

# *Exploration of the Field of Knowledge Management for the Library and Information Professional*

MICHELLE SINOTTE

The University of Alberta, Edmonton, Alberta, Canada

---

This study is an attempt to isolate and describe the field of knowledge management in terms of its relevance for library and information science professionals. In addition to readings, several interviews were completed with people who are working in the knowledge management field. This study is intended to be an overview to assist LIS professionals in grasping the essence of this subject and to suggest ways in which knowledge management may continue to affect the

LIS field in the near future. First, a brief overview of the origins of the field and some suggestions of why it persists in the face of numerous challenges will be provided. Following that will be an attempt to deconstruct the terminology surrounding knowledge management and give shape to its basic components. Next, the aforementioned numerous challenges will be considered, and finally the role of the LIS professional will be discussed.

---

## *Introduction*

Sometimes a subject can be researched, examined, evaluated and pared down to its essential components, making it accessible to and manageable by those unfamiliar with the subject. When the subject in question is knowledge management, this process is far from simple. Knowledge management (KM) arises from many different areas, concerns multiple disciplines, is ever-changing, and has a most annoying habit of branching off into a myriad of directions. The deeper one delves into this area the more complex it seems to become. This paper attempts to isolate and describe this field in terms of its relevance for Library and Information Science (LIS) professionals. It is intended to be an overview to assist LIS professionals in grasping the essence of this subject and to suggest ways in which knowledge management may continue to affect the LIS field in the near future.

A variety of both scholarly and popular literature, primarily from the LIS and business fields, was examined in compiling this study. In addition,

three interviews were completed with people who are working in the knowledge management field, in order to provide depth and current opinions on some key issues. The real names of these contributors have been changed to protect their privacy. Trevor is an LIS professional working in a large corporation; Joe is a consultant who also conducts research in the KM area, and Steve is a software engineer who has been involved in developing KM technology. First, a brief overview of the origins of the field and some suggestions of why it persists in the face of numerous challenges will be provided. Following that will be an attempt to deconstruct the terminology surrounding knowledge management and give shape to its basic components. Next, the aforementioned numerous challenges will be considered, and finally the role of the LIS professional will be discussed.

## *The origins of knowledge management*

The origins of knowledge management (KM) explain a great deal about its current condition. Prusak (2001) looks at the multi-disciplinary con-

tributions that gave rise to an increasing interest in knowledge including the fields of economics, sociology, philosophy, and psychology, as well as information science. While an in depth discussion of these contributions is not necessary to understand KM, the realization that the breadth of its beginning encompasses many disciplines is. This is one factor that accounts for the broad range of viewpoints and approaches in this field.

Core reasons for the development of a need and desire to manage knowledge are outlined by a number of researchers and writers in the field. There are several factors that are regularly described. The first of these is the shift from an industrial model of business, one where an organization's assets were primarily tangible and financial (e.g. production facilities, machinery, land and ever cheaper labor costs), to one where assets are primarily intangible and tied up in the knowledge, expertise and capacity for innovation of its people (Blair 2002; Prusak 1997; Lang 2001). Where once a business valued itself based on what it owned and how it controlled costs, we have moved into an era where competitive advantage is based on the creation of knowledge and its effective use. Over time the ability of a company to differentiate itself from the competition by streamlining production and reducing costs has evaporated. Now, in order to compete in a market where the gains from managing these tangible assets have shrunk, successful competing requires innovation – the creation of new ways to do things through the creation of new knowledge. For the foreseeable future, this will be the way in which corporations thrive or disappear.

A second factor is the dramatic increase in the volume of information, its electronic storage, and increased access to information in general. This has increased the value of knowledge, because it is only by knowledge that this information can be evaluated (Prusak 2001). This increased value of knowledge is exemplified by shifts in the LIS field. Once it was sufficient to help people find information; now, because there is so much more information and such wide access to this huge volume, both good and bad, it has become increasingly important that people know how to *evaluate* what they find.

