The implications of knowledge management for the library and information professions

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A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and, any editorial work, paid or unpaid, carried out by a third party is acknowledged.

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Abstract

The advent of the internet and related technological developments has not only increased stocks and flows of information, but also has transformed the nature of library and information services. In the midst of these changes, knowledge management (KM) has emerged as a further significant influence on library practice. However, despite its widespread impact on many aspects of the profession, the wider ramifications of the relationship between the two are not clear from the literature. The present thesis attempts to contribute to further understanding of these ramifications. It attempts to describe the KM field in terms of its relevance for the Library and Information Science (LIS) professions.

The methodology employed was a combination of qualitative and quantitative approaches. The research falls within the interpretivism paradigm. As a piece of interpretive research, the main purpose of this study was in investigating the multiple perspectives on knowledge management within the LIS sector. This included: examining assessments of knowledge management among library and information science professionals in terms of its potential value, benefits, opportunities and threats to the profession; identifying the contribution that LIS professionals/libraries could make to KM practice; understanding the capabilities (and lack of them) in knowledge management practice among LIS professionals, and the broad implications of KM for library education. A triangulation strategy was employed for the research including the conduct of a literature review and document analysis, administration of a web-based survey and the conduct of in-depth interviews. This helped to bring coherence to the research while leading to an enriched understanding of perceptions and events.

The results emerging from the research revealed very positive feedback from the LIS community in regard to attitudes towards knowledge management. Not only did LIS professionals consider KM to be a viable option but also, they saw positive implications for both individuals and the professions as a whole in terms of opportunities for new career options in KM. Also, there was a level of commonality among LIS professionals on the nature and meaning of KM. Their view of KM was broader than what would be encompassed by either librarianship or information management. This was clear from the breadth of their perspectives, which extended to the consideration of such aspects as intangibles and human capital.

The research findings from the present thesis, confirm that LIS professionals regard their skills as being relevant to the practice of KM. Although they believed that KM was

essentially a management phenomenon, they also believed that it was a field in which LIS professionals should seek to extend their involvement. Evidence of such involvement reveals that LIS professionals in general, have been largely engaged in the information management side of KM.

Although LIS professionals surveyed or interviewed for the present research project were making a contribution to the general level of KM, their involvement in more senior positions tended to be a matter of exception rather than of rule. Only thirteen respondents to the questionnaire (3.5 per cent of all participants) were operating as leaders of KM in their organizations. Eleven of these people were subsequently interviewed during Phase Two of the project.

Interviewing knowledge managers from a LIS background (that is, people who had crossed the boundary from LIS to mainstream KM) revealed that a number of personal attributes may have been significant to the success of this transition. These included a facility in human networking, and an appreciation of the value of lifelong learning, along with ambition and a willingness to take risks. The possession of a non-LIS qualification along with their LIS qualification, was also characteristic of people holding senior roles in KM.

Although the LIS professionals who participated in this research project agreed that libraries could make a strong case to be the launching point for KM initiatives, they did not support the argument that libraries should be the leaders of KM in their organizations. To some extent this has been a matter of competence, and also of the traditionally unflattering image of libraries. Not surprisingly, this has in some cases led to name changes and the reorganization of functions.

Among the implications of these results for LIS professionals would be the need to extend their focus from one based on information objects to one based on people aspects, to adopt a holistic view of their organizations, and to increase their levels of business knowledge. Furthermore, the point cannot be made too strongly that knowledge management is a people-centered phenomenon. People skills such as communication, networking and leadership should be promoted much more widely among LIS professionals. A focus on the transfer of traditional LIS skills, for example, in reference and in information organization, to the management of tacit knowledge, could greatly enhance the influence of LIS professionals in the KM field and could contribute to their overall understanding of the need for knowledge both at organizational and personal levels.

The contribution of LIS professionals to KM potentially can be enhanced through developments in education for LIS. The results from the present research suggest that library schools and the profession at large need to seize the opportunities offered by KM in terms both of individual career development and the overall advancement of LIS. Extending the LIS curriculum to include business and management subjects and also the promotion of personal attributes, could not only equip LIS professionals with the necessary capabilities, but also could give them the confidence to apply these capabilities in the marketplace. Specifically there is a need to clarify the roles that LIS professionals can play within the spectrum of KM activities, and to amend or expand educational curricula to prepare students for these roles.

Chapter 1
Introduction

1.1 Problem statement

Developments in information and communication technologies (ICTs) have resulted in massive discontinuous changes in all sectors of society. The term ‘period of rapid change’ is frequently used in the literature to describe the new environment. No profession has been immune from the pace of these advances. Arguably, they have changed the operational mode of just about every profession. In the economic and commercial sector, ICTs, as one of the main driving forces, have helped to create a borderless world, a feature of which is global competition among organizations. To survive in the face of such global competition, organizations increasingly depend on their ability to transform information into knowledge as the basis of competitiveness, decision-making and the production of new products and services. In this global and increasingly knowledge-based economy, the principal asset for organizations in both the private and public sectors is knowledge. As a consequence, organizations and large firms in particular have invested heavily in activities designed to acquire, control, leverage and account for this intangible resource. In other words, they have invested in knowledge management. Knowledge management – KM – is now widely recognized as a key factor in organizational success.

As the pace of knowledge-based change has intensified, librarianship has been exposed to a similar range of challenges as have emerged in the private sector. Technological advances, and particularly the development of the internet and the world wide web, have not only increased stocks and flows of information (which now have a significant digital dimension), but also have transformed the nature of library and information services, posing serious questions for libraries and LIS professionals. The availability of user-friendly databases and search engines has to some extent resulted in disintermediation, with questions being asked about the continued relevance of the LIS professionals for retrieving information. The LIS literature is characterized by speculation about the future of libraries and librarianship. One prominent LIS figure observed:

> Libraries are under threat. If the world is really being built on information and knowledge, transmitted almost instantaneously from any place to any where, what role is left for yesterday's fusty mausoleums of print? Perhaps they will survive as museums … (Brophy 2001, p.xiii).

The sheer volume and scale of information availability has contributed to new demands for access to knowledge. Brophy, in the earlier quotation, was not advocating a future for libraries as museums. Rather he was pointing to a different future in a world where with information overload threatening organizations of all kinds, LIS professionals would perform access and intermediary roles which embraced not just information but also knowledge management. Knowledge management, therefore, has emerged as a response to challenges the profession faces in a discontinuously changing environment.

From the LIS perspective, KM has been recognized as a further significant influence on library practice, as reflected in the creation of new products and services, and in new knowledge-linked titles for those (hitherto known as librarians) involved in their delivery. This is reflected in the following quotation:

> As the companies become more explicitly reliant on effective management of their knowledge and information, so the opportunities for information professionals are opening up (Abell & Wingar 2005, p.7).

KM is a very broad field, and includes by necessity many people of diverse educational and experiential backgrounds. KM is a process that has been heavily influenced by the growth and application of computer technology to data and information management. That may explain why traditionally, KM has been located in IT departments. As the focus of KM has moved from IT towards human expertise, including recognition of the importance of tacit knowledge, other disciplines and departments have become increasingly involved. Koenig notes that attendance at KM conferences shifted from being almost entirely comprised of IT people to including a significant contingent of human resources people in the late 1990s (Koenig & Srikantaiah 2002). LIS professionals connect to KM through their traditional role of managing and organizing information. They are expert in content management, something that is often central to successful knowledge management. KM is linked to information management because knowledge is communicated and managed through information infrastructures that are used to locate, create, distribute, store and eventually discard information (Morris 2004). Koenig sees librarianship as bringing to KM:

> a set of tools … to facilitate the implementation of KM, the extension of librarianship, thus avoiding unnecessary, wasteful, expensive, and, above all, time-consuming reinventions of the skills and tools we already have (Koenig 1996, p.300).

Consequently, information management has been seen as the essential prerequisite to KM (Davenport 2004). Although managing knowledge is different from managing information, there are a lot of transferable skills involved in the management of both (Webster 2007, p.77). With fundamental values encapsulated in knowledge sharing and customer service, the library and information community clearly fits within the knowledge management environment, a fit which is enhanced by their core skills in information acquisition, organization and use (Corrall 1998; Schwarzwalder 1999).

In recent decades, a body of literature has emerged that explicitly addresses knowledge management from the perspective of library and information professionals. There is little to be said about LIS in mainstream KM literature, where it has been rarely mentioned and then largely as a 'supporting discipline' (Davenport 2004). But what does an examination of the LIS literature reveal on this topic? Reviewing recent LIS literature reveals that the LIS community has welcomed the challenges and opportunities knowledge management presents; for more than a decade many of the leading figures in LIS education have contributed to the debate on such issues (Broadbent 1997; Corrall 1998; Abell & Oxbrow 2001; Koenig & Srikantaiah 2002)[1].

There is a key assumption reflected within the literature that since the organization of knowledge has always been the strong suite of librarians, they must not only engage in, but also actively spearhead knowledge management initiatives (Gandhi 2004). KM has been recognized as an opportunity for improving the status and image of the profession through creating new roles and responsibilities for the LIS profession. Marianne Broadbent was among the early advocates of potential LIS involvement in knowledge management. In fact Broadbent's much cited paper in 1997, was the starting point for much of the profession's enthusiasm for KM. Much of the overlap between KM and librarianship, and the potential opportunities for librarians, has resulted in repeated calls for the LIS profession to engage more with KM (Ferguson & Hider 2006). However, not everyone within the LIS community approves

[1] Also: Primary research group (2006). *Corporate Library Benchmarks*, 2004-5 Edition, Primary research group.

of KM. A minority of commentators consider knowledge management as simply another management fad and in fact, nothing more than information management (Wilson 2002). There have also been a range of motherhood statements of the 'librarians have always been engaged in knowledge management' type (Milne 2000).

Knowledge management is a wide, interdisciplinary field that embraces the many aspects of management of a key resource. There is an acknowledgement within the literature that, although LIS professionals with potential IM competencies are likely to be significant players in knowledge management, they need to develop additional skills and overcome a number of obstacles if they are to extend their roles into the KM domain. This suggests that rather more is needed than for LIS professionals to promote their expertise more widely, if they to aspire to involvement at the strategic and policy-making level. For many in the information professions this is likely to entail learning different kinds of skills and opening up to new ways of thinking. Broadbent (1997) perceived LIS involvement in KM as conditional upon the nature of the work performed by individual LIS professionals, and the extent to which they were able to look beyond the confines of professional values and perceptions. KM has also been seen as a threat. This is because if LIS professionals refuse to gain new skills and involve effectively in knowledge management practice they risk becoming irrelevant to their organizations, and could be the losers in competition with people from other industries. There is a different point of view, however, and that is that LIS professionals should stick to what they know and resist being drawn into futile attempts to serve other professional masters (Martin et al. 2006). However, this is not a challenge faced by the LIS profession alone, and several areas such as human resources management find themselves faced with the same challenge.

Some would of course argue that LIS professionals are already making their mark in the knowledge management space (Brogan et al. 2001). and particularly in specialist new roles such as those of information architects, taxonomy development, or content management for organizational intranets (Ajiferuke 2003). The number of positions being advertised for librarians in a KM role, especially in the legal and health sectors, has increased (Webster 2007). In these sectors, LIS professionals are prominent, often through their expertise in the management of new technologies (Valera 2004). Other LIS professionals have demonstrated their management potential by transferring to careers in consultancy and other forms of business. Nevertheless, the evidence of a few heroic examples may not necessarily constitute a long-term trend. Often this involvement appears to entail LIS professionals doing more of the same, and in

standing still in terms of career progression, with accession to more senior knowledge management roles being more a matter of aspiration than of achievement (Ferguson 2004), and this despite notable exceptions including librarians, such as Trish Foy, Laurence Prusak and Paul Vassallo (Townley 2001). On the whole, the LIS professions may still labour under a dual, self-imposed handicap in seeking to exploit opportunities in knowledge management. The first is a traditional reluctance to move beyond the information *container* towards analysis and interpretation of its *contents*, and the second, is that information professionals continue to promote themselves as *service*-oriented, rather than *value*-oriented (Corrall 1998). The perpetuation of such attitudes may well help to explain the general absence of an LIS component within the mainstream knowledge management literature. Should the LIS professions opt to buy into the knowledge management game in search of new opportunities and improved status, they must, however, be prepared to take a holistic view and focus on organizational rather than simply personal or professional objectives (DiMattia & Oder 1997). They must also be prepared to take the risk of self-promotion in competitive markets for higher-level jobs (Abell & Oxbrow 2001).

In order to prepare for such risk-taking activities, as well as to ready themselves for a range of roles across the knowledge management spectrum, LIS professionals must also address any existing and potential gaps between their current and future needs for education.

1.2 Background of the problem

> In LIS there has been frequent mention of refocusing on KM, and even renaming professionals as ‘knowledge specialist’. However, there has been precious little discussion about what knowledge management is, or even what constitutes knowledge. Can we afford, conceptually and practically, to ignore these issues? If we do ignore them, what is the cost? (Budd 2001, p.203).

Whether it is in the literature of knowledge management, or in that element of LIS literature that touches upon knowledge management, two points have emerged with some clarity. The first point is that information professionals have the potential to make a serious contribution to the practice of knowledge management, and the second is that knowledge management has much to offer to the management of libraries and advancement of the LIS profession.

Clearly in knowledge-based organizations, a variety of professionals have opportunities to contribute to the development and reinforcement of knowledge processes and infrastructures, and to the creation of knowledge cultures. The problem is that the LIS professions appear to have made very slow progress in identifying and then enunciating in any kind of detail, what this means for them, and in grasping how their expertise, education and training and cultural traits must develop and interface with those of others, if they are to become serious players in the knowledge management space.

It is relatively easy to show a role for LIS professionals in knowledge management that is basically a continuation of the *find, organise and disseminate functio*n that has long been fulfilled by the information professions. This role is already apparent within the content management area of knowledge management. What is not so simple is to understand and then articulate how LIS professionals (apart from a minority of exceptional people who would be likely to succeed in just about any occupation) can migrate to other knowledge management roles within organizations, especially those of a strategic or policy-making nature. Broadbent (1998) has written about two foundations for knowledge management: the management of information flows, and the application of peoples' competencies, skills, talents, thoughts, ideas, intuitions, commitments, motivations and imagination.

More useful in addressing fundamental questions about the potential role and place of the LIS professions within knowledge management, are issues to do with the understanding of business values and objectives, and of organizational politics, and the need for LIS professionals to be able to demonstrate credibility in a highly competitive field (Broadbent 1998). But where, it might be asked, do libraries and information centres fit into this highly business intensive, not to say commercial portrayal of knowledge management? It is not clear how either the work experience or educational background of most LIS professionals would equip them to operate within this area of the organizational knowledge management domain.

However, the problems, and the associated need for more research, emerge further back than the point at which things begin to happen (or not happen) in library and information centres. The essential problem is to do with the nature of knowledge and its management, and with the challenges of separating the generic elements of knowledge management from those that are organizationally, professionally or disciplinary contextual. It is only when we fully understand the nature of the overall

domain that we can begin to address issues around the application of knowledge management within an LIS context.

1.3 Purpose of the study

Knowledge management is a field with which the LIS community is already familiar. Despite its wide impact on many aspects of the profession, the wider ramifications of the relationship between the two are not clear from the literature. The present thesis attempts to contribute to further understanding of these ramifications.

As a piece of interpretive research, the main purpose of this study was acquiring the multiple perspectives on knowledge management within the LIS sector. This included: examining the assessments of library and information science professionals of the potential values, benefits, opportunities and threats offered by KM to the profession; identifying the contribution that LIS professionals/libraries can make to KM practice; understanding the deficiencies and proficiencies of LIS professionals for KM practice and the implications of KM for library education.

1.4 Significance of the study

Although knowledge management is a highly topical issue in business and related fields, there remains much ambiguity as to its nature and its theoretical basis, particularly when it comes to the LIS professions. There is a proliferation of empirical studies on the technological and organizational dimensions to knowledge management. However, few empirical studies have been conducted into the relationship between knowledge management and LIS professions. If the LIS professions are to respond in as optimal a manner as possible, they would be better able to do so if informed by empirical research into past and current practices, surfacing lessons learned, potential methodologies and strategic options. The present research was geared to the achievement of just these kinds of outcomes.

A major feature of this research is the fact that it is helping to break new ground in an area where relatively little research has been conducted. The results of this empirical study could help both to advance understanding of the relationships between knowledge management and the LIS professions, and to provide input into the development of the theory of knowledge management.

1.5 Research questions

Reviewing the literature revealed that there are several topics involved in the discourse on KM when it comes to the LIS professions. Some of the key topics include the role of libraries/LIS professionals in KM, the required competencies for KM practice, barriers to the involvement of LIS professionals in KM and the implications of KM for LIS education. The sheer range of concepts involved, the scale of LIS activities and the potential relationships not just within LIS but also between LIS and other sectors, suggests that there is a very large research agenda on which to work. The topic selected here 'The implications of knowledge management for the library and information professions' is still wide in scope. To be viable, therefore, the objectives and subsequent research questions had to be carefully identified and crafted.

Aiming to investigate all the major issues involved in the relationship between KM and LIS, the major question was: 'What are the implications of KM for the library and information professions?' This broad question was divided into the following sub-questions:

1. What does knowledge management mean in the context of the LIS professions?
2. What are the implications of knowledge management for LIS education?
3. What are the implications for LIS professionals seeking a career in knowledge management?
4. What contribution can LIS professionals make to the practice of knowledge management?
5. Are developments in knowledge management likely to prove of major significance to the LIS professions?

