knowledge in organizations", *Journal of Intellectual Capital*, Vol. 1 No. 4, pp. 357-65.

Hariharan, A. (2005), "Knowledge management at Bharti Tele-Ventures – a case study", *Journal of Knowledge Management Practice*, Vol. 6, June.

Harvey, P. and Butcher, D. (1998), "Those who make a difference: developing businesses through developing individuals", *Industrial and Commercial Training*, Vol. 30 No. 1, pp. 12-15.

Heiskanen, T. (2004), "A knowledge-building community for public sector professionals", *Journal of Workplace Learning: Employee Counselling Today*, Vol. 16 No. 7, pp. 370-84.

Hivner, W., Hopkins, W.E. and Hopkins, S.A. (2003), "Facilitating, accelerating, and sustaining the innovation diffusion process: an epidemic modeling approach", *European Journal of Innovation Management*, Vol. 6 No. 2, pp. 80-9.

Kafai, Y.B. and Resnick, M. (1996), *Constructionism in Practice: Designing, Thinking, and Learning in a Digital World*, Lawrence Erlbaum Associates, Mahwah, NJ.

Kautz, K. and Larsen, E.A. (2000), "Disseminating quality management and software process improvement innovations", *Information Technology & People*, Vol. 13 No. 1, pp. 11-26.

Kilduff, M. and Tsai, W. (2003), *Social Networks and Organisations*, Sage, London.

Kleiner, A. (2003), "Core groups: a theory of power and influence for 'learning' organizations", *Journal of Organizational Change Management*, Vol. 16 No. 6, pp. 666-83.

Konverge Digital Solutions Corp. (1995), Toronto, available at: www.konvergeandknow.com (accessed 31 May 2005).

Kowch, E.G. (2005), "The knowledge network: a fundamentally new (relational) approach to knowledge management and the study of complex co-dependent organizations", *Journal of Knowledge Management Practice*, Vol. 6, June, p. 28.

McDermott, R. and O'Dell, C. (2001), "Overcoming cultural barriers to sharing knowledge", *Journal of Knowledge Management*, Vol. 5 No. 1, pp. 76-85.

Martinez, E., Polo, Y. and Flavián, C. (1998), "The acceptance and diffusion of new consumer durables: differences between first and last adopters", *Journal of Consumer Marketing*, Vol. 15 No. 4, pp. 323-42.

Maslow, A. and Toward, A. (1962), *Psychology of Being*, Van Nostrand, Princeton, NJ.

Nonaka, I. and Konno, N. (1998), "The concept of 'BA' – building a foundation for knowledge creation", *California Management Review*, Vol. 40 No. 3, pp. 40-54.

Nosek, J.T. (2004), "Group cognition as a basis for supporting group knowledge creation and sharing", *Journal of Knowledge Management*, Vol. 8 No. 4, pp. 54-64.

Nowotny, H. (2003), "Democratising expertise and socially robust knowledge", *Science and Public Policy*, Vol. 30 No. 3, pp. 151-6.

Ortt, J.R. and Schoormans, J.P.L. (2004), "The pattern of development and diffusion of breakthrough communication technologies", *European Journal of Innovation Management*, Vol. 7 No. 4, pp. 292-302.

Parthasarathy, M., Jun, S. and Mittelstaedt, R.A. (1997), "Multiple diffusion and multicultural aggregate social systems", *International Marketing Review*, Vol. 14 No. 4, pp. 233-47.

Resnick, L.B., Levine, J.M. and Teasley, S.D. (Eds.) (1993), *Perspectives on Socially Shared Cognition*, American Psychological Association, Washington, DC.

Rogers, E.M. (1995), *Diffusion of Innovation*, 4th ed., Free Press, New York, NY.

Salomon, G. (1993), "No distribution without individual's cognition: a dynamic interactional view", in Salomon, G. (Ed.), *Distributed Cognitions*, Cambridge University Press, New York, NY.

Schein, E.H. (1992), *Organizational Culture and Leadership*, 2nd ed., Jossey-Bass, San Francisco, CA.

Scott, J. (2000), *Social Network Analysis*, Sage, London.

Seely Brown, J. and Duguid, P. (1998), "Organizing knowledge", *California Management Review*, Vol. 40 No. 1, pp. 90-111.

Selamat, H.H. and Choudrie, J. (2004), "The diffusion of tacit knowledge and its implications on information systems: the role of meta-abilities", *Journal of Knowledge Management*, Vol. 8 No. 2, pp. 128-39.

Senge, P.M. (1990), *The Fifth Discipline*, Doubleday, New York, NY.

Smith, P.A.C. (2005a), "Enhancing strategic capital", *Handbook of Business Strategy*, Emerald Group Publishing, Bradford.

Smith, P.A.C. (2005b), "Knowledge management, CoP and social capital", in Coakes, E. and Clarke, S. (Eds), *Encyclopedia of Communities of Practice in Information and Knowledge Management*, Idea Group Inc., Hershey, PA.

Smith, P.A.C. (2005c), *Brochures and Articles: On-Line Case Studies – Network Visualization and Analysis Case Nos 1-5*, The Leadership Alliance Inc., Holland Landing, available at: www.tlainc.com/ (accessed 31 May 2005).

Smith, P.A.C. and McLaughlin, M. (2003), "Succeeding with knowledge management: getting the people-factors right", *Proceedings of the 6th World Congress on Intellectual Capital and Innovation, McMaster University, Hamilton*.

Smith, P.A.C. and Saint-Onge, H. (1996), "The evolutionary organization: avoiding a Titanic fate", *The Learning Organization*, Vol. 3 No. 4, pp. 4-21.

Snowden, D. (2004), "Understanding the strategic value of social networks: an overview of social networks", Ark Conference: Mapping Social Networks in Organizations, London, November 29-30.

Storey, J. and Barnett, E. (2000), "Knowledge management initiatives: learning from failure", *Journal of Knowledge Management*, Vol. 4 No. 2, pp. 145-56.

Warner, J. (2003), "Modeling the diffusion of specialised knowledge", *Aslib Proceedings*, Vol. 2 Nos 1&2, pp. 75-83.

Weick, K.E. (1979), *The Social Psychology of Organizing*, Addison-Wesley, Reading, MA.