Knowledge is also valued highly because it is closer to action (McInerney 2002). Information on its own does not make decisions; it is the transfer

of information into people's knowledge base that leads to decision-making and thereby to action. The increase in the value of what people know, especially that which is difficult to capture or express, is a common theme in the literature (Alavi and Tiwana 2002; Wright 2001; McInerney 2002; Blair 2002; Prusak 2001). A simple example of this would be the "rules of thumb" that are used by executives to make decisions. Often these rules are not only unwritten, but the person may not even be aware of them. They simply know whether or not a given choice of action will work or not. This kind of knowledge is closer to action, in this case making a decision, than the information, such as reports and documents, used to support a decision. Such knowledge is contained within the expertise of that executive, and it is increasingly valuable.

Although not widely discussed, one additional factor that bears mentioning is the current aging demographic. Many organizations are realizing that a large amount of their most important knowledge is on the verge of retirement. There is a growing awareness that if measures are not taken, this vast quantity of vital knowledge and expertise will simply walk out the door (Tischelle 2003). As the baby-boomers continue to mature, and there are fewer people to replace them, not only will their knowledge become more valuable, but expertise within the ever-shrinking pool of potential new hires will also become more valuable.

### *Defining knowledge management*

There are numerous ways to define knowledge management. In fact, so critical is this aspect to any discussion of the field, that virtually every article or study includes a definition of some kind. One way to approach this puzzling concept is to eliminate what knowledge management is not. Among other things, the most current and usable definitions of KM adamantly state that it is not simply a technology (McInerney 2002; Koenig 2002; Lang 2001; St. Clair 2001; DiMattia and Oder 1997).

As discussed earlier, the dramatic increase in the volume of information available was a factor in the growth of KM. In particular this was illustrated by an explosion of computer based systems intended to help deal with the ever-increasing quantity of reports, papers and all

manner of materials that were generated in companies and society in general. In the beginning, it was thought that these systems would be able to manage this explosion. When it became apparent that most, if not all of these systems, were not meeting expectations, there was significant disillusionment about information technologies. Still, these systems were designed and heralded as the answer to manage information; where does knowledge enter into the arena?

Part of the failure of these technological systems to live up to the claims made for them was not simply due to the limitations of the technology. What also arose from this time was a realization that in order to truly make use of employee expertise something beyond managing information would be required. So, while technological applications in the form of simple software programs, and more complex elaborate systems of integrated software and hardware, are often included as part of a definition of KM, they are clearly considered to be only one component of the picture.

Over time, knowledge management in organizations has come to refer to a number of integrated components. These components in successful KM programs encompass the creation, codification and application of both information and knowledge. It is useful at this point to confirm the difference between knowledge and information. Information is what LIS professionals have always dealt so expertly with, those bits of data and opinions that are captured in some fashion, primarily text, and stored for later use. Information is retrievable, storable and documented. Pinning down a definition of knowledge is more problematic. There are numerous heated philosophical debates that have failed to do so to the satisfaction of all concerned. From a KM standpoint though, the crucial distinction is that "knowledge is seen as richer than data and information" (Wright 2001). There is some uncertainty whether knowledge exists only within the one who knows, or whether it can be embedded in a process as well; the key point is that people are critical. As Blair (2002) describes it:

[The] essential difference between data, information and knowledge [is] that when we lose data or information, we often lose something that we can physically possess, something tangible. But when we lose knowledge, what we lose is an ability to do something.

One useful analogy is to think of a skill, such as ice-skating. You could read about the mechanics and get advice from friends, but you don't know how to skate until you know how to skate.

Within the KM field, knowledge is often further broken down into tacit knowledge (or implicit) and explicit knowledge. The knowledge of ice-skating would be tacit; it is lost in the attempt to express it, it resides within the knower, and is difficult or impossible to capture. Explicit knowledge is that which can be expressed and captured, at which point it becomes information. Dealing with the transition of explicit knowledge to information is a rather gray area, which leads to much of the confusion surrounding the difference between the management of information and knowledge. It is useful to note that the terms explicit knowledge and information are often used interchangeably.