1.6 Methodology

The present research sought to explore the relationship between knowledge management and LIS professions through the viewpoints of LIS professionals. A comprehensive review of the literature on KM and LIS was performed to identify key aspects of relationships between the two. The methodology employed was a combination of qualitative and quantitative approaches. It falls within the interpretivism paradigm in that it seeks not to identify or test variables, but rather to draw meaning from social contexts (everyday concepts and meaning), in this case from the

perceptions of librarians faced with major changes consequent on the emergence of knowledge management. In this study, a combination of qualitative and quantitative methods was employed in two phases. Phase One consists of a survey, conducted via distribution of a web-based questionnaire. This first phase entailed collecting and analyzing quantitative data that provided a way for the researcher to identify emerging themes within the relationship between KM and LIS. The survey population was then used as the basis for Phase Two of the research. In Phase Two, the research entailed the collection and analysis of specific qualitative data through the conduct of semi-structured in-depth telephone and face-to-face interviews with LIS professionals leading KM initiatives in their organizations. The data collected by the questionnaire were subjected to quantitative analysis using SPSS 13.0 software, while the interview sessions were recorded, transcribed and analysed qualitatively. A triangulation strategy was employed for the research including literature review and document analysis, the web-based survey and in-depth interviews. This helped to bring coherence to the research, while leading to an enriched understanding of perceptions and events.

1.7 Definition of terms

Library: The term ‘library’ has been used in this research to cover all the diverse operations and the different names for the unit traditionally called the library and information centre. I have used ‘library’ as a generic term encompassing a variety of organizational forms of information service – public, academic and special libraries, information centres, data centre, information resource centres, information units, knowledge resource centres, and so on – that may function as independent organizations or as units within a bigger organization.

- LIS: Refers to Library and Information Science/Services.
- KM: Has been used as an acronym for Knowledge Management.

1.8 Scope and limitations

The topic chosen was very broad. As was discussed earlier, from the many issues involved in the relationship between KM and LIS, the following were selected for this study: the perceptions of LIS professionals about KM, the role of libraries/LIS professionals in KM, the educational needs of LIS professionals and the required competencies for KM practice. As each of these topics could well support on its own a separate dissertation, it was difficult to give in-depth treatment to all of them.

Furthermore, the research is limited as regards the generalizability of the findings. Although intended to gain an international perspective on LIS and knowledge management, the survey succeeded mainly in obtaining responses from Australia and New Zealand, the USA, the UK, South Africa and Canada. Thus, the result of this study is not representative of the LIS profession as a whole and, therefore, might not be the true picture of the position of KM within LIS. This could be explained in terms of the relative levels of library development, and of the extent to which the concept of knowledge management has travelled. Accordingly, any claims for the representativeness of the findings should be placed in this essentially Western context.

Interviews with LIS professionals who were leaders of KM in their organizations were conducted to gain in-depth insights into how LIS professionals practice KM. Again, the diverse contexts in which the interviewees were located (some in universities, some in corporate bodies and some in law firms) limits the extent to which their experiences might be generalized.

1.9 Structure of the thesis

The thesis consists of five chapters as follows:

- **Chapter 1:** Introduction and discussion of the statement of the problem.
- **Chapter 2:** Literature review. This chapter is divided into seven sections including introduction to KM; challenges facing LIS in the new era; the roles of libraries/LIS professionals in KM; KM and LIS education; the KM required skills for LIS professionals and barriers to LIS involvement in KM.
- **Chapter 3:** Methodology.
- **Chapter 4:** Findings. The findings are reported in five sub-sections and linked to the research questions.
- **Chapter 5:** Conclusions, implications for practice and suggestions for further research.

Chapter 2
Literature Review

The purpose of this chapter is to provide a sound basis for understanding the concept of knowledge management and how it is related with library and Information professions. Key issues investigated in the relationship between KM and LIS included: the perceptions of LIS professionals about KM, the role of libraries/LIS professionals in KM, the educational needs of LIS professionals, and the competencies required for KM practice.

The chapter starts with an introduction to knowledge management and continues by highlighting the challenges faced by librarianship owing to the emergence of knowledge management, and the reactions of LIS professionals to this new concept. Then follow sections dealing with respectively: the roles of LIS professionals and libraries in KM; the skills and competencies required for the engagement of LIS professionals in KM; the implications of KM for LIS education, and barriers to LIS involvement in KM.

2.1 An introduction to knowledge management

An exhaustive discussion of the theory of KM and its many complexities is outside the scope of the current thesis and, indeed, beyond the competence of the author. What will be presented is an introduction to the subject in the context of its relationship with LIS.

KM has been promoted as a valuable business concept for almost two decades. Although originally emerging in the world of business, the practice of knowledge management has now spread to the domain of non-profit and public sector organizations, including that of libraries. The goal of KM is to effectively apply an organization's knowledge to create new knowledge to achieve and maintain competitive advantage (Alavi & Leidner 2001). Critics of the term KM claim that, although some aspects of knowledge such as culture, organizational structure, communication processes and information can be managed, knowledge itself, arguably, cannot (Martin 2008).

Stephen Abram writing in an LIS context observed that knowledge can be shared but cannot be managed:

> In fact capturing knowledge in any form other than into a human being's brain reduces it to mere information, or worse, data. Only the knowledge environment can be managed (Abram 1997).

This has been reflected in the following definition of KM from an LIS perspective:

> The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organised and utilised for the benefit of the organization and its customers (Abell & Oxbrow 2001, p.267).

KM is a combination of people, process and technology. This involves people from a wide variety of disciplines including, for example, information technology (IT), psychology, LIS and human resource management (HRM). The multidisciplinary nature of KM has resulted in various interpretations and definitions depending on which discipline they are coming from. A review by Hlupik et al., identified eighteen distinct definitions of KM (Bouthillier & Shearer 2002).

In the knowledge-based economy, value is based on intangible or knowledge-based assets. In this view, people and their skills and expertise are the most important asset of every organization. In other words, KM is a people-centred concept. People can use their competences to create value in two ways: by transferring and converting knowledge external or internal to the organization they belong to (Martin 2008). They need to capture employees' knowledge so that their knowledge can be leveraged at the organizational level. This will avoid risking a loss of knowledge when people leave organizations. According to Mphidi and Snyman (2004), converting personal knowledge into corporate knowledge for sharing purposes is the ultimate application of KM. There are many possible strategic routes to KM including: building a technical infrastructure; structuring or restructuring into a learning organization; fostering a knowledge-friendly culture; establishing KM processes; and measuring or leveraging intellectual capital (Martin 2008). In a broader view, the goal of an effective KM strategy should be to enhance the creation, transfer and utilization of all types of organizational knowledge (Alavi 2000).

Some have described the KM concept as being another management fad, for example, like business process reengineering (BPR) which was fashionable and much touted at one time, but gradually lost much of its appeal. In response to such criticism, both Koenig and Jashapara claim that KM is not a management fad, and in fact it is here to

stay (Jashapara 2005; Koenig 2005). They support their statement using citation analysis, and show that unlike other management trends, the output of KM publications has not undergone a dramatic decline after five years of rapid growth in popularity. This point is illustrated in the following figure created by Skyrme (1998). Such evidence of longevity should discourage claims that KM is a passing trend. Prusak in the foreword to the *Encyclopaedia of Knowledge Management* states that: 'It [KM] has truly arrived and can no longer be thought of as a fad or management fashion' (Schwartz 2006).

This is not to say, however, that proponents of KM have always avoided the use of hyperbole, for example where old technologies such as 'groupware' were repackaged under the new name as 'knowledgeware' (Jashapara 2005, p.140).

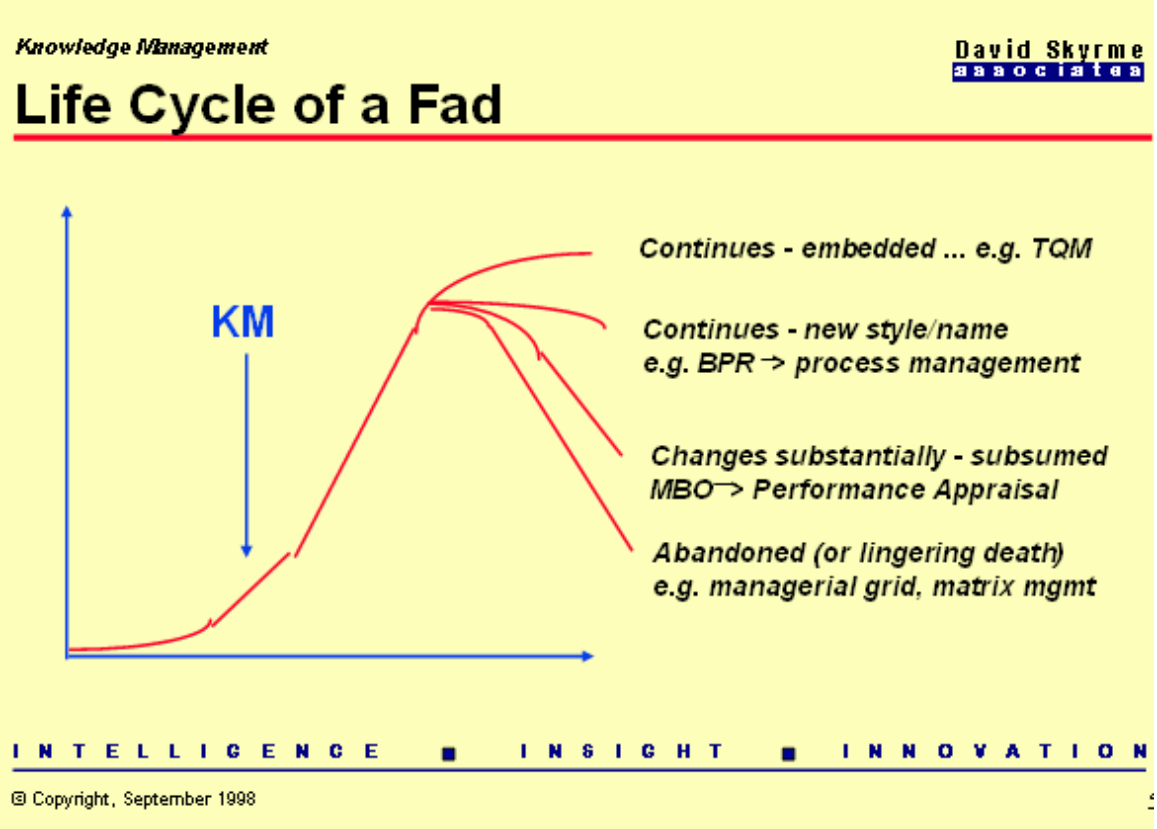

Figure 2.1 The life cycle of a fad. From: http://www.skyrme.com/ppt/iis40/iis40.ppt#260,5,Life Cycle of a Fad

2.1.1 Intellectual capital

The concept of intellectual capital (IC) sits at the core of KM, as KM entails an approach to the management of human and intellectual resources in organizations. Intellectual capital is used to mean not only information, in the sense or senses in

which it has traditionally or conventionally been understood and managed by information professionals, but also such ‘intangibles’ as the expertise, know how, experience, competencies, talents, ideas, thought and intuitions of the people in an organization (Loughridge 1999). Intellectual capital refers to intellectual material that can be put to use for creating wealth, and in order to attend to the critical business of KM. Many IC researchers have employed different categories and/or properties to define IC (Hsu & Mykytyn 2006). Pike et al. (2002) propose a convergent IC model that combines elements including: 1. Human capital 2. Organizational capital (company-owned items such as systems and intellectual properties) 3. Relation capital (external relations with customers, suppliers and partners. Among these elements, human capital – the combination of knowledge, skill, innovativeness and the abilities of a company’s individual employees, including the tacit knowledge embedded in the minds of employees – has been identified as a major component of IC (Hsu & Mykytyn 2006). The term ‘intangible assets’ has been treated as being synonymous with intellectual capital. Intangibles refer to those assets that do not have physical substance but are subject to control in accounting terms (Martin 2008). The ability of organizations to develop and compete depends on their ability to learn and to exploit the capacity of employees to convert knowledge and experience (intellectual capital) into profit.

2.1.2 Data, information and knowledge

In order to understand knowledge management, it is important first to ask ‘what is knowledge’. Some authors try to define knowledge by distinguishing between knowledge, information and data. The assumption seems to be that if knowledge is not something different from data or information, then there is nothing new about knowledge management (Alavi & Leidner 2001).

The nature of and the relationships between data, information and knowledge, have been described as the cornerstone for understanding knowledge management theory in organizations (Alavi & Leidner 2001). Attempts to define these three concepts are numerous. Evidently, the three key concepts are interrelated, but the nature of the relations among them is debatable, as well as their meaning (Zins 2007).

It has been common practice to take a hierarchical view of the relationship between data, information and knowledge. According to this view, data are regarded as the raw material of information and information as the raw material of knowledge (Zins 2007; Martin 2008). According to this view, therefore, data are facts which can be structured purposefully and placed in context to become information. Knowledge is derived from

information through human interaction. This hierarchical relationship is routinely modelled like a pyramid, with data at the base, information in the middle and knowledge at the apex (Alavi & Leidner 2001). In this pyramid, value is added through a continuum from data to knowledge. Critics of the pyramid model argue that it can be misleading because it implies that one component of the model is superior to another, whereas each can be potentially valuable in appropriate circumstances (Stenmark 2001, cited in Martin 2008). The model also overlooks the potential for alternative flows and transformations, most notably in a reversed hierarchy model where knowledge when articulated, verbalized and structured, becomes information which, when assigned a fixed representation and standard interpretation, becomes data (Tuomi 2000, cited in Martin 2008).

2.1.3 Data

Data is the plural of datum, although the singular form is rarely used. There is little disagreement as regards the definition of data. A commonly held view is that data are raw facts that have no context or meaning on their own (Abram 1999). Typical examples of data include statistics, list of items and names and addresses (Gandhi 2004).

Reviewing definitions of data would lead one to the conclusion that the same meaning in Abram's definition has been represented through different expressions. Hence, data refer to a 'string of elementary symbols, such as digits or letters' (Meadow et al. 2000) and, again, data is a set of discrete, subjective facts about events (Davenport & Prusak 1998, p.4).

2.1.4 Information

There is no universally accepted understanding of the meaning of information (Bouthillier & Shearer 2002). However, among numerous definitions of information at least two common characteristics occur. The first one addresses its application. There has to be a particular purpose in using information (Blair 2002). The second one addresses its structure and content. Information needs to be organised and put into a context. Some authors define information in terms of its construction, arguing that information is processed data (Alavi & Leidner 2001). In other words, when data is organized in a logical, cohesive format for a specific purpose, it becomes information (Gandhi 2004). Wiig (1999) defines information as facts and data organized to characterize a particular situation. Similarly information has been defined as data made meaningful by being put into a context (Bouthillier & Shearer 2002). In a

hierarchical view, information is data transformed by the value-adding processes of contextualization, categorization, calculation, correction and condensation (Davenport & Prusak 1998).

Some authors define information through its products: information itself is not the ultimate product – how to exploit information to generate new local knowledge for improvement of organizational performance is the desirable outcome (Cheng 2000).

However, some authors believe that information itself is a kind of knowledge which they call empirical knowledge, rather than representing an intermediate stage between data and knowledge (Zins 2007). Others would claim that information on its own does not result in decisions. It is the transfer of information into people's head that leads to decision-making and thereby to action.

2.1.5 Knowledge

Philosophers from ancient to modern times have grappled with the question of 'what is knowledge?' (Blair 2002, p.2). Perhaps not surprisingly such eminent thinkers as Plato, Descartes, Kant and Marx have failed to agree on the definition of such a complex concept (Rossion 1998). Although clearly informed by the contributions of generations of philosophers, the treatment of knowledge in a managerial context is much more pragmatic in nature. However, this is not to say that a clear consensus exists. Rather, knowledge may be viewed from several perspectives including as: 1. a state of mind, 2. an object, 3. a process, 4. a condition of having access to information, or 5. a capability (Alavi & Leidner 2001).

In the hierarchical view, knowledge is the product of information. When information is analysed, processed, and placed in context, it becomes knowledge. This has been reflected in the definition of knowledge as information possessed in the mind of individuals (Alavi & Leidner 2001). To some commentators, knowledge has more value because it is closer to action than are data and information (Cheng 2000). Furthermore, knowledge differs from information in that it is predictive and can be used to guide action, while information merely is data in context or documentation of any pieces of knowledge (Bouthillier & Shearer 2002).

According to Branin, unlike data and information, knowledge is not an object. It is much more of a process, a dynamic, or an ability to understand and to share understanding. Hence says Branin, 'We can say send me the information/data but we would not say send me the knowledge' (2003, p.7).

Knowledge today tends to be seen as emergent and resident in people, in practices, artefacts and symbols (Nidumolu et al. 2001, cited in Martin 2008) and as meaning that is continuously reproduced and potentially transformed in communicative interactions between people (Stacey 2001, cited in Martin 2008).

Karl Wiig (1999), one of the most influential and most often-cited writers on KM in the business sector, defines knowledge as a set of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how. However, Davenport and Prusak's definition of knowledge is the most-cited in KM literature:

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms (Davenport & Prusak 1998, p.5).

These different views of knowledge can lead to different perceptions of KM (Alavi & Leidner 2001). In an LIS context, the primary objective is that of managing information and in broader context knowledge. Two monographs by Kemp (1976) and Budd (2001), have discussed the nature of knowledge for librarians (Kemp 1976; Budd 2001) without giving any guidance on its practical implementation by the profession. Indeed, reviewing Budd's (2001) book, Hjorland (2004) argues that the discourse of knowledge in LIS although extremely important, has still been neglected.

2.1.6 Explicit and tacit knowledge

Two forms of knowledge popularized by the Japanese scholars Nonaka and Takeuchi (1995), have dominated discussion on the nature of the knowledge in KM. Based on the work of Polanyi (1966) they promoted recognition of the tacit-explicit knowledge classification, which has been widely cited in the literature.

Explicit knowledge, unlike tacit knowledge, is defined as knowledge that can be codified and therefore, more easily communicated and shared, notably through IT systems. Nonaka and Takeuchi (1995), for example, describe explicit knowledge as:

> can be expressed in words and numbers and can be easily communicated and shared in the form of hard data, scientific formulae,

> codified procedures or universal principles (Nonaka & Takeuchi 1995, p.9).

There is a widespread view that explicit knowledge is actually information (Al-Hawamdeh 2002). This perception has in turn led to the argument that KM is simply another term for information management. This point is addressed in the present dissertation.