The key issue that separates KM from other similar concepts, such as information management, is the fundamental belief that people, as opposed to electronic or print materials, are essentially at the core of the development, implementation and success of KM initiatives (Blair 2002; Cheng 2001; Alavi and Tiwana 2002; Lang 2001). So the need to deal with information persists, but is complicated by the need to also address that people carry tacit knowledge with them. Many initiatives seek to make codifying tacit knowledge a core part of any KM plan, but the recognition is prevalent that this is not always possible and that direct human contact is necessary in order for people to attempt to share some kinds of tacit knowledge effectively.

### *Getting past terminology*

There are numerous protests about the use of the term knowledge management. One of the most vehement of these is by T. D. Wilson. Essentially his complaint is that knowledge, because it resides within people, cannot be codified, captured, retained, searched or accessed, and therefore it cannot really be managed (2002). While there is certainly ample argument continuing about this issue, some people urge that the battle over terminology should not limit development of what is essentially a crucial new shift in organizational strategy (Koenig 2002; St. Clair 2001). There is an uneasy consensus among practitioners and

theorists alike that the term, knowledge management, is not a good one. If knowledge resides within individuals, and much of it is knowledge that the individual is not even aware of, how can it be managed? Moreover, if much of what we call KM is really still information management then the term can be misleading and confusing. As Joe, an interview participant pointed out however,

The issue is, we have this increasing of the importance of knowledge, it's what we do, and there's a disconnect between how we think about organizations. That's a huge challenge; and the challenge for us is to try to come to terms with that. That's the essence of Knowledge Management. If the title changes, that's kind of irrelevant, because some of those core issues and challenges are going to be with us for a long time.

Unfortunately, so far, there isn't a better term. So, often when we read about KM people are really talking about information management. This requires a suspension of concerns surrounding terminology in order to focus on the fact that the concepts and strategies that form KM are not simply a management "fad". Rather, they represent a fundamental shift in the focus of the way organizations of all kinds will conduct their affairs in the new "knowledge-centric" economy (Alavi and Tiwana 2002; Ajiferuke 2003; Prusak 2001).

Respondents in a study by Ajiferuke (2003, 252) agreed by strong majority that KM is not just another fad. The study looked at LIS professionals working in organizations involved in KM initiatives. The first mentions of the knowledge management concepts began in the mid 1980s. Today, if you search *Library Literature*, *Academic Search Premier*, or *ABI Inform*, you will still find hundreds of articles currently being written about KM. Such longevity should discourage claims that KM is a passing trend.

The fundamental shift in organizational strategy is due precisely to the realization that knowledge and information are not the same. Information is relatively easy to capture and store, knowledge is not. While KM includes information management, the knowledge component requires the "the care, feeding and training of experts" (Blair 2002). This includes both learning and sharing as fundamental processes that are required in order to both utilize existing knowledge and create new knowledge.

Increasingly, as organizations realize that knowledge is crucial for success in today's environment, KM has shifted in focus from strictly technological approaches to entire strategies. These strategies include technological tools that support knowledge sharing and creation among the people in an organization, but they focus on the people and how these knowledge-sharing processes can be facilitated (Blair 2002; Gold, Malhorta and Segars 2001; McInerney 2002; Wright 2002; Lang 2001). The growing awareness of the importance of knowledge is complicated by the difficulty of capturing knowledge. Especially when we are looking at tacit knowledge, if it cannot be expressed it cannot be captured. This is why facilitating processes for sharing knowledge has grown so important. These processes include things like mentoring, chat rooms, conferences and other ways in which face-to-face contact are encouraged.

### *Owning knowledge management*

Initially, the emphasis on technology meant that information technology departments were the focus of KM initiatives. However, as the focus moved to people's expertise, or their tacit knowledge, other disciplines and departments became increasingly involved. Koenig notes that attendance at KM conferences shifted from being almost entirely IT people to including a significant contingent of human resources people in the late 1990s (2002). Today KM is viewed more as a series of organizational initiatives that are built and implemented by multidisciplinary teams. This often includes: the installation of software to facilitate information management and the capturing of explicit knowledge (such as chat rooms, yellow pages, and extensive intranets), the widespread availability of learning opportunities for employees and the development of formal or informal "communities of practice" (groups that develop or are constructed to allow sharing of expertise) to facilitate knowledge sharing and innovation.