Knowledge classification/taxonomy involves attempts to identify types of knowledge that are useful to organizations. Examples include knowledge about customers, products, processes and competitors. Also, theoretical developments in KM would occur through identifying different kinds of knowledge (Alavi & Leidner 2001).

2.1.7 Tacit knowledge

The phrase ‘tacit knowledge’ was coined by Polanyi (1958, 1966). He examined human tacit knowledge by starting from the fact that 'we can know more than we can tell’ (Polanyi 1958; Polanyi 1966) . Tacit knowledge, its nature and exploitation has been a major focus within the KM literature. It has been defined as action-based, entrenched in practice, not easily explained or described, but nonetheless the fundamental basis on which organizational knowledge is built (Nonaka & Takeuchi 1995). According to Nonaka and Takeuchi, tacit knowledge is: ‘highly personal and hard to formalise. Subjective insights, intuitions and hunches fall into this category of knowledge’ (Nonaka & Takeuchi 1995). Tacit knowledge is intuitive and practice-based, which makes it both valuable and difficult to pass on to others. ‘Rooted in action, experience, and involvement in a specific context, the tacit dimension of knowledge is comprised of both cognitive and technical elements’ (Nonaka 1994). The cognitive element of tacit knowledge refers to an individual’s mental models consisting of mental maps, beliefs, paradigms and viewpoints. The technical component consists of concrete know-how, crafts and skills that apply to a specific context. However, much of this potentially useful knowledge is resistant to codification (Martin 2008).

Although the tacit-explicit dichotomy is popular and can be useful in a practical context, it is nonetheless a simplification. There are two issues arising from this. Firstly, Polanyi also talked about implicit knowledge, which while similar to tacit knowledge could be easier to capture. Second, the dichotomy can lead to tacit knowledge being regarded as more important, which was never the intention.

Attempts at converting tacit knowledge into explicit form will continue to be a challenge for KM. Tacit knowledge is both complex and subjective. It is often embedded in an individual's intuitive personal experience, and thus is hard to formalize or communicate (Nonaka & Takeuchi 1995; Davenport & Prusak 1998; Choo 2000). It is generally accepted that tacit knowledge flow happens best informally through face-to-face meetings, socialization and mentoring activities. Hence, 'First and foremost, knowledge is created through human interactions; it is a cultural product' (Bonaventura 1997).

Applying their version of Polanyi's (1966) classification of types of knowledge, Nonaka and Takeuchi (1995) constructed their SECI (socialization, externalization, combination, and internalization) model of knowledge conversion. The basic feature of this model is that the creation of knowledge is a result of continuous dynamic interactions between tacit and explicit knowledge. Consequently, four kinds of knowledge creation have been identified: socialization (tacit to tacit), Externalization (tacit to explicit), internalization (explicit to tacit) and combination (explicit to explicit).

The four knowledge creation modes are not mutually exclusive, but are highly interdependent and intertwined. That is each mode relies on, contributes to and benefits from other modes (Alavi & Leidner 2001). This model is now regarded as presenting an over-simplified and somewhat mechanistic perspective on knowledge creation, but it remains extremely popular (Martin 2008).

There have been attempts to classify or build taxonomies of knowledge in forms likely to prove useful to organizations, such as those containing knowledge about customers, products, processes and competitors. These efforts also contribute to developments in the theory and practice of knowledge management (Alavi & Leidner 2001).

2.1.8 IT and KM

KM is a process that has been heavily influenced by the growth and application of computer technology to data and information management. That may explain why. traditionally, KM has been located in IT departments. IT can support KM in two ways: by providing the means to organize, store, retrieve, disseminate and share explicit knowledge and information rapidly around the organization and around the world; and by connecting people with people through collaborative tools to capture and share tacit knowledge (Jain 2007).

Surveys have identified the most common IT applications for KM as including:

> Groupware (messaging and email), document management, workflow, data warehouse, multi-media repositories, intranets and portals, information retrieval technologies and search engines, business modelling and intelligent agents. These and other technologies can be grouped by category such as content management, knowledge transfer/sharing and collaboration, or as distributive and collaborative technologies (Martin 2008)

Lotus Notes, the software that packaged email with data repositories and basic collaborative tools, was the first technological catalyst for KM. Since the emergence of Notes, most KM applications (including later versions of Notes) have migrated to intranet-friendly, web-based platforms (Kidwell et al. 2000).

There is acknowledgement within the literature. however, that IT plays a supportive role in most KM programs; people and processes are vital.

> Trying to implant a KM system of any scale without technology is extremely difficult, but the technology itself does not make the KM system work; it can facilitate and enable connections and communications but it will not make them happen (Wormell 2004, p.108).

IT can improve knowledge flows, but cannot guarantee them. Even the most ‘successful’ of technological solutions can be frustrated by a lack of time and motivation for knowledge sharing, and an inability to truly capture tacit knowledge and use this knowledge effectively. It is also worth noting that some organizations function well without formal KM systems by exploiting existing IT, such as intranets (Webster 2007).

2.2 Challenges facing librarianship in the new era: Is knowledge management the answer?

The LIS literature is characterized by speculation about the future of libraries and librarianship. Technological advances, and particularly the development of the internet and the world wide web, have changed the face of librarianship and have posed serious questions for libraries and LIS professionals. Among the more significant social and economic impacts of the world wide web is the increasing amount of freely available information, something that has resulted in changes to information behaviour. People have come to believe that they can find everything through the web. As one prominent LIS figure observed:

> Libraries are under threat. If the world is really being built on information and knowledge, transmitted almost instantaneously from any place to anywhere, what role is left for yesterday's fusty mausoleums of print? Perhaps they will survive as museums … (Brophy 2001, p.xii).

The availability of user-friendly databases, search engines and the impact of phenomena such as google.com has to some extent resulted in disintermediation, with, for example, questions being asked about the need for LIS professionals for retrieving information. In this context, Hayes quotes from an academic in computer science stating that her library was her server and Google was her catalogue (Hayes 2004).

As Brophy has observed, however, the forces shaping the profession of librarianship and the design of libraries are not solely technological. There are massive cultural, social, psychological and philosophical forces at work (Brophy 2001).

For example, information services outside libraries offered by the commercial sector tend to be promoted as being more customer-oriented and responsive. Dillon accuses libraries of lagging behind commercial offerings in the most basic system features such as personalization, richness of experience, quality of content and interaction. He compared the information provided by Amazon and what library catalogues typically offer and claimed that 'The information to be found at Amazon.com is often so much more useful and so much richer. And Amazon's interface is by no means state of the art' (Dillon 2002, p.334).

However, one could argue that in his criticism Dillon is not comparing like with like. For example, although there can be difficulties encountered in finding publication dates for

books that have been promoted by Amazon, this would never happen in a library catalogue.

Further evidence to support the view that libraries are in danger of being left behind in competition with other information suppliers has come from OCLC (Online Computer Library Centre) in the USA. In November 2005, OCLC collected over 20,000 responses through an international survey of users' perceptions, thoughts and attitudes about libraries and electronic resources. This 'perceptions of libraries and information resources' study concluded that the library is not the first or only stop for many information seekers. Search engines are the favourite place to begin a search, and respondents indicated that Google was the search engine that most of them had recently used to begin their searches. Sixty-nine per cent of respondents believed that information from a search engine was as reliable as that from a library source; 90 per cent of college students stated that they believed information that was free was as reliable as that which had to be paid for. One-third of respondents reported that their level of library use had decreased in the previous three to five years. Most of respondents, while generally satisfied with libraries and librarians, did not plan to increase their use of libraries (OCLC 2005). Other sources meanwhile have indicated that for many, the opportunity to go to the library personally has become a treasured and distant memory (Hayes 2004).

Certainly, evidence from across the library landscape could be a widespread source of concern for anyone interested in the future of libraries or librarians. This includes: the closure of many library schools[2], eliminating 'library' from their name and the renaming of library schools[3], reducing the number of library staff[4], funding cuts or closure of

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[2] For instance closure of more than a dozen graduate programs in library science in the USA from the late 1970s to the early 1990s. (Lorenzen, M. (2002). Education schools and library schools: a comparison of their perceptions by academia.).

[3] For instance The School of Information Management has been approved by Dalhousie University as the new name of the School of Library and Information Studies effective 9 May 2005). http://www.lisnews.com/article.pl?sid=05/05/11/193219

[4] For example the results of research by Matarazzo, J.M. & L. Prusak (1995) show that more than 10% of America's largest companies closed their corporate libraries during 1990-1995. Around 30% of companies had closed or reduced the staffing of their libraries. (Matarazzo & Prusak 1995).

libraries[5], a steady decline in the number of visits to the physical library[6] reductions in the size of the library space[7], decreases in the number of students in LIS departments, with a consequent shortage of librarians, and the aging of the library workforce[8]. Hence, as Pantry and Griffiths state, librarianship is thought by many to be on the way to extinction (Pantry & Griffiths 2003). Although predictions of extinction might seem somewhat alarmist, it is clear that the profession can not ignore them.

Some would argue that the current difficulties facing LIS are the result of a paradigm shift for which the profession was unprepared. Paradigm shifts occur when patterns that sorted the old world into recognizable, manageable categories become obstacles preventing an understanding of the new world (Berring 1999).

Here it is argued that its lack of theoretical foundation makes it hard for LIS to survive in paradigm shifts. As Ostler and Dahlin emphasize: 'Dewey's pragmatic approach leaves us without the theoretical tools that are necessary to deal with the problem of the information age (Ostler & Dahlin 1995, p.683; cited in Floridi 2002). While taking the point, it could be argued nonetheless, that theory has not been totally absent from the work of profession. Furthermore, it would be a mistake to view the library heritage and contribution to society solely in terms of information objects, and of storage and retrieval activities.

However, this is not the only point of view on this issue. The more optimistic view suggests that developments in information technology, globalization and the developing role of information within society have provided great opportunities for

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[5] Public libraries in 41 states of the USA report funding cuts of as much as 50 % and are reducing staffs, cutting their operating hours and closing branches [(ALA, 2004 as quoted by Parker, K.R., Nitse, P.S. et al. (2005)].

[6] The University of Washington Libraries found through a survey of their faculty and graduate students that between 1998 and 2001 visits to the physical library were declining while use of networked computers in offices and homes to access information was increasing at different rates but still increasing -– across all the disciplines (Branin 2003).

[7] According to a recent survey of 50 major US organizations, the amount of office space that corporations allocate to their libraries has fallen by 8.36% over the past five years.

[8] Hallam (2006) reports that reducing the number of students in LIS departments has caused a shortage of librarians and therefore, the phenomenon of aging in the library job market in Australia, America and Canada (Hallam 2006). The President of the United States has even made available $10/000/000 to fund ideas that would recruit more individuals to the profession. (Stoffle et al. 2003). Also, Willard & Wilson (2004) state that 1996-2003 saw a fall in the number of graduates from Australian university LIS schools.

libraries and librarians, which could allow them to not only survive but also to enjoy a very exciting future. The fifth law of library science expounded by Dr Ranganathan states: 'the library is a growing organism'. In practical terms today this means: 'honour the past and create the future' (Gorman 1997, n.p.). More than fifty years ago, Butler (1951) observed that librarians had a responsibility for the promotion of wisdom in the individual and in the community. Writing little more than a decade later, Shera (1965) defined librarianship in terms of the management of human knowledge. These classic statements not only reflect the long standing 'world view' and theoretical foundation of librarians, but also lend credence to current claims for a more relevant and meaningful role for the profession in emerging knowledge-based societies.

2.2.1 The knowledge based economy and the role of libraries and librarians

Information and communication technologies (ICTs) as one of the main driving forces of change, have helped create a borderless world, resulting in global competition among organizations. In an increasingly knowledge-based economy, the principal asset for organizations in both the private and public sectors is knowledge. Therefore, organizations place great importance on the acquisition, creation, diffusion and use of information and knowledge. Peter Drucker, an early advocate of knowledge-based change, observed: 'The basic economic resource is no longer capital, nor natural resources, nor labor. It is and will be knowledge' (Drucker 1969). Likewise, Bell, who is generally seen as the progenitor of the information society concept, argued that knowledge was the most important production factor in modern economies, the basis of the exercise of power, and of gains in productivity and business competitiveness (Bell 1973, cited in MacNaughtan 2001). This emphasis on the treatment of knowledge as an organizational resource increased markedly in the final decade of the last century (Alavi & Leidner 2001). To survive in the face of such global competition, organizations increasingly depend on their ability to transform information into knowledge as the basis of competitiveness, decision-making and the production of new products and services. As a consequence, organizations, and large firms in particular, have invested heavily in activities designed to acquire, control, leverage and account for this intangible resource. This activity, facilitated by an increasingly sophisticated array of search, retrieval and collaborative technologies, has further contributed to the problem of information overload. Unfortunately, this virtual explosion in the supply of information has far exceeded the abilities of users and potential users to exploit it (Naismith 2006).

Nardi and O'Day (1999) describe the problem of information overload as like swimming in the ocean and yet being unable to drink from the surrounding water, because information integrity, quality and security are critical considerations that are not easily achieved. People using this information are information-rich but knowledge-poor (Naismith 2006). In Naisbitt's words: 'We are drowning in information but starved for knowledge' (Naisbitt 1982, cited in Materska 2004).

In this environment, access to information is no longer a major challenge for libraries. Rather, the sheer volume and scale of information availability has contributed to new demands for access to knowledge (Ju 2006). The satisfaction of these demands is likely to require an increased human dimension to information access, in order to ameliorate the effects of technology (Nardi & O' Day 1999).

In a source quoted previously in this chapter, Brophy (2001) advocated a future for LIS professionals in helping to counter information overload by performing access and intermediary roles which embraced not just information but also knowledge management. The rise of knowledge management has contributed to a growing recognition, at senior management level, of the crucial importance of 'information' or 'knowledge' to the success and well-being of all manner of organizations. This has led to a higher profile for information professionals and their skills and competencies.

Such developments lend support to claims that libraries can play different roles in today's knowledge-based societies. While libraries and information professionals are relevant in today's society, the challenge to remain as relevant as other information providers is indeed formidable, and remaining relevant demands change (Watstein & Mitchell 2006). In order to do this, librarians need to identify the parts of their core mission that will be sustainable in a changed environment (Besser 1998, cited in (Varaprasad 2006).

Arguably, its long-standing expertise in dealing with information and knowledge should enable the profession to remain in the forefront of developments in knowledge management. Indeed, the International Federation of Library Associations (IFLA) has called upon libraries to act as a dynamic engine for the knowledge and information society.

In a 1996 research review, the Gartner Group predicted that organizational attention to KM would bring about massive changes in the role of corporate libraries by the year 2001. They predicted that there was a 70 per cent chance that during the five years to

2001 information resource centres (libraries) would be actively engaged in their organization's knowledge management or if not would face a slow and painful death (Klobas 1997). Their prediction has been accurate to some extent.

Some corporate libraries have been reinvented as knowledge centres, often with bigger budgets (for example, in the 'big six' – now four – consultancies) (Bishop 2001). Elsewhere, research found that for 88 per cent of libraries in legal firms, the share of internal budgets was rising owing to the introduction of knowledge management (Valera 2004). Such developments would seem to represent opportunities rather that threats to librarians, suggesting that their skills are being recognized by the wider world (Pantry & Griffiths 2003).

Brophy drew attention to two major trends in library practices. From the health sector has come the demand for evidence-based practice, from the commercial sector the emphasis is on knowledge management. Both have significant implications for library services (Brophy 2001).

2.2.2 From librarianship to knowledge management: Changing labels or new frontiers?

Along with developments in information technology and the increasing role of information within society have been shifts within LIS from traditional librarianship to information management and now to knowledge management. This evolution involves much more than the simple renaming of the profession. In fact, potentially it could represent a huge advancement. Although in one sense the library mission remains the same, these differences in nomenclature extend to a range of developments which are not adequately provided for in the traditional terminology. For example, the phenomenon of 'information everywhere', almost by definition questions the status of the library as the only provider of information. Information in electronic formats can be everywhere. Therefore, the term 'librarianship', used in the sense that it refers to the library as a place where people actually go to find information, has its limitations in describing the activities of the profession in a world where time and space are no longer the dominant factors they once were. Similar reservations apply to the transition in nomenclature from librarianship to information management, and perhaps even more to information science. Recognition of such transitions has come from people such as Cronin, who was an early advocate for the status of information management as a new interdisciplinary field (Cronin 1985, p.viii).

When it comes to distinguishing information management from knowledge management, the results of an Australian survey of the perceptions of knowledge management among LIS professionals revealed a lack of understanding of the concept (including wide variations in the terminology employed), and no general consensus as to the relationship between knowledge management and information management (Southon & Todd 2001; Todd & Southon 2001).

2.2.3 KM and LIS: Are they related?

KM has attracted substantial attention in the LIS literature since the early 1990s. It has even been described as the biggest thing to hit the information profession since the internet (Infield 1997). Reviewing the literature reveals that the LIS community has largely welcomed the challenges and opportunities that knowledge management presents.

Knowledge management, therefore, has been seen ;as a vehicle for enhancing the professional image and role of the information professional' (Southon & Todd 2001). And again:

> Here is a discipline which highlights our skills, which admits that our job is valuable for the firm's business strategy, which offers us the potential for new development fields and which is strongly supported by top management (Rossion 1998 p.157).

There are differences within the LIS community as to the extent to which knowledge management represents something new. To some it comprises a completely new discipline, while to others it involves simply a rebranding of librarianship or information management. However, there appears to be widespread recognition within the LIS literature that KM is relevant to, and has considerable overlap with, the interests of the library and information professions. Accordingly, it follows that significant contributions to KM can be made by these professions.

But where, it might be asked, do libraries and information centres fit into this highly business-intensive, not to say commercial phenomenon that is knowledge management? A look at some of the standard definitions would not at first glance provide much in the way of an answer. Knowledge management has been defined as:

> A capability to create, enhance and share intellectual capital across the organization … a shorthand term covering all of the things that must be

> put in place, for example, processes, systems, culture and roles to build and enhance this capability (Lank 1997).

And again:

> The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organised and utilised for the benefit of the organisation and its customers (Abell & Oxbrow 2001, p.267).

Neither of these definitions would appear to hold much promise for involvement by the LIS professions, notwithstanding that the second of them emerged from a leading library-related consultancy in the United Kingdom. However, not only are library and information professionals expert in content management, something that is often central to successful knowledge management, but also individual professionals have demonstrated their management potential by transferring to careers in consultancy and other forms of business. On the whole, however, the LIS professions may still labour under a dual, self-imposed handicap in seeking to exploit opportunities in knowledge management. The first is a traditional reluctance to move beyond the information *container* towards analysis and interpretation of its *contents*, and the second, is that information professionals continue to promote themselves as *service*-oriented, rather than *value*-oriented (Corrall 1998). The perpetuation of such attitudes may well help to explain the general absence of a LIS component within the mainstream knowledge management literature. But what does an examination of the LIS literature reveal on this topic?

Some of those who have tried to define KM in relation to librarianship, information management and/or information resources management, concede that there is much about KM that may arouse a sense of *deja-vous* among many information professionals (Loughridge 1999). According to the Gartner Group, knowledge management is: ‘a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving and sharing of an enterprise’s information assets’ (Gartner Group 1997, n.p.). Comparing this definition with those below reveals overlaps between LIS and KM.

> Librarianship is the profession dedicated to the preservation, dissemination, investigation, interpretation of the knowledge most significant to mankind (Shores 1964).

> Librarianship is the management of human knowledge, the most interdisciplinary of all the disciplines – and because it is concerned with the philosophy of knowledge it is potentially the most deeply philosophical of all the professions (Shera 1965, p.176).

As reflected in the above definitions, the concept of coding, storing and transmitting knowledge is nothing new for the library profession. However, it could be argued that some definitions appear to limit library science to the domain of recorded knowledge. For example, the American Library Association (ALA) Glossary defines Library Science as 'the professional knowledge and skill by which recorded information is selected, acquired, and utilized in meeting the information demands and needs of a community of users' (Young 1983). This definition has been criticized for overlooking the 'humanistic side' of librarianship. Floridi states that: 'it would be very misleading to conclude that LIS's object is therefore only the domain of organized knowledge …' (Floridi 2002, p.41).

Although it was in the 1990s that KM became popular, the mission of knowledge management has older roots in the LIS literature. Larry Prusak and Tom Davenport – the most-cited knowledge management authors – in their paper in 1993, called on LIS professionals to get out of the *warehouse custodians* concept, or even that of the *providers of centralised expertise* and integrate their activities and goals with the whole business of their organizations. Although not actually using the term knowledge management, their focus on people as the most valuable information asset, and an emphasis on the usage of information rather than its control, could be interpreted as directing LIS professionals towards the KM domain (Davenport, 2004).To illustrate the interplay between KM and LIS, this researcher conducted a search in the Library and Information Science Abstracts (LISA) database. The search set was knowledge management in keywords, and 2192 records were retrieved. As is shown in figure 2.2, the number of publications in the knowledge management field increased from zero publication in 1991, to more than 300 publications in 2006. Although not all of these publications were specifically concerned with KM in libraries and information services (limiting the search set by adding Librar* with 'AND' to the previous search produced only 545 records, that is 24.865per cent). Nonetheless, the results of this small bibliometric analysis show the steady growth in the literature of KM in the LIS field since the early 1990s.

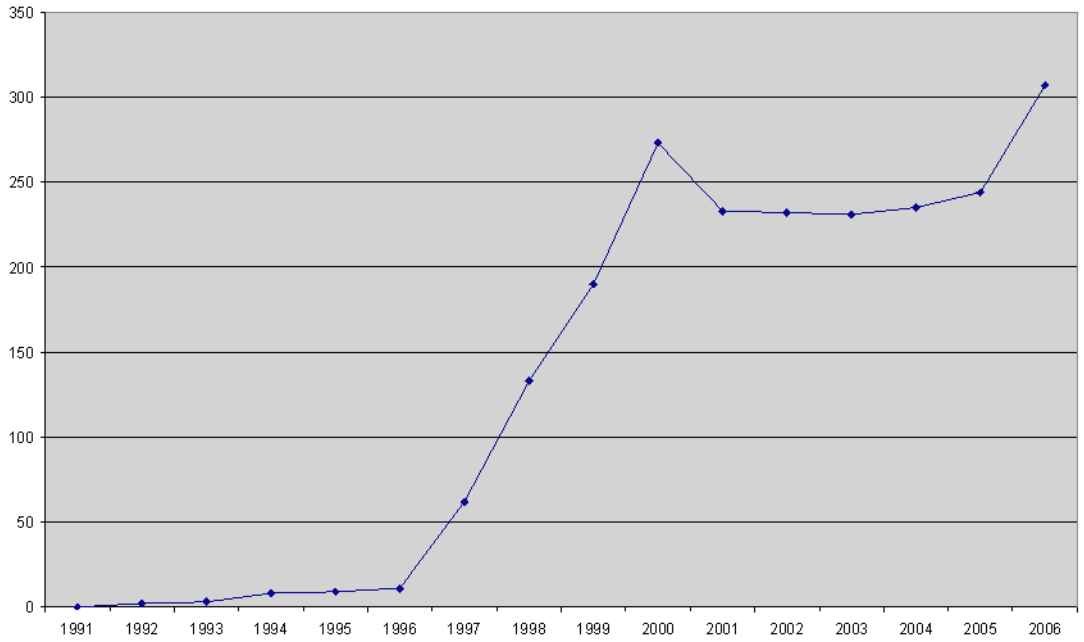

Figure 2.2 Number of publications in LISA with the keyword knowledge management: 1991-2006

2.2.4 Perceptions of KM among LIS professionals

Many aspects of KM practice bear a close resemblance to well-established practices in librarianship and information management (Loughridge 1999). Therefore, some commentators maintain that KM is a new name for what librarians have been doing for years (Gorman 2004). For some in the LIS community, KM is simply a case of 'new wine in old bottles' or as 'librarianship in new clothes' (Koenig 1997; Rowley 2003; Schwarzwalder 1999); and, more controversially, as 'nothing more than information management' (Wilson 2002).

Koenig is a prominent supporter of the view that knowledge management is little more than information management (Koenig 1997; Koenig 1999; Koenig et al. 2000; Koenig 2001; Koenig & Srikantaiah 2002; Wilson 2002; Koenig 2005).

> We would of course recognize 'KM' as librarianship, or at least as an extension of 'librarianship' – but unfortunately the business community does not recognize that essential identity (Koenig 1996, p.299).

Koenig argues that much of the terminology and techniques used in knowledge management, for example, knowledge mapping, seem to have been borrowed from both information management and librarianship (Koenig 1997).

> Some of us in the library community will be having a slight feeling of deja-vu – Yes, this is precisely the concept of 'information mapping' that Horton and others in the library community have been promoting for years … we may feel, with some justification, that KM is just a new name for librarianship … (Koenig 1996, p.299).

> Despite all the buzz and hype surrounding knowledge management, in the real world it doesn't seem to have moved much beyond Library 101 ... (Liberman 1999, p.850, cited in Davenport & Cronin 2000 n.p.).

Debate continues as to whether knowledge management is librarianship or information management under another name (Koenig 1997, Wilson 2002).

A dominant view sees IM as a subsystem of KM processes (Choo 1998; Owen 1999; Butler 2000; Abell & Oxbrow 2001; Al-Hawamdeh 2002; Bouthillier & Shearer 2002). In this context, Middleton (1999) described knowledge management as a combination of information management (IM) for managing the documentary form, and human resource management (HRM) for managing the expression of knowledge.

However, some critics of KM have dismissed it as being nothing more than an alternative term for IM. Although one would regard this description as an oversimplification. The most noteworthy critique has been conducted by Wilson, who in his research-based paper entitled: 'The nonsense of KM' argues that if knowledge occurs only in people's heads, it cannot be codified, captured, retained, searched or accessed, and therefore it cannot really be managed. He claims that KM is simply another management fad and in fact, a repackaged form of IM (Wilson 2002). Jashapara (2005) questions the methodology used by Wilson. He claims that the research time scale, the biased sample and the keywords used are problematic areas and thus the validity of Wilson's research results is under question. Wilson, however, is not alone in his view. Stoker (1999) claims that the KM is and always has been one aspect of the discipline of 'information management' and, in fact, KM is a new term to repackage and market existing techniques.

There is of course, room for a middle ground in which there is more to the matter than simply the relabelling of LIS (Broadbent 1997; Broadbent 1998; Corrall 1998; Davenport & Cronin 2000). For Broadbent, who attempts to clarify the position of LIS professionals in the emerging KM field, KM is not about managing or circulating printed materials or internet searching on behalf of clients (although these activities may form

part of the KM process) (Broadbent 1998, p.26). In other words, routine work to support information access is not what KM is about, and coding and process representation are only parts of what it is about. A frequently-cited survey conducted by TFPL company, observed that:

> Though it is apparent that information management is very much part of the KM environment, it is only one part and only truly effective when applied with an understanding of the full KM picture (TFPL 1999).

Within the LIS literature there is a strong element that, while accepting that IM is an essential component of KM, would regard the latter as both broader in scope and different from library and information management, owing to its concern with management and with organizational issues, including an emphasis on less tangible and elusive resources like human expertise (Broadbent 1998; Loughridge 1999; Kakabadse et al. 2001; Gandhi 2004). In a similar view, KM is seen as distinct from both librarianship and IM, as it includes knowledge creation and knowledge sharing, and the interplay of tacit and explicit, individual and collective knowledge (Davenport 2004).

The key issue that separates KM from IM is the fundamental belief that people, as opposed to electronic or print materials are the most important asset of an organization. They have a vital and central role in the success or failure of KM (Blair 2002; Sinotte 2004). While KM includes information management, the knowledge component requires 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 (Sinotte 2004). Therefore, unlike in IM, learning as a means of creating/sharing knowledge is a fundamental component of KM.

Another key distinction between KM and IM lies in their different goals. The success of KM depends on the use of stored and shared knowledge. However, the ultimate goal of an IM project is achieved when the preservation and the retrieval of information is guaranteed (Martensson 2000, cited in Bouthillier & Shearer 2002).

It is hard to read such comments without contemplating the need for changes in the skill sets of LIS professionals, if they are to engage seriously in the practice of knowledge management. Indeed, the issue may well not be one of the need for

change so much as of the extent of change required. This research seeks to answer this question.

In terms of current and future trends, evidence from the ISI *Web of Science* indicates that knowledge management is beginning to take over from information management in terms of publication output and citations (Gu 2004).

Knowledge management has featured as a topic at many library conferences, and it now has formal status as the 47th section of the work of the International Federation of Library Associations (IFLA). IFLA and other LIS professional bodies, including the Special Libraries Association (SLA) and the Australian Library and Information Association (ALIA), have promoted KM from its beginning, and have been promoting the role of the LIS professions in KM. 'Putting knowledge to work' has been SLA's motto for more than 100 years (Corcoran & Jones 1997).

A growing number of LIS schools now offer masters degrees in knowledge management, for example, Dominican, Emporia and Oklahoma in the US, and Loughborough and London Metropolitan University in the UK, or feature the subject as a component of either masters or undergraduate degrees, for example, RMIT and other Australian universities.

2.2.5 Summary

The library and information science discipline has undergone enormous changes within the last three decades, some of these dictated by developments in technology and others by social and economic changes. The advent of the internet and related technological developments have not only increased stocks and flows of information (which now have a significant digital dimension), but also have transformed the nature of library and information services. In the midst of these changes, knowledge management has emerged as a further significant influence on library practice, as reflected in the creation of new products and services, and in new knowledge-linked titles for those people (hitherto known as librarians) involved in their delivery. Although not everyone within the LIS community approves of this development, others have welcomed the challenges and opportunities it presents. Typical of this latter viewpoint are the arguments that KM is broader than both librarianship and information management, and that since the organization of knowledge has always been the strong suite of librarians, they must not only engage in, but also actively spearhead knowledge management initiatives.

2.3 Roles of LIS professionals in KM

The multidisciplinary nature of knowledge management has resulted in input from people from different fields including human resources managers, economists, IT specialists and LIS professionals. This has led to something of a 'turf war' between those professions for ownership of the KM function (Southon & Todd 2001). As Owen (1999) observed:

> Many different disciplines have joined the bandwagon of knowledge management. It is interesting to see that each of them tends to claim knowledge management for itself. Economists argue that knowledge management is all about operating in a knowledge economy, and that therefore knowledge management is the domain of the economist. But human resources professionals argue that the aim of knowledge management is to ensure that people in the organization have the right level of knowledge and skills. They claim responsibility for knowledge management. IT-professionals and librarians also claim knowledge management for themselves. They argue that knowledge can be managed by means of storage and retrieval systems, distribution networks, etc. (Owen 1999, p.8).

KM is a process that has been heavily influenced by the growth and application of computer technology to data and information management. As the focus of KM moved from IT towards human expertise, including the importance of tacit knowledge, other disciplines and departments became increasingly involved. Koenig notes that attendance at KM conferences shifted from being almost entirely comprised of IT people, to including a significant contingent of human resources people in the late 1990s (Koenig 2002). Today, KM tends to be viewed increasingly as a series of organizational initiatives that are built and implemented by multidisciplinary teams. This includes: the installation of software such as intranets to facilitate information management, including the capture of explicit knowledge through such facilities as Yellow Pages, and of tacit knowledge through chat rooms. It also includes 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 the sharing of expertise) to facilitate knowledge sharing and innovation (Sinotte 2004). Gradually, the various disciplines involved, information technology, human resources and LIS, have begun to acknowledge that this very critical, but complex, organizational asset will not be effectively managed without the use of integrated

teams and approaches. This view has been supported by Davenport and Cronin: ‘KM is a form of distributed cognition, a multifaceted domain where professionals of different provenance must recognize each others’ roles’ (Davenport & Cronin 2000). Also, Owen observed that KM had quite different meanings to people depending on their place in the organization (e.g., HRM, the Library, the IT Department) and that fully integrated KM should combine these different approaches (Owen 1999). Similarly, Broadbent (1998) argues that:

> KM requires a holistic and multidisciplinary approach to management processes and an understanding of the dimensions of knowledge work … KM is not owned by any one group in an organization, nor by any one profession or industry. But if you want to be a player in the emerging KM phenomenon, you need to understand the multiple perspectives of the other players (Broadbent, 1998).

It is clear that: ‘This very critical but complex organizational asset [knowledge] will not be effectively managed without integrated teams and approaches’ (Sinotte 2004, p.194). Given this breadth of provenance, choosing where different professional competences should be invested is a challenge. Middleton describes knowledge management as ‘A combination of information management (IM) for managing the documentary form, and HRM for managing the expression of knowledge’ (Middleton 1999, p.2). So far as LIS is concerned, the information management component has been most prominent, which is scarcely surprising. A body of literature has emerged that explicitly addresses the opportunities for librarians within the context of KM (van Rooi & Snyman 2006). There is a general acknowledgement within this literature that, since information management lies at the heart of knowledge management programs, LIS professionals with the relevant information management skills have the potential to be significant players in knowledge management. Henczel points out that information audits, which she describes as the first step of a KM strategy, have been undertaken by information professionals for many years (Henczel 2004a, p.301).

Davenport and Prusak (1998) observed that the awareness and application of knowledge have always been at the centre of librarians’ work and, therefore, it is important that companies pursuing KM exploit the skills of people within librarianship. However, as will be discussed later, there are different views as to the nature of this involvement, with some claiming for instance that it has been confined to the management of explicit knowledge. Especially worth noting in the literature is the 2004 collection published by IFLA with the provocative title, *Knowledge Management:*

Libraries and Librarians Taking up the Challenge. The aim of the collection was to persuade LIS professionals to take up the challenge of KM, claiming that librarians were the most likely candidates for KM roles, since KM had deep roots in the LIS profession (Hobohm 2004). Professional interest in KM is also reflected in two monograph publications edited by Koenig and Srikantaiah (2000) and Abell and Oxbrow (2001), which map out the KM domain for information professionals (Koenig et al. 2000; Abell & Oxbrow 2001).

KM has been perceived as a vehicle to extend the role of LIS professionals in their organizations, and in the process enhancing their position, image and salary (Southon & Todd 2001). Valera, writing in a legal context, reports that: 'Knowledge management is now at the very core of many firms, and, because of this, law librarians are increasingly important. The old perception of legal librarians working away in small, dusty libraries, searching through volumes of legal texts is completely divorced from reality' (Valera 2004). As will be reported later in this thesis, the law area seems to be one where librarians have done well as knowledge managers.

So far as specific contributions are concerned, the literature review contains ample references to the role of LIS professionals in facilitating access to information (explicit knowledge). Corral (1998) states that: 'People often used to describe librarianship as the organization of recorded knowledge, so perhaps our time has come'. The organization of knowledge is one of the fundamental skills of librarians. The structuring of information through creating subject structures and thesauri, developing organizational taxonomies and designing records and coding tools, has been emphasised by Abell and Oxbrow (2001) as the most obvious way that LIS professionals can contribute to KM (Abell & Oxbrow 2001). Nor are they alone in making this point.

> The development of taxonomies – working with the problems of standardisation and ensuring that there are no islands of expertise that are isolated within the user community – is the main area of response where library and information professionals are involved in KM (Wormell 2004).

So far, the potential contribution of LIS professionals to KM has been discussed in familiar library contexts. The literature also has something to say about their relationship to the management of different kinds of knowledge and, in particular, of explicit and tacit knowledge. According to Koenig:

> The KM movement has gone through a number of stages, and it is now moving into a stage of recognizing the importance of and incorporating information and knowledge external to the parent organization (Koenig 2005, p.2).

Stage one and stage two concerned, respectively, the application of technology and knowledge sharing. In stage three, the role of LIS professionals is their traditional one of facilitating access to information although with potential for a wider role; because, as Koenig observed: 'it's not good if they can't find it (Koenig 2005).