Eventually, successful organizations in the knowledge economy will likely have KM so integrated into their processes and routines that the idea of KM as its own approach will disappear (Prusak 2001). So far though, the various disciplines involved, information technology, human resources and LIS professionals have only begun to acknowledge that this very critical but complex

organizational asset will not be effectively managed without integrated teams and approaches. In the long run, there is a perception that KM will become a key part of leadership in every organization, so that facilitating the exchange of knowledge and expertise will become standard practice. As Joe put it in one interview, "If I had my way, I think every manager would define [KM] as a core competency [...]." Or from another perspective, Trevor suggests that, "To a large degree Knowledge Managers are really trying to work themselves out of a job."

### *Challenges in knowledge management*

There is no shortage of challenges for those wishing to, or compelled to, initiate knowledge management practices into their organization. Among the most often mentioned challenges to successful implementation of KM are barriers that arise due to organizational culture (De Long and Fahey 2000; Alavi and Tiwana 2002; Gold et al. 2001; McInerney 2002.) Two of the key issues that arise from discussions of these barriers are trust and motivation. In the past, and continuing in many organizations today, knowledge is power, and giving up power can put individuals and groups in vulnerable positions. If keeping your job and advancing within the company were based on the value placed on your knowledge and expertise, why would you risk sharing that knowledge? Sharing knowledge and information is seen by many to reduce the employee's leverage, that asset which assures them of continued employment. Therefore, it is important that employees feel that they are valued for sharing and contributing their expertise as much as they are for possessing it in the first place.

Another aspect of trust deals with an employee's ability to trust the information he or she receives through enabling technologies. Often this second-hand information is not perceived to be as reliable as that which is received face-to-face (Ellis 2001). Dealing with explicit knowledge that has been captured by technologies can be frustrating as well. As Steven, an interview participant pointed out; "sharing knowledge in face to face communication is much faster, because you can ask the questions that you have instead of reading a hundred odd pages until you finally

find the one answer that you are looking for". In other words, face-to-face access to knowledge, or real time equivalents such as chat rooms, allow for dynamic and responsive searching, while accessing a database is static and tends to be rather one-sided.

A third, and extremely critical, barrier is time constraint. The effective implementation of KM initiatives often involves some extra effort on the part of the employee. If this is not officially recognized as a requirement of the job, then there is little motivation for employees who are already under time pressure, to participate. In fact, as Trevor pointed out in an interview, when it comes to participating in KM initiatives, "if they're trying to do it, and their colleague down the hall isn't, and their colleague is spending more time on the business activities [that are rewarded], there's a potential that they could even be punished for that activity."

An exploratory study by Bock and Kim looking at what actually motivates people to share knowledge suggests that a positive organizational attitude towards sharing, and expectations of benefits to the organization, provide better results than external rewards systems. More research is urged in this area, especially as this study was conducted in Korea, so cultural factors may produce different results in North America (2002).

A study by McDermott and O'Dell examined five companies who were successfully using KM strategies. They found that a key factor in success was designing KM initiatives to work with current corporate culture rather than trying to change corporate culture to work with a KM initiative (2001). It only makes sense that trying to work with what already exists will meet with less resistance than trying to change things completely. This is one reason why companies that implement KM gradually, and in keeping with the organizational culture that is already in place, seem to be more successful than companies that attempt to make sweeping and drastic changes (McDemott and O'Dell 2001).

De Long and Fahey suggest four factors found in organizational cultures that affect knowledge creation. These include, first, that culture and subcultures shape assumptions about the value or worth of any given knowledge. This refers to the fact that information from certain sources or people is privileged over others. Secondly, cul-

ture defines who controls knowledge including who is expected to share and who is not. Thirdly, organizational culture determines the contexts for social interactions; in other words, it defines the opportunities to share knowledge. Fourth, culture determines the ways in which people adopt or create new knowledge, or not. This refers to the existing tendencies to embrace change, and the support inherent in an organization for innovative ideas (2000). Clearly, organizational culture, as it pertains to how knowledge and information are regarded and shared, is extremely complex.