Davenport (2004) believes that library activities with respect to KM are located within the externalization and combination quadrants of the SECI model of knowledge conversion proposed by Nonaka and Takeuchi (1995).

Socialization Individual tacit knowledge is conveyed to others by showing and doing	**Externalization** The resulting 'social' knowledge is captured and codified and made explicit
Internalization New codified knowledge is digested by the individual whose tacit knowledge is transformed	**Combination** Codified explicit knowledge is synthesized to create new combinations

Figure 2.3 The simplified version of a cyclical 'knowledge creation' model of Nonaka and Takeuchi (1995) by Davenport (2004, p.82).

Essentially, the Externalization (tacit to explicit) and Combination (explicit to explicit) quadrants focus on explicit knowledge. Hence, it is not surprising that Davenport would recommend them for this role as 'LIS professionals have the core information management skills required to manage knowledge once it becomes explicit, that is, to identify, catalogue and maximise the visibility and availability of the products in which knowledge is stored' (Webster 2007). Further examples of activities in the Externalization mode have been provided by Choo (2002) who explains the role of LIS professionals in KM as one of:

> Identifying, acquiring, or extracting valuable knowledge from documents, discussions, or interviews, usually accomplished with the help of subject

> matter experts … Refining, writing up, and editing 'raw knowledge' (such as project files, presentations, email messages), turning it into 'processed knowledge' (such as lessons learned, best practices, case studies) (Choo 2002, pp.270-271).

Creating new knowledge by adding value to information through services such as filtering, summarizing and packaging information can be examples of the activities of LIS professionals in the Combination mode. Also, librarians add value to existing knowledge through portal development, which can include recommending and listing useful, reliable websites with annotations and grouping these in appropriate categories. It seems clear that librarians do play a role in KM through involvement in externalization and combination activities.

In a search for evidence of the involvement of LIS professionals in KM, Ajiferuke (2003) conducted an empirical study in Canadian organizations. The results revealed that information professionals involved in KM programs were playing key roles, such as the design of the information architecture, the development of taxonomies, or content management for the organization's intranet. Others were playing more familiar roles, such as providing information for the intranet, gathering information for competitive intelligence or providing research services as requested by the knowledge management team.(Ajiferuke 2003).

Van Rooi and Snyman (2006) conducted a content analysis of 28 English journal articles[1] which discussed knowledge management opportunities for librarians. The following opportunities were identified:

- Facilitating an environment conducive to knowledge sharing
- Managing the corporate memory
- Transfer of information management and related skills to a new context linked to business processes and core operations
- Management of information in a digital/electronic environment
- Development of corporate information literacy (van Rooi & Snyman 2006).

The research sample for this project was not ideal, and the researcher admits that the findings may have limitations as regards generalizability. Furthermore, while the above-mentioned opportunities are general enough to be plausible, there is neither much evidence for them, nor clarification of any consequent implications for practice. Although the last two opportunities identified are familiar roles for LIS professionals,

the first two opportunities would require LIS professionals to move well out of familiar territory. In fact, the first one sounds more like a job for cultural change experts.

Information literacy, as a potential field of opportunity for LIS in the KM context, has featured elsewhere in the literature. Knowledge workers need to be able to make effective use of information and systems. Blair (2002) states that successful KM requires both the ability to access stored information and knowledge among workers to 'evaluate the validity and reliability of information obtained from unfamiliar sources'. The importance of these abilities and knowledge has also been identified by Abell (1999). Hence, all staff in an organization need to be able to:

- Define a problem and the information required to solve it,
- Find the information and navigate the systems that hold it,
- Evaluate and interpret the information they find,
- Use the information and assess the outcome, and
- Record and disseminate the results (Abell 1999).

Based on the results of a study by KPMG, Koenig (2001) claims that more than half of the failures of KM systems can be attributed to inadequate user training and education. He calls for librarians to take a role by engaging in teaching database searching, teaching the use of groupware, teaching database mining, and training users in the use of current awareness services.

In fact, for a number of years, librarians have been developing a role in preparing and delivering information literacy training to users both formally and informally (Blair 2002, p.63; Abell, 1999, p.296; Henczel 2004a, p.61; Koenig 2001, p.52, Sinotte 2004, p.17; Webster 2007, p.294).

2.3.1 Managing explicit internal knowledge

LIS professionals have always been involved with organizing external knowledge (Koenig 2005). However, they can extend their role and apply their skills to the organization of internal knowledge. Knowledge created by the employees in the organization (internally generated knowledge) needs to be organized and managed. The importance of internal knowledge is reflected in the fact that 'Anything between eighty and ninety-five percent of the information used in an organization is generated *internally'* (Abell & Oxbrow 2001).

However, as was pointed out elsewhere:

> Librarians are generally seen as experts in finding and processing external information. They manage the published knowledge base and make it available for integration into other sources of information and knowledge, but they have not established their claim on internal information in many cases. Yet look at the obvious benefits of integrating internal and external information resources. Librarians must make it clear that their professional activities and skills have equal relevance whatever the source of the information they are processing, and that the same techniques can help users of internal knowledge as much as those consulting their library collections of published works (Pantry & Griffiths 2003).

In a similar vein Dewe states: ‘The skills of managing external information (cataloguing, classification) are transferable to managing internal information (metadata, taxonomies)’ (2005, n.p.). And again, evaluating, selecting and managing information held on intranets is an area of activity for LIS professionals in their organizations. Arguably they have already taken this job (Webster 2007).

Dewe raised the involvement of librarians in the development of open access publishing via institutional research repositories as an example of the kind of internal knowledge activity that could take them closer to the heart of the knowledge distribution process (Dewe 2005).

2.3.2 Managing tacit knowledge

Notwithstanding the difficulties of managing explicit knowledge, a much greater challenge for information professionals is that of managing the 'tacit' intuitions and 'know-how' that knowledge workers acquire through years of experience and practice. Tacit knowledge transfer involves people, and social skills such as communication, and it is not always possible, or appropriate, to 'capture' tacit knowledge and treat it as an explicit 'knowledge artefact' (Sbarcea 2000, cited in Bishop 2001). However, the ethos of KM is to make knowledge accessible in whatever format (Webster 2007), including the tacit unrecorded knowledge of people. Furthermore leaders in the LIS field (Davenport & Cano 1996; Klobas 1997; Broadbent 1998; Corrall 1998; Davenport et al. 1998; Milne 2000), believe it is in the best interests of librarians to 're-invent' themselves (and raise their profiles within their organizations), by extending their roles as managers of recorded information to include working with unrecorded organizational knowledge.

Managing tacit knowledge has not been a totally unfamiliar task for LIS professionals, as the reference interview is, or can be, a classic example of the elicitation of tacit knowledge. In 1993, at a time when KM was not so popular, Davenport and Prusak called upon librarians to manage people's knowledge as well:

> The librarians or information managers in tomorrow's organization must realize that people, not printed or electronic resources, are the most valuable information asset in any organization. Legions of annual reports say that 'the experience and knowledge of our people is our most valuable asset', yet firms do little or nothing to capitalize on or to provide access to this asset. The modern librarians will catalogue not only printed materials or even knowledgeable information professionals, but also that Jane Smith is working on a sales force competition project, and that Joe Bloggs knows a lot about the metallurgical properties of wheel bearings' (Davenport & Prusak 2004, p.17).

Two areas where LIS professionals can contribute to the management of tacit knowledge have been identified as 1) keeping communities of practice alive, and 2) providing easy access to human resources.

Keeping communities of practice alive

Wenger defines two roles explicitly in communities of practice, one is that of the 'coordinator' and the other that of the 'librarian'. The librarian's role is to keep the community alive by bringing in current awareness materials; and also by stewarding information by recording community activity and archiving it so that it can be preserved for reuse (Wenger 2002, cited in Cox et al. 2002, n.p.).

Providing easy access to human resources

KM recognizes that people are the most important asset of organizations. Providing easy access to human resources, including knowledgeable experts, by identifying their area of expertise and experience is an area of activity for LIS professionals. According to Choo (2002), maintaining online and current vitae and resumes of employees in the organization is one way to track who owns what knowledge and how they can be contacted. In a similar vein, Webster states that:

> librarians already catalogue images, maps, music and seminar presentations, so cataloguing people seems a logical next step … managers of all teams have to know the capabilities of the members of

> their teams, but KM systems take this a stage further by making those talents more tangible to a wider audience within the organization (Webster 2007).

2.3.3 Summary

A body of literature has emerged that explicitly addresses the opportunities for librarians within the context of KM. There is a general acknowledgement within this literature that since information management lies at the heart of knowledge management programs, LIS professionals with the relevant information management skills have the potential to be significant players in knowledge management programs.

KM has been perceived as a vehicle to extend the role of LIS professionals in their organizations, and in the process enhancing their position, image and salary. So far as specific contributions are concerned, the literature review contains ample references to the role of LIS professionals in facilitating access to information (explicit knowledge). In fact, the organization of knowledge is one of the fundamental skills of librarians. The structuring of information through creating subject structures and thesauri and developing organizational taxonomies and institutional repositories are among the specific contributions that LIS professionals can make to the practice of KM.

According to reports in the literature, KM has had the effect of extending the role of LIS professionals in their organizations. Managing explicit internal knowledge and facilitating knowledge sharing are examples of this extension.

Despite a reasonable amount of material on the connections between knowledge management and the library and information professions, the literature is less voluminous on the higher level contributions that LIS professionals might make to knowledge management. Also, it is still unclear from the literature how, in specific ways, the LIS professions might prepare for, engage in and exploit the opportunities presented by knowledge management.

It seems that the LIS professions have made slow progress in identifying what KM means to them and, more precisely, its implications for their expertise, education, training and cultural traits. It is certainly not clear from the literature that library and information professionals might be better knowledge managers than people from other fields (Ferguson 2004).

2.4 Knowledge management applications in the library context

2.4.1 History of management theories in libraries

The pressures for survival in the global economy have forced the LIS profession to find new ways of operation, because being good at what they do and at the services they provide is no longer good enough (Hendriks & Wooler 2006). Libraries are looking outside their professional boundaries for new insights, models and benchmarks as guidelines. Libraries need to adopt, utilize and develop principles that have proved successful in other contexts in maintaining future funding, relevance and existence (von Retzlaff 2006). Although there are always potential complications arising from the application of commercial concepts and principles in a public service environment (Wang 2006), the importance of applying business-oriented solutions to library and information environments has been highlighted in the LIS literature. Examples include: developing best practices based on commercial standards (von Retzlaff 2006); applying business marketing trends in library management (Nims 1999, cited in Wang 2006), adoption of a 'corporate culture' and treating library services as 'knowledge-based business' (Panda & Mandal 2006) and understanding of the relevance of competitive intelligence by the LIS professionals (Correia 2006).

Many of the new business management trends, emerging first in the for-profit sector, and then entering the non-profit sector, have found their way into the thinking and writing about library management (Yang & Lynch 2006). Wang (2006) discusses the application of total quality management (TQM) in academic libraries during the early 1990s. Wang suggests that TQM provides a model and benchmark as guidelines in making new strategies in libraries facing change today and, therefore, it was worth introducing it to academic libraries. The process of implementing TQM in libraries involves a conceptual change in library professionals, and a cultural transformation in organizational operations (Wang 2006). The application of the learning organization as another management theory for libraries has been discussed by Rowley (1997) and Michael and Higgins (2002). They argued that libraries needed to become learning organizations in order to survive (Rowley 1997; Michael & Higgins 2002).

In recent decades, the application of KM principles and practices in a LIS context has emerged as an area of interest in the library literature. For many, KM is not a new phenomenon so far as libraries are concerned.

Librarians have always operated as intermediaries between people who have knowledge and those who need to know. This intimacy with knowledge is so

pronounced that for many observers, knowledge management has always been integral to the work of librarians.

Some LIS professionals claim that librarians have developed and applied many KM principles in reference, cataloguing and other library services from the beginning. As Townley observed:

> Independently, librarians have developed and applied many KM principles in the provision of library services. Reference, cataloguing and other library services are designed to encourage the use of scholarly information and thus increase the amount of academic knowledge used in higher education (Townley 2001).

The library literature reflects this perspective, often embracing calls for libraries to take a leadership role in knowledge management. Dillon maintains that 'because libraries have been knowledge managers for decades and for centuries in a paper world, they are obvious candidates for leadership in this area' (Dillon 2002). In Bender's words: 'Knowledge-dependent organizations would be wise to integrate their own library into their knowledge management programs, but we as librarians cannot wait and hope for that to happen' (Bender 1999).

However, there are critics of this view. Hence, although librarians have been engaged in the management of knowledge resources, they have done little to use organizational information to create knowledge that can be used to improve the functionality of library processes (Townley 2001). Therefore, it is claimed, they have not really been involved in KM. Another criticism is that of the perceived lack of libraries' alignment with their organizational goals. Librarians do not manage knowledge about their organizations as they manage their other resources (Townley 2001). In Butler's words:

> Librarians have been actively involved in KM for many years – but in their libraries, not in relation to the organization as a whole. And herein lies the key. As previously outlined, KM is holistic. It affects the whole of the organization and most of its elements (Butler 2000, p.40).

Ferguson claims that: 'we should be asking whether the KM principles that some see as integral to librarianship are actually practiced in our libraries' (Ferguson 2004, p.5). According to Townley:

> There are some professional issues which should change or be modified when applying KM to libraries. Perhaps the most profound is in the area of proactivity and confidentiality. Circulation records are destroyed routinely and librarians are reluctant to ask a person how he or she plans to use the information they make available. However, KM can use the context of use to refer more scholarly knowledge to the user or to put the user in contact with another person who needs his or her skill or shares his or her interests (Townley 2001).

Townley claims that managing knowledge as an asset is the form of KM least familiar to librarians (Townley 2001). In addition, as articulated earlier, KM is both broader in scope and different from librarianship and information management, owing to its emphasis on less tangible resources like human expertise. As Jantz observed:

> Knowledge management within libraries involves organizing and providing access to intangible resources that help librarians and administrators carry out their tasks more effectively and efficiently (Jantz 2001, p.34).

2.4.2 The rationale for KM implementation in libraries

The ultimate aim of KM is that of increasing the effectiveness and sustainability of organizations. Therefore, although KM originally developed to fit the needs of *for-profit* companies, its practice has spread to the non-profit sector, including LIS. KM as a practice and discipline is open to various interpretations and contexts (Malhan & Rao 2005). However, unlike in the private sector, which seeks competitive advantage through KM practice, public sector and non-profit organizations mainly practice KM in order to improve service quality.

Shanhong (2000) suggests that the objective of knowledge management in libraries is to promote knowledge innovation, promoting relationships in and between libraries, between the library and the user, to strengthen knowledge internetworking and to quicken knowledge flow.

According to Wen (2005), ensuring LIS survival in the face of competition from emerging groups, of budget shortfalls and higher user expectations are the main driving forces for applying KM in the LIS environment.

2.4.3 Potential advantages of KM for libraries

There are general benefits deriving from the application of KM in every kind of organization. When it comes to libraries, KM can enhance their involvement in the larger organization, making them more relevant to their organizations and their users and thus, improve their visibility. Teng and Hawamdeh see the benefits of KM for non-profit organizations as those of improving communication among staff and between top management and also the promotion of a sharing culture (Teng & Hawamdeh 2002). Shanhong suggests that KM injects new blood into the library culture, which results in a sharing and learning culture. This is characterized by: mutual trust, open exchange and studying, sharing and developing the knowledge operation mechanisms of libraries (Shanhong 2000). Jantz (2001) states that knowledge management can help transform the library into a more efficient, knowledge sharing organization. This point is taken up later in the thesis.

2.4.4 KM in the library context: Principles/requirements

In the current literature, there is a major gap as concerns the details of how KM actually operates in libraries. Marouf (2004) investigated the role and contribution of library and information centers to KM initiatives in corporate libraries in the US. The results suggested that there was widespread development of knowledge repositories and databases of best practices and lessons learned. Also, the use of intranets, portals and sharing technologies was pervasive. However, quite a number of KM initiatives identified went little beyond traditional information management activities (Marouf 2004). Choo (2002) has provided examples of KM practice in, respectively, the Hewlett-Packard Labs research library, the Microsoft library and the Ford Motor company's research library and information services, mainly with a focus on organizing explicit knowledge and making it available.

Traditionally the organization of knowledge has been a primary focus of libraries. Contributing to the enhancement of the knowledge environment would seem to be the most fruitful area of potential involvement by the LIS professions, but it is not an opportunity that has been widely exploited. Relevant attempts at enhancing the knowledge environment in organizations can include: treating people as knowledge resources, aligning with business goals, creating a culture of knowledge sharing and capturing internal explicit knowledge.

In essence, enhancing the knowledge environment entails a focus on the creation and transfer of knowledge. This can be attained through treating people as knowledge

resources, alignment with the business goals of the parent organization, creating a culture of knowledge sharing, and capturing internal explicit knowledge.

Treating people as knowledge resources

Historically, information objects have been regarded as being more important than people in libraries. Davenport and Prusak (1993) accuse librarians of being more focused on books than on people. However, the main thrust of the shift towards KM in libraries has been in seeing people as knowledge resources. KM theory holds that it is better to put people in contact with other people, that is information seekers with information holders, than with objects in the collection. Traditionally, libraries function as an intermediary between information objects and end-users. If people are knowledge resources, libraries need to be intermediaries between these knowledge resources, and be engaged in building people-to-people links.

Clearly, libraries have always exhibited a human dimension, but this has taken different emphases than in KM. Libraries have emphasized human involvement in terms of activities such as information audit, storage and retrieval, while KM emphasizes people management in order to gain access to the knowledge hidden in their heads (Jain 2007). There is ample support for this perspective in the literature.

According to the results of research by Parirokh et al. (2006), although university librarians are actually quite interested in consulting their colleagues, most of them do not consider academics as a source for knowledge acquisition. Furthermore, they rely on the internet more than on the information that resides in other libraries, and that could be acquired through communication with them (Parirokh et al. 2006; Jain 2007).

In knowledge-based organizations, value is acknowledged as being based on human capital. However, library management has tended to focus its attention on users, while taking little account on the value and needs of librarians (Sheng & Sun 2007). Shanhong (2000) considers human resource management to be the core of KM in libraries. She focuses on the training and lifelong education of library staff in order to ‘raise their scientific knowledge level and ability of acquiring and innovating knowledge’ so as to enable them to operate more effectively in a KM environment (Shanhong 2000, n.p). In fact, providing a learning environment is a necessity for knowledge sharing (McInerney 2002).

The rapid development of technology and the increasing expectations of library users, necessitate continuous training of employees in order to update their skills and expertise to the changing demands of both internal and external customers.

Alignment with the business goals of the parent organization

There is a perceived lack of alignment between the work of libraries and the goals of their parent organizations. Specifically, librarians are not so effective in managing knowledge about their organizations as they are in managing their other resources (Townley 2001). Larry Prusak and Tom Davenport – the most-cited knowledge management authors – in their proactive paper in 1993, called upon LIS professionals to get out of the *warehouse custodians* concept or even that of being *providers of centralised expertise* and integrate their activities and goals with the whole business of their organizations. (Davenport and Prusak 1993). For the library to be engaged in knowledge management, it is necessary for it to have a more holistic view of the parent organization, and to identify the most important activities it performs. If the goals of the organization change, then adjustments to KM initiatives most probably will be necessary. Townley states that KM is almost entirely goal-oriented. If the goal changes, KM will change rapidly to address the new goal (Townley 2001).

Creating a culture of knowledge sharing

> In general, if the cultural soil isn't fertile for a knowledge project, no amount of technology, knowledge content, or good project management will make the effort successful (Davenport et al. 1998).

The theme of knowledge sharing is discussed extensively in the KM literature. It has recently been proposed as a distinguishing feature of KM (and even as an alternative label for KM (Davenport 2004). Knowledge sharing is a means to achieve business goals through transferring knowledge between employees, customers and other stakeholders. As was mentioned earlier, capturing tacit knowledge is difficult. The continuous transfer of work experience across the organization over time could, however, aid in this process. A KMPG survey of 423 large companies showed that 56 per cent of respondents complained of having to *reinvent the wheel* every time they started a new project (Hayes 2004). Accordingly, there are three outcomes to be expected from successful knowledge sharing:

1. Improved organizational learning,
2. New knowledge creation and innovation,
3. Knowledge reuse (Hall & Goody 2007).

The sharing of knowledge requires both organizational support and personal interest. Organizational culture and technology infrastructures are considered critical success factors for the knowledge sharing process (Parirokh et al. 2006). Nonaka and Konno (1998) believe that the type of organization involved has an important bearing in the promotion of knowledge sharing.

Organizational culture is widely regarded as a key influence on the success of knowledge sharing. Organizational culture relates directly and indirectly to attitudes and behaviours, practices and outcomes (Martin 2008). Among the most often-mentioned challenges to successful implementation of KM are barriers that arise owing to organizational culture. Motivation and trust are critical factors influencing willingness to share knowledge on the part of employees. In reality, knowledge sharing cannot be forced, but can only be encouraged and facilitated (Martin 2008). Furthermore, knowledge sharing is often more successful in informal settings, than it is in formal ones. Asking someone to give advice is much easier than asking them to write it down and put it in a database.

Knowledge sharing is at the heart of KM. KM initiatives are most likely to be introduced and succeed at libraries that have a knowledge sharing culture (Taher 2006). Staff skills should be the first area of knowledge (intellectual capital) to be managed in the library (Dakers 1998).

Developing systems to promote exploitation of the intellectual assets of library staff would prevent knowledge loss through downsizing or turnover (Townley 2001). Frequently, therefore, developing a knowledge sharing culture is the first priority in a library KM strategy. However, formal knowledge sharing initiatives, although very important, may not feature easily in libraries. ‘Librarians are experts in information management, yet frequently libraries lack the infrastructure to foster effective knowledge sharing within their own walls’ (Levinge 2005). Knowledge sharing would help libraries to capture the tacit knowledge of library staff, that could be of importance to their users, their organizations and to the internal operation of libraries (Lee 2005). If the tacit knowledge about users held by a reference librarian could be shared with systems personnel, for example, a more effective library home page would result (Townley 2001).

KM authors sometimes see librarians as being key brokers in the knowledge sharing process. Davenport and Prusak (1998), for example, recognize the possibility that

librarians' knowledge of who is researching what enables them to connect people in different parts of the organization, often in unexpected ways (Cox et al. 2003).

There are also important 'values' or 'commitments' unique to librarianship such as those of access to information, the freedom to read and, most important for knowledge management, knowledge sharing. Bishop states that:

> A value learned by information service professionals in 'information studies' is the belief that the key to empowering people is in sharing expertise and information, and collaborating across organizational boundaries and functional units. This belief has become part of the information professional's 'culture', part of our value system – the normal and accepted way we expect people to behave towards one other. In a knowledge-based organization we would be seen to have the all-important attribute of being 'knowledge-aware' (Bishop 2001).

In the LIS literature, approaches to knowledge sharing in libraries are general in nature and are, therefore, unlikely to show in any detail how knowledge sharing actually works in the library setting (Parirokh et al. 2006). The paper by Parirokh et al. (2006) is one of the few papers specifically allocated to knowledge sharing requirements in academic libraries. They conducted research to identify the knowledge sharing requirements of reference librarians in university libraries. The results of their survey of mostly American university reference librarians, showed that the majority of libraries investigated were quite positive about knowledge sharing, and that the majority of librarians valued the importance of knowledge sharing. The results also confirmed that the knowledge that they used most was mainly intangible knowledge. However, KM and knowledge sharing initiatives had not been institutionalized in the majority of those academic libraries that participated in the study. They also noted that providing a variety of communication channels for librarians might enhance both the efficiency and effectiveness of their communication and any subsequent knowledge sharing activities.

Strong partnership with other libraries is an external form of sharing and exchanging information and knowledge. According to Shanhong (2000), knowledge acquisition is the starting point for KM in libraries, which can operate through:

- establishing knowledge links or networking with other libraries and with institutions of all kinds,
- attending training programs, conferences, seminars and workshops, and

- subscribing to listserves and online or virtual communities of practice.

All the sources mentioned above discussed knowledge sharing among library staff, with little attention to the implications of capturing the knowledge of library users. Providing physical and virtual spaces in the library where people can enter into dialogue and the exchange of ideas can encourage knowledge sharing among library users and between users and staff (Schachter 2006).

Capturing internal explicit knowledge

The value of internal explicit knowledge has tended to be overlooked in libraries (Jantz 2001; Townley 2001; Levinge 2005). There is a great deal of embedded knowledge in library processes. For instance, in every library, there is a huge amount of statistical information, but it is rarely used to create knowledge to improve the operational effectiveness of the library. For example, if a library is committed to increasing the effectiveness of its internet portal and catalogue, it would need to create knowledge from usage data, including user behaviour related to database access, on failure rates, persistence rates and so forth. The library could then benchmark against other libraries in order to identify areas of comparative strength and weakness (Townley 2001). In a broader view, libraries involved in KM in their organization should engage not only in the organization of external knowledge which has been their traditional role, but also in the organization of internal knowledge resources. Capturing and managing the explicit internal knowledge of the parent organization could prompt a move towards a closer engagement of libraries with their organizations. This internal knowledge can also be accessed through the library catalogue, which now is commonly known as the library management system (LMS). Some LMSs, are capable of storing full-text documents, such as precedents and seminar presentations, as well as abstracts and the more traditional bibliographic details, which can be searched by multiple fields in the same ways as other items on the system and full-text searching (Webster 2007).

2.4.5 KM in reference services

The importance of KM for reference services lies mainly in the value of capturing the tacit knowledge of reference librarians. Reference librarians have an incredible amount of tacit knowledge regarding library, community and online resources (Kille 2006).

Knowledge management has long been the business of reference librarians (Perez 1999). Gandhi (2004) described the early efforts of reference librarians in capturing tacit knowledge through old information tools like card-files of frequently asked

questions. The relationship of KM to reference work has been discussed in several papers including those by Gandi and Stover (Gandhi 2004; Stover 2004).

Gandhi has identified three reasons why KM is needed in reference work. They are:

1. Reference librarians in libraries across the United States and the world answer thousands of questions every day.
2. Reference librarians manage to answer only 50-60 per cent of the questions correctly; therefore, there is immense potential to improve services and learn from each other by sharing correct answers.
3. It has long been recognized that librarians cannot remember all sources.

Therefore, capturing the tacit knowledge of reference librarians – knowing how to find information, where information is available, how to select the right resources, when to use a certain resource, how to follow a trail of clues to get to the right information, and so on – is emerging as one of the most important steps toward the implementation of KM in libraries.

Stover (2004) claimed that much of the knowledge held by reference librarians is tacit knowledge that needs to be made explicit and formalized. He identified the web-based Ready Reference Database at San Diego State University as an example of the process of knowledge conversion in library reference services.

2.4.6 IT initiatives for KM in libraries

There is an acknowledgement within the literature that the role of IT in KM is largely that of an enabler. Gandhi (2004) argues that IT itself is not the heart of KM, and that a project is not a KM project simply because it utilizes or incorporates the latest IT applications. However, KM without IT is nearly impossible, as the emergence of KM itself is partly due to the IT revolution.

> Although all the gurus stress that KM is a people-and-process issue and should not be viewed as an expansion of the IT function, they also acknowledge the significant contribution of technology (Corrall 1998, n.p.).

IT facilitates KM through the capture, sharing, and application of knowledge. Librarians have long been using IT appliances to capture, organize and disseminate information and explicit knowledge. What may be new to libraries, however, are those collaborative and conversational technologies which specifically facilitate the discovery

and capture of tacit knowledge, accelerating the development of ways of sharing information and knowledge in organizations. The result of Parirokh et al's research, discussed earlier, showed that half of the university libraries participating in their research had used the virtual reference desk and user mailing list as communication channels. The utilization of different IT applications for KM has been discussed in the literature. However, few authors discuss the role of these technologies specifically as KM tools in libraries. This would include for example, the role of intranets and more recently of wikis.

The role of intranets

Mphidi and Snyman (2004) discussed the role of an intranet as a KM tool in academic libraries. According to them, an intranet has the capability to be a valuable tool for facilitating communication and knowledge sharing within organizations. It serves as a repository of explicit knowledge. Hall and Jones (2000) state that, to a certain extent, an intranet has a public relations function. They investigated the role, involvement and impact of corporate libraries in eight large high technology companies in California in 1998. All the corporate libraries studied had a presence on the company intranet, and used the intranet to deliver information and services. This ranged from the straightforward provision of basic information (services, hours and staff), through archives of frequently asked questions, to innovations such as customized alert services. One of the librarians believed that the intranet was a useful marketing tool which the library used to raise its profile. Several services offered by the library over the intranet were noted by senior executives from one of the companies. Hall and Jones found that librarians were early adopters in using intranets as a platform for information delivery and services.

> The nature of information services provided by libraries has grown since the implementation of intranets and library staff have moved into roles in the wider domains of records management and KM (Hall & Jones 2000).

The role of wikis

A wiki is a collaborative space in which a group of people can create new web pages, or add and edit the existing content. Kille (2006) discusses the role of wikis in KM in libraries. According to her, wikis can act as collaborative knowledge repositories, and can support library reference services in the following ways:

- as a database for frequently asked questions,

- as a peer resource guide,
- for library instruction,
- as collaborative knowledge repositories for the public in the reference services environment,
- as a subject specific public resource guide,
- as collaborative workspaces to help manage knowledge for specific projects or teams in library reference services, and
- to enable work on a jointly authored document.

2.4.7 KM in university libraries

Academic libraries have sometimes been called the 'heart of the university' because of the centrality of knowledge to the goals of universities. Arguably, they should be the heart of KM for the same reason. In recent years, some academic libraries have taken KM seriously, with, in particular, American university libraries being an early adopter of KM. In 1993, when KM was not widespread in library circles, Lucier described the KM environment at the University of California in San Francisco. There were three goals for KM:

1. Embedding the library into the scientific and clinical research, educational curricula, and professional practice programs of a diverse and distributed campus;
2. Positioning the library as a campus focal point for knowledge-based applications of information technology; and
3. Establishing the library's leadership in the development of knowledge bases and online tools for the health sciences (Lucier 1993).

It is clear from the above goals that KM had acted to extend the role of University libraries engaging them more with their parent institutions. Townley (2001) suggests that KM can lead to a larger role for libraries in the broader academic community, and can result in strengthened relationships with related units, inside and outside the university.

One well-argued view of the role of university libraries in KM, is reflected in Stoffle's (1996) statement:

> KM is an effective, project-based means of organising and making available information and knowledge to users of the academic library, rather than an attempt to change corporate or organizational knowledge.

Stoffle not only makes a clear statement of her perception of KM, but also provides at least one option for the implementation of KM in a university library context. She views KM as a vehicle for making information and knowledge available, rather than as a vehicle for changing organizational knowledge. An overall assessment of the progress of KM projects in academic libraries, would also indicate that developing applications of information technology to support knowledge capture and sharing is the most common area of activity, which is hardly surprising given their core competencies in such fields. Both Jantz (2001) and Stover (2004) report on the introduction of KM systems to capture the tacit and informal knowledge of reference librarians in academic libraries. Similarly, Branin (2003) describes a *knowledge bank* at Ohio State University as a KM system. This knowledge bank is a digital institutional repository designed to capture all the intellectual assets of the university in a range of formats, including those that are unpublished, unstructured and unique. Library software at Rutgers University has been modified to create knowledge about faculty and student research interests. This knowledge guides librarians in the design of new services and acquisitions, so that the library more accurately reflects the research interests of faculty and students (Townley 2003).

The most specific roles for university libraries identified in the literature have been developing institutional repositories and education.

Developing institutional repositories

Traditionally university libraries have been repositories of information resources. In their traditional storage and retrieval role, university libraries build collections and make available to users the world's published literature. What is notably different since the advent of KM, is that KM has operated to shift the focus of university libraries from that of collecting agencies, responsible for the development and management of collections of published information resources (whether physical or electronic), to that of publishers, with a focus on providing access to their universities' research output (Lucier 1993). In other words, KM locates libraries at the beginning of the information transfer cycle rather than at the end, and focuses on information capture rather than on access and use. Such developments provide visibility to the knowledge produced by their universities. Dewe (2005) places libraries in the knowledge distribution process through the development of open access publishing via institutional research repositories.

Education

By participating in teaching and research activities, academic librarians become part of the knowledge-creation process. Stoffle's paper in 1996, reports the adoption of KM in the University of Arizona's libraries and in some other American university libraries. In this process, the educational role is the most important role for university libraries, one which entails becoming full partners with faculty and other professionals in the redesign and support of the curriculum, and of individual courses in order to achieve successful learning outcomes. Stoffle goes further and suggests that librarians should seek to help faculty think creatively, and help them to implement new methods, content and frameworks. She believes that increasing the availability of information by creating new knowledge packages and access tools, is the kind of thing a university library would be doing when engaged in KM.

Another area, in which there are interesting developments, is an increasing emphasis in recent years on embedding information literacy instruction in the curriculum. But here there is a challenge. Librarians need to move beyond the notion that information literacy is concerned primarily with teaching library users about the library's information tools (catalogues, databases and so on), and to see it in broader terms of furthering their universities' mission to foster lifelong learning in its students (Ferguson et al. 2007).

2.4.8 Summary

The LIS literature suggests that the practice of knowledge management has much to offer to the management of libraries and for the advancement of the LIS profession. For many, KM is not a new phenomenon so far as libraries are concerned, viewing knowledge management as always having been integral to the work of librarians. However, the main focus of the shift towards KM in libraries has been on seeing people (library users and library staff) as knowledge resources. KM theory holds that it is better to put people in contact with other people (that is to link information seekers and information holders) rather than with objects in the collection. For the library to be engaged in knowledge management, it is also necessary for it to have a more holistic view of the parent organization, to identify the most important activities it performs, and align its activities with the business goals of its organization.

Material that deals with the application of knowledge management in the LIS environment is relatively new, and mainly both perceptual and general in nature. Although there is a recognition that knowledge is a key business asset, libraries are still in the early stages of understanding the implications of KM, and there has been

little impact of KM in the practice of libraries as reflected in the LIS literature. A very small body of literature exists to explain how to improve library operations through KM. An overall assessment of the progress of KM projects in libraries, would also indicate that developing applications of information technology to support knowledge capture and sharing is the most common area of activity, which is hardly surprising given their core competencies in such fields.

The important question of 'how libraries can efficiently and effectively adopt KM approaches' is yet unanswered.

2.5 Required skills and competencies for LIS professionals engaging in knowledge management

The library and information science (LIS) profession, within and outside the higher education sector, has put forward a strong case for the relevance of its skills to KM activities (Martin, 2006; Koenig, 2005; Broadbent, 1998; Church, 2004; Corrall, 1998; Abell, 2001; Ajiferuke, 2003; Loughridge, 1999; McGown, 2000; Shanhong, 2000; Koina, 2003; Pantry, 2003; Rowley, 2003; Sinotte, 2004; Ferguson, 2004; Henczel, 2004a).

The importance of traditional LIS skills for KM practice in the views of Abell and Oxbrow (2001) resides in the fact that 'the information profession has the theoretical basis and practical skills to provide the essential elements of knowledge management'.

Considerable efforts have been made to support the view that library and information science has already addressed key information-related issues in knowledge management. One research project has compared KM market needs with the skills that have been considered necessary in the LIS profession (Hill 1998, p.149). This comparison concluded that despite the unfamiliar vocabulary of the job specifications and descriptions of the knowledge, skills and abilities sought by employers:

> it will become clear that an information professional will possess not just the tangible skills required (i.e., research, quick reference skills, source knowledge, collection development, Netscape, online, IT) but also the intangible ones (communication, customer services orientation, organizational understanding, business knowledge, interpersonal skills) (Hill 1998, p.151).