Another critical obstacle for KM initiatives is how an organization views the overall contribution to the bottom line. Whether in public or private sector, the pressure on KM systems to justify themselves, in terms of measurable benefit, is increasing. This obstacle has arisen in part from the earlier technology focused IT solutions that failed to live up to their claims (Udell 2003; Blair 2002; Koenig 2002). The early technologies were expensive to implement and, because they often failed to consider the important human component of the equation, results were minimal. As Lang (2001) describes it,

In the last 20 years, US industry has invested more than \$1 trillion in technology, but industry-wide analysis of IT investments shows no relationship between IT expenditures and company performance. This disconnect between IT expenditures and the organizational performance may be attributed to managerial ignorance of the ways in which knowledge workers communicate and operate through the social processes of collaborating, sharing knowledge, and building on each other's ideas.

The other main reason for this barrier is the difficulty inherent in measuring the effects of KM. Aside from the costs of technology, the expenses involved in hiring extra staff, and having existing staff spend time on KM initiatives must also be justified. This creates a problem for KM supporters who need to convince once-burned executives to divert still more funds in the direction of KM strategies in order to see any benefits. One study cited by Schick (2001) found that while "91 percent of companies surveyed agreed knowledge management practices have helped to improve organizational efficiency, only five percent were able to calculate a return on investment from the knowledge management initiatives." This study, conducted by Ipsos-Reid, interviewed business decision makers in medium to large companies

who were engaging in KM development. This issue is growing. During my interview with Trevor, he cited a need to continuously prove that KM adds value as one of the major barriers to holding the attention of top executives. Since, as he suggests, it can take up to two years to see real results from many of these projects, proving value can be especially difficult.

Various approaches to measuring the return on investment from KM, and the importance of finding ones that are valid, are discussed in the literature (Schick 2001; Rylatt 2003; Koenig 2001; Udell 2003). These include measuring such items as employee satisfaction and turnover. The rationale is that when people are happy and they stay with a company, then that company is doing its job in retaining its knowledge base. Various indicators of customer satisfaction can also suggest that a company's employees are using knowledge effectively in their external relationships. Rylatt strongly urges that new and more comprehensive methods are needed in order to move companies into the knowledge age.

As a particularly illuminating example, Rylatt discusses IBM's purchase of Lotus in 1995. IBM paid fourteen times the book value of the company, a sign that the intangible assets of Lotus, such as employee knowledge, were highly valued (Rylatt 2003). However, despite the recognition of the value of knowledge, few objective methods currently exist to quantify it.

### *The role of the LIS professional*

Where do librarians and information professionals fit into the extremely dynamic and complex picture that is knowledge management? A Canadian study by Ajiferuke (2003) looked at LIS professionals who are members of the Special Libraries Association. More than eighty percent of those working in companies that are engaged in KM activities are involved in these initiatives. More than half of these consider themselves key members of the team, although very few are in leadership roles.

Becoming involved in a KM team is something that seems to happen gradually. An interesting perspective arose in my conversation with Joe. Despite the widespread existence of KM initiatives, Joe felt that there were probably fewer than

a hundred people in Canada who actually have knowledge management in their job titles. Moreover, he also stressed that people rarely join a company to work in KM, because you need to understand the way the organization works, its culture and processes, before effective initiatives can be implemented. So you tend to gradually become involved in a company's programs to manage knowledge after you have worked there awhile. In some ways, a formal degree in KM is like getting a degree in vice-presidency, it simply makes no sense. So while there are numerous educational courses focused on KM, there are relatively few entire programs devoted to it.

Blair (2002) states that successful KM requires both the ability to access stored information and the knowledge among workers to "evaluate the validity and reliability of information obtained from unfamiliar sources." This may be an opportunity for LIS professionals to implement their expertise in information literacy instruction. Other familiar territory for LIS professionals exists in the KM field as well; this includes a continuing need for expertise in information management, and high levels of support for teams engaged in innovative pursuits (Cheng 2001; St. Clair 2001). Additionally, LIS professionals bring to KM a client-focused viewpoint, where technology is important but not dominant. They also understand how to discover, through reference interview skills, what information it is that people are seeking. We can also add value to information, through such services as evaluation, prioritization and summarizing, which makes it more relevant for those seeking to create new knowledge (Scwarzwalder 1999).

What is also pointed out in the literature are a number of potential deficits in the skills of LIS professionals that would inhibit the maximization of the contribution that they could make in KM initiatives. These include a lack of organizational political understanding, unwillingness to address issues of return on investment, insufficient understanding of business practices, and limited access to high-level decision-making (St. Clair 2001; DiMattia and Oder 1997). As suggested by Pearlstein, corporate librarians who wish to pursue this kind of work need to "understand that they do not work in a vacuum, their library's services must be tied directly to the corporate mission" (DiMattia and Oder 1997). Further emphasizing

the need for a more organization-wide outlook are the necessary skills that arise from the Aji-feruke (2003) study. In this case, of those LIS professionals involved with KM programs, more than ninety-five percent cited "understanding of the knowledge process within the business process" and "ability to identify and analyze business processes" as core competencies. For LIS professionals engaged in KM initiatives, understanding the ways in which their organization evaluates opportunities, and making sure that they have channels of communication with those who make the decisions, can mean the difference between successful programs and obsolescence. The study also outlines a number of other key skills for LIS professionals interested in pursuing work in this field. Respondents in this study agreed that communication, networking and teamwork skills are extremely important.

One of the most exciting possibilities for the LIS field to arise in the literature is the potential inherent in the "third stage." Koenig (2002) suggests that the next era will focus primarily on content management. To illustrate the stages, Koenig offers the following phrases: stage one, the "If you build it they will come" fallacy. This is a direct reflection of the topic mentioned earlier in this paper, the dominance of technology that faltered because it failed to consider the human components, such as the difficulty in capturing tacit knowledge.

Koenig's description of stage two, "it's no good if they don't use it" refers to issues such as sharing and trust that continue to be challenges. If there is no incentive to share, or knowledge is seen as power, then people simply do not "buy-in" to new KM initiatives. In stage three, the phrase Koenig (2002) uses is "it's no good if they can't find it." Essentially this refers to the kind of work LIS professionals have done all along, the kind of behind the scenes work that makes accessing information possible and, more importantly, easy. The words commonly referred to by the business community for this phase include "content management" and "taxonomy."

This focus on content management was exemplified in the interview with Trevor, when he described his attempts to have a functional taxonomy developed for his organization. Those running the project, who were IT people, rejected this suggestion. They felt that they already under-

stood the company's needs, although they never actually investigated what those were. Over time these same people have come back to him and admitted that yes, they need some sort of functional structure that will actually reflect what people need to do with these systems.

There is recognition that content needs to be organized in a way that makes the material usable. This is as true for explicit and tacit knowledge as it is for data and information. For example, if the opinion of an expert is needed in order to help a team make an important decision, then that expert, or at least their knowledge, needs to be accessible and the team needs to know that the expertise is available. Once again, this takes KM beyond information management alone and adds a more complicated human interaction component.

The implications for the LIS profession to make a contribution in the area of content management is likely obvious to those within the profession; Koenig urges us to make sure that it is also known outside of it. He cites a 2001 conference session that detailed a highly successful KM initiative. It was later discovered that the program involved the input of a number of librarians. When asked after the presentation whether this was considered to have a significant impact on the project's success, the session presenters admitted that it had. Koenig (2002) points out that the truly remarkable part of the story is not that librarians were useful and critical staff for project success, but that the presenters chose not to mention it in the formal presentation. The LIS profession has a responsibility to market its skills to those who could make good use of them.

### *Conclusions*

For those in the LIS profession who seek to become involved in this dynamic and important field, there are a number of key points that should be kept in mind. First, it is unlikely that you will find a job ad asking for a knowledge manager, it is more likely that job ads will be vague, as even companies are still unsure what credentials are required in this field. It is significantly more likely that LIS professionals will drift into KM initiatives while involved in more conventional roles that already exist in organizations. Opportunities to be involved in KM may need to be sought out,

and the skills and knowledge of this profession may need to be "sold" and then proven before our potential contributions will be understood.