This statement is supported by the results of a study conducted by Lai (2005) which shows that 18.5 per cent of all KM job postings asked for an advanced degree in library or information science. A recent survey of newspaper advertisements in Australia suggested similar percentages to Lai's research, although the researchers reached different conclusions. Their preliminary findings were based on a survey of Australian newspapers for the first six months of 2005 (January to June), which revealed twenty-one positions with the word 'knowledge' in the position title (a relatively small number, given that most of the major Australian newspapers were surveyed). This somewhat low percentage would appear to sit in contradiction to the previous identification of links between LIS skills and KM in the job market. In order to establish the relevance of LIS skills to this market, however, the researchers compared the knowledge, skills and attitudes required or desired for each position, with the core LIS professional attributes listed by ALIA on its website (2003), or identified by ALIA as 'generic' attributes that LIS professionals shared with other professionals. The degree of association between 'ALIA' and 'non-ALIA' attributes in the advertisements was found to be low. Five of the twenty-one advertisements could be clearly identified as relating to 'LIS' jobs, with little or no attributes outside of the ALIA lists, with the other sixteen jobs requiring many 'non-ALIA' attributes, with few attributes represented on ALIA's list of core LIS qualities (Ferguson et al. 2005). In other words, there may be distinct and even discrete KM job markets, with little or no significant migration of LIS professionals into (non-library) KM roles.

2.5.1 New roles and new skills

It seems unlikely that any single profession or discipline would be able to take on any new roles demanded for participation in KM without some further development of their skill base (Abell & Wingar 2005). KM is a multi-dimensional discipline and requires a demanding mix of skills and competencies.

Members of other professions, such as those in various business disciplines, in IT and HR, bring their own knowledge and experience to the multi-dimensional discipline of KM, but are nonetheless likely to be faced with the need to acquire additional, for them, non-traditional skills.

As was discussed earlier, LIS professionals relate to KM mainly through their abilities in organizing and classifying information. These abilities can provide LIS professionals with a platform for involvement in KM. However, mainstream knowledge management operates in a largely different context from the familiar LIS operational environment.

Therefore, to maximize the application of their skills in the commercial world, and to take advantage of new opportunities, LIS professionals need to be familiar with the new context. This means that LIS professionals not only need to be more creative and imaginative in the application of their traditional skills, and able to make critical decisions, but also must be capable of shifting to what is frequently a strategic mindset. This requires the ability to appreciate the wider environment in which organizations operate, including the role of the organization and its clients and the role of information and knowledge in achieving corporate success. Hence:

> The professional and technical skills of LIS graduates need to be applied with much more understanding of the context, about the way they contribute to the business of the organization … An organization expects candidates to have an acceptable level of professional and technical skills … interpersonal skills and transferable 'organizational' skills – skills and behaviours that enable professional skills to be applied effectively – are key (Abell & Wingar 2005, p.175).

And again:

> Librarians thus have the opportunity to play an important role in knowledge management based on their training and experience, developed and used over many years. However, they need to extend and renew these principles and skills and link them with the processes and core operations of the business in order to be successful in knowledge management activities. For this reason, it becomes imperative for librarians to understand the nature of the organization, its processes, clients and the role of information and knowledge (van Rooi & Snyman 2006, p.265).

Obviously, to benefit from this knowledge management opportunity and make themselves more relevant to their organizations, a substantial expansion in thinking and a broadening of their skills will be necessary (Todd & Southon 2001).

To be effective participants in KM practice, LIS professionals need to make their knowledge and skills applicable to a KM environment, and in the process acquire additional skills and knowledge. It is worth noting, moreover, that a distinction should be drawn between the management of knowledge and the act of being a knowledge manager. This is because the latter goes well beyond the mere management of

knowledge (however that may be defined), and involves activities designed to effect significant change in organizational culture. This can extend to a capability for involvement in organizational politics, something which would not automatically be associated with the job skills of most LIS professionals. To perform as knowledge managers, and to aspire to holding down more senior KM positions therefore, LIS professionals need to extend their knowledge and skills and gain additional expertise if they are to compete successfully with other candidates with backgrounds in business and IT-related disciplines (Lai 2005). And again:

> KM differs clearly from the theory and practice of librarianship, information management, and information resource management. It requires a new set of skills among LIS professionals if they wished to have any effective role in this domain (Loughridge 1999, p.245).

The main shift in focus from LIS to KM can be characterized in terms of a shift from an emphasis on information objects to one based on human expertise. LIS professionals have been managing explicit knowledge for a long time, and in the context of, for example, reference work, they have had a certain amount of experience in dealing with tacit knowledge. In seeking to add to this latter involvement, LIS professionals need to be aware of accessing that knowledge that exists mainly in the heads of people, or resides in routines and skills. Its importance for assisting in the management of both people and social processes reinforces the expressed need for different skill sets, with a shift in emphasis from the technical skills of LIS towards those of communication, facilitation, training and management. Accordingly, a high priority has been given to interpersonal skills by employers in knowledge-based organizations (Bishop 2001).

> A synergistic approach to intellectual resources management calls for the information professionals to possess not just the tangible skills (i.e., research, quick reference skills, source knowledge, collection development, browsing, online, IT) but also the intangible ones (communication, customer services orientation, organizational understanding, business knowledge, interpersonal skills) (Bharathidasan 2001, p.22).

In 2002 Standards Australia published ‘sample job descriptions’ for the KM sector, based on Bishop’s expertise as a recruitment consultant. Specific ‘knowledge-enabling’ tasks performed by these positions included the following:

- formulating knowledge strategies – to develop/improve the knowledge processes that support organizational development and performance;
- Knowledge auditing – to develop maps of organizational knowledge, identify gaps in knowledge and barriers to knowledge discovery/exchange/development;
- 'information literacy' training programs for improved use of information and knowledge resources;
- facilitation skills for improved group dynamics, and coaching programs for improved communication skills to help with collaboration and innovation;
- designing systems and procedures to enable effective creation of, and access to, recorded knowledge; and
- managing changes in organizational behaviour in line with knowledge-focused organizational strategy (Bishop 2002).

In areas such as information literacy and the provision of access to recorded knowledge, clearly LIS professionals have some expertise, although not all would claim to be able to perform the full range of tasks (Ferguson 2004).

However, some claim that apart from LIS competencies in dealing with information objects, they have valuable people-oriented skills as well. Haynes states that, in addition to specific skills, there are three attributes of LIS work that are particularly valuable in the context of KM:

- people orientation: able to provide the interface between users and the services;
- co-operative approach: able to working in teams and in partnership with their users; and
- attention to detail: a vital skill for keeping knowledge up to date and accurately indexed (Haynes 2002).

Similarly, Schwarzwalder observes that:

> Additionally, the LIS professional brings 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 (Sinotte 2004, p.196).

Reviewing these different points of view brings to mind two issues. First, people skills are not those skills which potentially and necessarily every LIS professional would possess, since LIS education has not focused in developing these skills among its graduates. Second, people skills are personal attributes and as Henczel observes:

> One of the critical issues here is that often a skill can be learned but cannot be applied effectively without the requisite personal attributes. For example, communication is a skill, and the processes can be learned. To be effective communicators we must have the confidence, motivation, and self-assurance to apply the learning. Consequently, 'communication' is listed as a skill, whereas 'effective communication' can be listed as a personal attribute. A further example is the skill of negotiation. Once again, we can learn the processes, but without the necessary personal attributes such as effective communication, motivation, open-mindedness and flexibility we are unlikely to negotiate well (Henczel 2004a, p.61).

A growing volume of research is directed at the identification of the requisite knowledge and skill base for LIS professionals seeking meaningful engagement in knowledge management. Some of this research specifically views the knowledge and skills required by KM through the eyes of the employer. For instance, Lai (2005) analyzed the content of job descriptions to discover the kinds of background/skills and personal traits that employers were asking for in a knowledge management candidate. Her findings revealed that excellent oral communication (51.9 per cent) was the most important skill required by employers, with writing and project management skills the next two most in demand. Lai (2005) believes that these skills are associated with the LIS curriculum in indirect ways, which means that these skills may be part of the traits that LIS students generally have in common. LIS students in general have been found to exhibit a better command of speaking and writing compared to the students in the more IT-related disciplines. This difference may be explained by the undergraduate degrees in humanities or social sciences that many of the LIS students hold (Lai 2005).

A few years ago, TFPL conducted one of the most comprehensive and influential studies of KM skills and attributes to be undertaken in the LIS sector. 'Underpinning Skills for Knowledge Management' (initiated by the UK's Library and Information Commission in 1998 and awarded to TFPL), was based on interviews and consultations with 500 international organizations. It found, among other things, 'significant overlap between recognized management competencies and those

required for successful knowledge practitioners'. What is more, Abell, the study's project director, points out:

> KM skills are essentially those most often associated with change and project management. The ability to influence attitudes, to work in complex organizations, across boundaries, and to navigate political waters is characteristic of KM players. Teams and communities are also common in KM approaches, making team-building skills, consensus development, and community understanding increasingly important (Abell 2000, p.35).

Such skills require a degree of corporate engagement that has not necessarily been typical of the LIS profession, if much of the LIS literature on KM is to be believed. This view is lent support by Abell's list of 'KM enabling skills and competencies':

- business process identification and analysis,
- understanding the knowledge process within the business process,
- understanding the value, context, and dynamics of knowledge and information,
- knowledge mapping and flows,
- change management,
- leveraging ICT to create KM enablers,
- an understanding of support and facilitation of communities and teams,
- project management,
- information structuring and architecture,
- document and information management and workflows,
- an understanding of information management principles, and
- an understanding of information technology opportunities (Ferguson & Hider 2006; extracted from Abell 2000, Figure 1, p.36).

Also in Britain, the Department of Information Science at Loughborough University built on the TPFL case studies with a survey of job advertisements and follow-up surveys of employers and recruitment agencies. This produced the following ranked list of required experience and skills:

1. relevant industrial experience
2. interpersonal skills
3. highly developed oral/written communication skills
4. project management skills

5. team player
6. change management
7. analytical skills
8. ability to work to strict deadlines/prioritization skills
9. people management
10. training skills
11. negotiating skills (Morris 2004, p.120).

Included in the category of other skills, competencies and experience identified in the study were LIS/IM skills/experience and educational requirements that demonstrated some interest in information-related degrees or LIS-related subjects. Although practical KM experience and experience of using 'KM development tools' were particularly important, one of the researchers, Morris, was of the view that 'many of the skills listed in the advertisements were LIS related' (2004, p.121).

Some researchers have tried to identify the skills required for KM through the viewpoints of LIS professionals themselves. In a study conducted by Todd and Southon (2001) among LIS professionals in Australia identifying the key skills and understandings required for knowledge management, five specific categories of understandings were identified, underlying the significance of people and organizational factors:

- understanding of human knowing (knowledge about knowledge);
- understanding the knowledge dynamics of people;
- understanding the organization as a knowledge generating and using entity;
- understanding of the fundamental principles of information management; and
- understanding technology.

On the skills side, six categories were identified, once again clearly emphasizing people and cognitive skills and organizational factors:

1. people-centred skills, such as those of negotiation, sharing, team-working and communication;
2. skills associated with aspects of management of the organization as a whole, (management skills);
3. information processing skills;
4. cognitive skills;
5. organization and business skills; and

6. Information technology skills.

In another study, this time in Canada, Ajiferuke (2003) investigated the required skills for KM through the viewpoints of LIS professionals. Respondents to Ajiferuke's survey identified team working, communication and networking skills as the key organizational skills required by information professionals in order to be able to participate in knowledge management programs. This result validates some of the skills earlier identified by Abell (2000). The respondents also identified the ability to analyze business processes, an understanding of the knowledge process within the business process, the ability to use information technologies, and document management skills as the core competencies required of information professionals in knowledge management programs.

The required KM competencies discussed earlier, were summarized in Drucker's description of knowledge workers:

> Knowledge workers are ideally educated people, creative and communicative team-players and relationship-builders. They are also highly skilled in the use of information technology, as well as being lifelong learners, able to assume information responsibility for themselves (Drucker 1993, cited in Bishop 2001, n.p.).

2.5.2 Summary

Although it is not a view that is widely acknowledged outside the profession, the perception that LIS skills are highly relevant to KM has been clearly articulated in LIS circles. There has been some research carried out to support this perception. A more conservative interpretation of this position would be that, whereas LIS skills may be necessary for KM practice, they are unlikely to be sufficient. The development of interpersonal skills, business knowledge and management skills have been stressed in the literature as necessary for LIS professionals seeking meaningful engagement in KM.

On one thing most of the KM literature is agreed – knowledge management is a multi-faceted discipline or area of practice, which requires a wide range of capabilities. It is, therefore, unavoidable that LIS professionals would demonstrate deficiencies as well as proficiencies were they to attempt to take full advantage of emerging KM opportunities. Of course, the same might be said to apply to any of the other professional groups with a stake in KM. However, if LIS professionals are to engage

successfully in KM, they not only need to turn their underlying skills into knowledge management enabling competencies, but also they must take a holistic view, and seek to cross boundaries and go beyond the narrow scope of their profession.

2.6 KM and LIS education

Technological advances have changed the face of library practice since the 1970s. Consequently, continuous revisions to LIS curricula have been needed to respond to the demands of a dynamic workplace environment, ensuring that graduates are equipped with the required skills.

> As the automated library gave way to the digital or virtual library, educators again had to reassess the content of their curricula to ensure that graduates were equipped to take their place as effective new professionals (Milne 1999).

Fundamental revisions to LIS curricula and the extension of the scope of librarianship programs have occurred since the 1990s[1]. Recognition of the importance of information and then of knowledge in all sectors of society since then, has extended the LIS job market beyond traditional areas to others which would not always have been particularly fruitful sources of employment for LIS professionals (Hazeri et al. 2007).

In recent decades, the emergence of knowledge management and, consequently, the integration of KM theory and practice into the core operations of organizations worldwide, have produced new opportunities for LIS professionals.

The body of literature in the field of LIS has expanded to the point where it explicitly reflects the need for the provision of properly designed KM educational programs, ensuring that graduates are provided with the necessary knowledge skills with which they can gain employment in the KM job market upon graduation (Koenig 1999; Milne 1999; Brogan et al. 2001; Chaudhry & Higgins 2001; Todd & Southon 2001; Breen et al. 2002; Chaudhry & Higgins 2003; Chaudhry & Higgins 2004; Al-Hawamdeh 2005; Lai 2005; Rehman & Chaudhry 2005; Ferguson & Hider 2006; Sarrafzadeh 2006; Abell 2000).

This substantial trend is reflected in Lai's paper where she states that:

> In order to market the LIS graduates who are interested in a KM career, it is necessary that LIS schools take appropriate actions to fulfil the

students' needs as well as the expectation of KM employers (Lai 2005, p.350).

Brogan et al. (2001) investigated the opportunities in KM for graduates of LIS schools, and noted that these schools could make a distinct contribution to the core knowledge and practice of KM. They recommended that LIS schools develop pertinent coursework for preparing their graduates for these emerging roles.

2.6.1 Knowledge management educational programs

The prediction of Ruth et al. (1999) that KM would someday be taught across the academy has been realized, and KM has been incorporated into academic programs since year 2003 (Ruth et al. 1999; Willard & Wilson 2004).

Many individual courses in KM are being offered as part of programs in different disciplines. There has been debate as to whether KM should be offered as a stand-alone, complete MSc or BA program or integrated as a single course within different disciplines. Some have questioned the need for entire courses in KM. Therefore, while there are numerous educational courses focused on KM, it appears that there are relatively few entire programs devoted to it (Sinotte 2004). None of the respondents to the Ajiferuke survey suggested that Canadian library and information science schools should emulate some of their United States counterparts by offering a masters degree program in knowledge management.

There are challenges in designing an educational program for a complicated multidisciplinary field like KM. Apart from the absence of a clear definition of knowledge management, there are difficulties in determining the intellectual territory to be covered by any viable and practical KM course (Ruth et al. 1999). Knowledge management does not fit easily into any existing academic discipline or professional school. There is no one ideal place for KM education (Koenig 1999). Rather, the multidisciplinary nature of KM calls for partnership in the delivery of KM courses. The results of a study by Rehman and Chaudhry suggest that collaboration could be the most important strategy in making KM courses successful (Rehman & Chaudhry 2005). Consequently, effective education for knowledge management will require the emergence in various places of cooperation between different academic units (Koenig 1999). This view has been supported by Tulloch, whose survey showed that 'successful KM practitioners come from a wide variety of academic and professional backgrounds without any apparent common denominator' (Tulloch 2002, cited in Ajiferuke 2003, p.338). Arguably, the fact that they were willing to come together is in

itself a form of common denominator. Some respondents to the Ajiferuke survey suggested that it would be better for LIS schools to collaborate with business schools in offering the course. The main challenge in designing any multidisciplinary academic program is to create a consensus among the participating faculty members, and to get them to contribute positively to the process without being biased toward their own discipline – 'the biggest challenge in designing a knowledge management program is to create a balance between the various disciplines that will make up the program' (Al-Hawamdeh 2005, p.1206). Rehman and Chaudhry revealed that although a majority of LIS educators were positive toward possible collaboration and strategic partnerships with business schools, they did not indicate strong support for the feasibility of meaningful cooperation. They cited political and *turf* sensitivities as being the most serious impediments (Rehman & Chaudhry 2005, p.9).

2.6.2 LIS curriculum and required KM competencies

There have been debates about the extent to which current LIS curricula might cover KM components (Koenig 1999; Milne 1999; Brogan et al. 2001; Chaudhry & Higgins 2001; Todd & Southon 2001; Breen et al. 2002; Chaudhry & Higgins 2003; Chaudhry & Higgins 2004; Al-Hawamdeh 2005; Lai 2005; Rehman & Chaudhry 2005; Ferguson & Hider 2006; Sarrafzadeh 2006; Abell 2000). Some claim that many of the required competencies for KM are already addressed in the curriculum of professional LIS education. Readon (1998), for instance, suggests that elements useful to KM have been present in LIS curricula for some long time.