Second, it is important to realize that KM is more than technical systems and software; it also refers to the requirements of receptive organizational culture and supportive upper management needed to succeed. As Trevor described it in an interview, "Knowledge management can't be installed, it has to be instilled." Successful knowledge management is a complete shift in the way organizations value people and their ability to contribute to innovative solutions to problems. Third, those engaged in KM must acknowledge that the ability to demonstrate real tangible results is crucial.

There is an opportunity for LIS professionals to help shape the future of knowledge management, if we are willing to become members of broader organizational communities and embrace the inherent challenges in this highly complex field. Both interview participants Trevor and Joe feel that there is a real and important contribution to be made by our field. Trevor characterizes the role of the LIS professional in this way; "I think it's critical, to be honest with you, that we have more people that understand how information is shared and how information is used, versus the zeroes and ones of the technical environment, which is what you'll find in most organizations." It is, after all, the using and sharing of information to create new knowledge that defines knowledge management.

### *References*

- Ajiferuke, Isola. 2003. Role of information professionals in knowledge management programs: empirical evidence from Canada. *Informing science journal* 6: 247-57.
- Alavi, Maryam and Amrit Tiwana. 2002. Knowledge integration in virtual teams: the potential role of KMS. *Journal of the American Society for Information Science and Technology* 53(12): 1029-37.
- Blair, David C. 2002. Knowledge management: hype, hope or help? *Journal of the American Society for Information Science and Technology* 53(12): 1019-28.
- Bock, Gee Woo and Young-Gul Kim. 2002. Breaking the myths of rewards: an exploratory study of attitudes about knowledge sharing. *Information resources management journal* 15(2): 14-21.

- Cheng, Grace. 2001. The shifting information landscape: re-inventing the wheel or a whole new frontier for librarians. *New library world* 102(1160/1161): 26–33.
- De Long, David and Liam Fahey. 2000. Diagnosing cultural barriers to knowledge management. *The Academy of Management executive* 14(4): 113–27.
- DiMattia, Susan and Norman Oder. 1997. Knowledge management: hope, hype or harbinger? *Library journal* (Sept. 15): 33–35.
- Ellis, Kristine. 2001. Dare to share. *Knowledge management* 38(2): 74–80.
- Gold, Andrew H., Arvind Malhorta and Albert H. Segars. 2001. Knowledge management: an organizational capabilities perspective. *Journal of management information systems* 18(1): 185–214.
- Koenig, Michael E. D. and T. Kanti Srikantaiah. 2002. The business world discovers the assets of librarianship. *Information outlook* 6(4): 14–18.
- Lang, Josephine Chinying. 2001. Managerial Concerns in Knowledge Management. *Journal of knowledge management* 5(1): 43–57.
- McDermott, Richard and Carla O'Dell. 2001. Overcoming cultural barriers to sharing knowledge. *Journal of knowledge management* 5(1): 76–85.
- McInerney, Claire. 2002. Knowledge management and the dynamic nature of knowledge. *Journal of the American Society for Information Science and Technology* 53(12): 1009–1018.
- Prusak, L. 2001. Where did knowledge management come from? *Systems journal* 40(4): 1002–1007.
- Rylatt, Alastair. 2003. Measuring know-how. *T&D* 57(7): 37–39.
- Schick, Shane. 2001. KM does the job but ROI remains vague survey finds. *Knowledge management* 27(7): 1&8.
- Scwarzwalder, Robert. 1999. Librarians as knowledge management agents. *Econtent* (Aug./Sept.): 63–65.
- St. Clair, Guy. 2002. Knowledge services: your company's key to performance excellence. *Information outlook* 6(6): 26–33.
- Tischelle, George. 2003. Educational advantage. *Information week* 930: 57–58.
- Udell, Jon. 2003. Trends bode well for KM. *Knowledge management* 25(11): 34–35.
- Wilson, T. D. 2002. The Nonsense of knowledge management. *Information Research* 8.1, paper no.144. URL: <http://InformationR.nt/ir81/paper144.html> [viewed Sept. 16, 2003].
- Wright, Kirby. 2001. *Examining the principles and practices of knowledge management*. University of Alberta, Faculty of Extension, Masters of Arts in Communications Technology Teaching. 21pp.

*Editorial history:*

*paper received 28 April 2004;*

*accepted 15 July 2004.*