This assertion is supported by various studies that investigated the degree of alignment between the LIS curriculum and required KM competencies. The School of Computer and Information Science at Edith Cowan University in Perth, Australia employed market research and a survey to investigate the contribution that the LIS discipline could make to KM. The results revealed that there was strong support in the LIS curricula for knowledge computing, especially with regard to internet technologies, knowledge-based systems, groupware and workflow, intranets/extranets, web development, electronic document management and recordkeeping, and for KM foundations, such as knowledge taxonomies, knowledge maps, intellectual capital and KM roles. There was also strong support for management-oriented subjects (Brogan et al. 2001). In a similar piece of research, Charlotte Breen and her colleagues investigated whether current LIS education prepares graduates for the needs of the KM job market. The results again suggest that it does. Using earlier findings from TFPL as their basis for skills requirements, they conducted surveys of LIS schools in

Britain and Ireland, as well as surveying ten LIS graduates in Ireland and twenty companies, in order to establish:

> whether graduates with LIS training are perceived as having the requisite skills and personalities to perform as knowledge managers and information managers in the private sector (Breen 2002, p.127).

While this was not an ideal sample, the researchers were clear that 'LIS graduates are being equipped with the requisite skills to organize online information and manage knowledge', although they did note barriers to the employment of such graduates (2002, p.131), a point taken up in the next section of this literature review. In other research, Lai compared the skills contained in the curriculum of the School of Information Sciences at the University of Pittsburgh with KM requirements in job advertisements. The results revealed that to a certain degree, their current LIS curriculum was associated with some of the knowledge and special skills listed in KM job requirements. However, the indication was that more technology-oriented courses should be incorporated into existing curricula if LIS schools hoped to respond to the job markets and prepare well-qualified graduates. Finally:

> as a multi-disciplinary subject, the education for KM should be composed of different academic units, so that the strength of each discipline can benefit and prepare LIS students as future KM professionals (Lai 2005, p.362).

While the results of these three research projects support the view that LIS education is sufficient for KM practice, there are some cautionary words from others (Davenport & Cronin 2000; Milne 2000; Todd & Southon 2001; Al-Hawamdeh et al. 2004; Abell 2000) stating that, although there may be a degree of overlap between core competencies for KM and LIS, the required understanding of and skills in KM goes far beyond what is provided by traditional LIS education. In Koenig's words:

> Professional schools tend to educate for the skills needed for entry level positions, whereas KM jobs are senior level jobs that require a deep understanding of the organizational context and culture (Koenig 1999, p.17).

Reviewing the list of KM enablers from the Australian KM Standard (Standards Australia 2005) led Ferguson to conclude that almost half of the thirty-four enablers listed were drawn from the field of management. Some, such as content management,

document management, environmental scanning, information auditing, leveraging information repositories, and taxonomies and thesauri, for instance, came straight from the information manager's set of tools, techniques and activities (Ferguson & Hider 2006). However, as has been pointed out elsewhere, management skills have been neglected in LIS education (Milne 1999).

The foregoing suggests that KM is not a concept that is pertinent to all elements of the LIS curriculum, and that for those seeking KM positions, there is a need to turn traditional information management skills into knowledge management competencies (Davenport & Cronin 2000). As Broadbent (1998) indicates, routine work to support access is not what KM is about, and coding and process representation are only part of what it is about.

2.6.3 Knowledge management in LIS education

In response to the demands of the KM market, a growing number of LIS schools around the world now offer Masters degrees in knowledge management (e.g., Kent State University, Dominican, Emporia and Oklahoma in the US; Loughborough and London Metropolitan University in the UK; Nanyang Technological University in Singapore) or feature the subject as a component of either Masters or undergraduate degrees (e.g., four Canadian LIS schools; RMIT and other Australian universities). KM courses are offered by no less than nine Australian universities: RMIT, Curtin, Queensland University of Technology (QUT), Murdoch, Canberra, Central Queensland University (CQU), Melbourne, South Australia and University of Technology, Sydney (UTS) (Ferguson & Hider 2006). LIS schools have thus taken a leading role in KM education. Two pieces of research lend support to this statement. Research by Srikantaiah revealed that if the academic campus has a library and information science school (only 56 accredited universities in the US do), the KM program will typically start at that school, within an interdisciplinary arrangement. Otherwise, the KM program will be absorbed by the business schools and, in special cases, by the engineering schools (Srikantaiah 2004). The results of Sutton's research led him to conclude that the LIS sector is taking a greater initiative in KM training with the largest range of course offerings (37 per cent) emerging from graduate schools of library and information science (Sutton 2002).

There have been challenges as regards the content of KM programs. Although there has been general agreement about the broad scope of knowledge and understanding

which the new entrant to KM needs to acquire, there has been rather less clarity and consensus in relation to curriculum content or vehicles for provision.

According to Southon and Todd (1999), KM programs should: 'provide theoretical frameworks and also professional skills required for the effective management of information in the context of KM initiatives' (Southon & Todd 1999). Koenig et al. analyzed the development of KM in the corporate world and then related it to the need for redesigning LIS curricula. They specifically noted the areas of IT applications, corporate culture, business background, and knowledge organization in developing a checklist for the design of curricular content (Koenig et al. 2000). And, again, as KM is a business-oriented concept, the need for business understanding is obvious:

> so that he/she can communicate proficiently (both in written and oral form) using the same language that the business community speaks … to express his/her ideas and recommendations using appropriate business and economic concepts (Lai 2005, p.352).

Al-Hawamdeh suggests the inclusion of a number of multidisciplinary elective courses including: the learning organization, business intelligence, electronic records and document management, electronic commerce and knowledge management, knowledge discovery and data mining, human capital management, and knowledge management measurement (Al-Hawamdeh 2005).

Several studies have investigated the content of KM programs. In one of the most comprehensive studies of KM education, Nanyang Technological University, Singapore, undertook a survey of KM courses offered by universities in Australia, Canada, Singapore, the UK and the USA. It found differences of focus among the programs being offered, depending, not unexpectedly, on the department offering the course. For example, a technology orientation in computing departments, a greater focus on topics such as intellectual capital, measurement and business cases in departments of business studies, and an emphasis on knowledge repositories and the development and management of content in schools of information studies (Chaudhry & Higgins 2004).

The researchers organized their listing of topics in KM programs under five broad headings:

1. foundations (such as knowledge workers, intellectual capital and sources of knowledge);

2. technology (which includes, for instance, KM architecture and data analysis tools such as those for business intelligence);
3. process or codification (including knowledge audit, and search and retrieval);
4. applications (which include case studies and implementation); and
5. strategies (for instance, steps for sustaining KM work and measurement of knowledge assets) (Chaudhry & Higgins 2004, p.132).

Chaudhry and Higgins noted little change in the orientation of courses since their previous research in 2001 (Chaudhry & Higgins 2001). In a later survey, which included a similar list of topics, Ferguson and Hider (2006) investigated the content of KM courses in Australia, and the extent to which the understanding and skills developed by students of these programs overlapped with those which the Australian Library and Information Association (ALIA) required as core knowledge and skills for the LIS sector. The result led the researchers to conclude that there was then, in general, only a limited amount of overlap between what were considered (by ALIA) to be the core LIS professional attributes and the curricula of the KM courses offered by Australian universities. Rather, it appeared that there were separate KM and LIS courses for different job markets. The researchers claimed that Australian universities had not yet found a way of squeezing sufficient coverage of both disciplines into a single postgraduate course (Ferguson & Hider 2006).

2.6.4 Summary

KM has been advanced as a potential survival factor for the LIS profession and consequently for the survival of LIS education. Faced with the need to be relevant in today's knowledge-based environment, LIS schools are being forced to redesign their curricula in order to align with the needs of KM.

Some claim that many of the required competencies for KM are already addressed in the curriculum of professional LIS education. However, a multidisciplinary and complex concept like KM goes far beyond what used to be the realm of LIS. For example, many of the business and management competencies in areas such as marketing and culture, along with advanced IT skills, so important to KM, have not featured prominently within LIS education. Furthermore, there are clear differences between the LIS approach to knowledge management and the mainstream management approach. In response to the demands of the KM market, a growing number of LIS schools now offer programs in knowledge management. However, there have been challenges as

regards the content of KM programs. Furthermore, the multidisciplinary field of KM has made it very difficult for LIS schools to design a KM program by themselves.

2.7 Barriers to the migration of LIS professionals into knowledge management roles

The previous sections, showed that the perception of LIS skills as highly relevant to KM, has been clearly articulated in LIS circles. If this is the case, KM has brought new career opportunities for LIS professionals. However, these opportunities are not necessarily advertised as opportunities for library and information professionals (Abell & Wingar 2005). Some of the research conducted over the last few years does, indeed, suggest that LIS professionals appear to have had little involvement in organization-wide KM activities, and that they have not seized the new opportunities that KM presents. Klobas (1997, p.55), analyzes the world of KM in terms of *turf* struggles between IM, IT and business management. While acknowledging the 'considerable skill and experience in knowledge management' of the LIS profession, she notes that IT specialists have taken the lead in developing frameworks and structures for the management of networked resources, and concludes that:

> there is little evidence that librarians are well placed to take advantage of this opportunity to contribute to organizational success. Instead, graduates of business schools ... particularly those with an information systems background, are politically well placed to play significant knowledge management roles in the new millennium (Klobas 1997).

A landmark study, the TFPL Report (1999), explored what roles and skills were required for the effective implementation of knowledge management. The study was based on in-depth case studies, expert interviews, and consultation with approximately 500 international organizations. According to the results, the involvement of information professionals in KM implementation at a strategic level was extremely rare. Barriers found to be hampering the application of LIS skills in the KM environment included: a general focus on external information (rather than on internal information), a lack of business understanding and the necessary mindset, and a lack of visibility of the discipline itself. Writing around the same time, Schwarzwalder (1999) claimed that the major disadvantage of librarians as KM players was that they had little or no influence in terms of changing organizational culture. Librarians may be poorly placed as change agents but, they can expand their influence by partnering with other groups within their organizations.

There is a general acknowledgement within the literature that, although LIS professionals may have excellent information management skills, they need to gain additional skills and cross existing boundaries in order to become significant players in KM. The obstacles might be personal, organizational and/or professional, some may arise from the personal characteristics of LIS graduates and some from an inappropriate education.

Abell and Oxbrow (2001) state that from the employer's point of view the specific obstacles are as follows:

- lack of business knowledge,
- lack of understanding of the interplay between information and organizational objectives,
- poor team and leadership skills, and
- lack of management skills (Abell & Oxbrow 2001, p.167).

A review of the literature, establishes that for many commentators the principal barriers for LIS professionals are their:

- concern with external information resources rather than internal organizational knowledge assets,
- lack of business knowledge,
- content ignorance,
- image problem,
- name problem,
- lack of visibility,
- personality issues, and
- lack of the required management skills.

These perceived weaknesses of LIS professionals are now reviewed in turn.

2.7.1 Concern with external information resources

It has been claimed that librarians limit themselves to a concern with external, published information. In 1998, having conducted case studies of KM in practice, Cooper reported that some of the subjects involved were hesitant about involvement in the management of internal information. This was partly because in their professional education and previous experience they had concentrated on external sources of information, and partly because involvement in the management of internal information

was perceived to offer little of value in terms of their own career development (Cooper 1998, quoted in Loughridge 1999). Significant as it is, this perceived focus on external sources, becomes even more serious in that research suggests that anything between eighty and ninety-five per cent of the information used in an organization is generated *internally* (Abell & Oxbrow 2001). The TFPL study mentioned earlier reinforced the view that librarians were more concerned with external information, and to some extent the management of records and documents (1999). Davenport and Prusak (1993) went so far as to accuse information professionals of preferring books to people, although the comment is dated and may have lost some validity (if it had any). Writing from a higher educational perspective, Townley (2001) states that librarians do not manage knowledge about their organizations as they manage their other resources, and claims that they have done little to use organizational information to create knowledge that could be used to improve the functionality of library and higher education processes. The continuing focus of the LIS profession on external information resources is likely to be seen as a significant barrier to its KM credentials.

2.7.2 Lack of business knowledge

The second main point noted in this review, is that KM represents an integrated approach to the achievement of organizational goals, and that the potential contribution of LIS professionals to KM initiatives might be inhibited by a general ignorance of business goals. Those working in the special libraries sector are accustomed to hearing and reading that their efforts need to become more closely aligned to business goals and practice, and many do indeed take pride in their level of corporate involvement. It is clear that such engagement is essential if LIS professionals are to have any impact on the practice of KM in their organizations. A study of KM job advertisements in Australia over a three-month period in 2005, for instance, found that, while it was difficult to draw hard-and-fast distinctions between operational and strategic functions, a large percentage of the advertisements were strategically focused and required, among their leading attributes, a strong background in business analysis (Ferguson & Hider 2006). The TPFL study, mentioned earlier, however, found very little evidence of involvement of information professionals in KM implementation at a strategic level, and suggested that the graduates of LIS schools ‘lacked business understanding’ and ‘commitment to organizational goals’ (Southon & Todd 2001; Rehman & Chaudhry 2005). In 2001, St. Claire, DiMattia and Oder identified similar obstacles, including a lack of organizational and political understanding, unwillingness to address issues of return on investment, insufficient understanding of business practices and limited access to high-level decision-making

(DiMattia & Oder 1997). Others perceived a more serious issue of domain conflict: LIS processes are invisible to many in the business world, because LIS professionals do not understand how business value is perceived and created (Klobas 1997; Corrall 1998).

There is nothing new about these claims. Davenport and Prusak in their paper (1993), call for information professionals to get out of the library and into the business, an exhortation that has been repeated many times. As already suggested, many in the profession, especially those working in special libraries, would argue that KM is precisely what they have been doing. Nonetheless, the view that LIS professionals need to engage more with core business activities persists. Church suggests (2004) that information professionals should think in terms of benefits to their organizations. In a similar vein, Pearlstein claims that librarians need to 'understand that they do not work in a vacuum, their library's services must be tied directly to the corporate mission' (cited in DiMattia & Oder 1997, p.33). Schwarzwalder states:

> Unfortunately, many library efforts focus on projects with very little payback. Often these projects are focused on making the operation of the library more efficient. While this is a laudable goal, these efforts typically yield small incremental gains that are invisible to the customer base. Such efforts do little to convince sponsors that the library is capable of engineering – or even recognizing – worthwhile knowledge management applications (Schwarzwalder 1999, p.65).

As recently as 2001, Southon and Todd were accusing librarians of not considering overall goals in their activities. They stated that: 'the focus was on the technical processes of gathering and organizing information to enable access, with little engagement with what is done with that information or the overall impact of the service on the organization' and that all LIS activities should be conducted in the light of overall organizational objectives (Southon & Todd, 2001). Davenport and Cronin (2000) found that much information science literature placed KM essentially within traditional information science frameworks, with little extension to the conceptual and organizational dimensions. As Butler puts it:

> Librarians have been actively involved in KM for many years – but in their libraries, not in relation to the organization as a whole. And herein lies the key. As previously outlined, KM is holistic. It affects the whole of the organization and most of its elements. Senior management in many

> public and private sector organizations, therefore rarely think of involving their libraries in their knowledge initiatives. Because libraries tend not to be aligned with the goals of the business, they are still not viewed as integral to the business (Butler 2000, p.40).

This is a point that LIS educators would do well to note.

2.7.3 Content ignorance

Linked to a lack of business knowledge is the third main barrier identified here: content ignorance. Davenport and Prusak (1993) blamed information professionals for keeping their distance from information content and the use of information. It is suggested that 'librarians' traditional reluctance to move beyond the information container, towards analysis and interpretation of its contents, has resulted in organizations overlooking their potential contribution, even in areas where their competence should be obvious. Information professionals are seen as service-oriented, but not value-oriented – 'they don't understand the impact they can have on the business' (Corrall 1998, n.p.). In 1996, van House and Sutton stated:

> the traditional focus of LIS has not been on information at all but rather on its containers – books, journals, maps and so on. It acquires, describes, stores and disseminates them without much concern for how their intellectual content is used (van House & Sutton 1996, n.p.)

As Barlow put it so aptly: 'We thought for many years that we were in the wine business. In fact, we were in the bottling business. And we don't know a damned thing about wine' (Barlow 1994). While these criticisms might suggest poor linkage between libraries and the overall goals of their parent organizations, they also highlight the potential contribution for libraries to leverage KM initiatives within their organizations, provided they see the implications of KM activities for the success of their parent organizations, and start working to expand a more business-oriented perspective within the profession.

2.7.4 Image problem

The image problem facing LIS professionals is a barrier to KM engagement that hardly needs labouring – the old stereotypes and reputation that attach themselves to the profession, including hair in 'buns', sensible shoes and the stern bespectacled, cardigan-clad 'shushing' controller of books, do not encourage employers to employ LIS professionals at high levels of management.

Abell at TFPL (1999) interviewed top executives on the skills required for the knowledge manager position, and then compared these with those attributes they associated with information professionals. The results show that these managers do not see information professionals as being entrepreneurial, as risk takers, or as having a good understanding of the business environment. The role of LIS is seen as the traditional one of supporting rather than leading. As Breen et al. (2002) stated: 'Few people, if asked to describe a librarian, would include the adjectives *risk-taking* or *ambitious*. Neither are librarians perceived as being *creative*' (2002, p.132). Research conducted a few years ago suggested that while LIS graduates were being equipped with the necessary skills, the image of 'the librarian' was significantly impeding the entry of LIS graduates into the KM employment sector. Graduates with LIS skills needed to market themselves more effectively in the IT workplace (Breen et al. 2002).

While LIS graduates may have many of the qualities required in a knowledge manager, a survey of companies in the business sector revealed that human resource managers do not think of LIS graduates when they recruit information specialists. Furthermore, even LIS departments do not perceive their graduates as '*ambitious*' or '*risk-takers*' or, in many cases, as having the requisite 'business acumen'. There would seem to be a two-fold problem – the image of librarians and the perceived characteristics of candidates versus the desired ones (Breen et al. 2002). While librarians are still being taught the basic skills of classification and information organization, a persistent barrier to entering the KM field, it is suggested, is the stereotypical view of the librarian. There is somehow an implication that the librarian's skill in creating order, indicates a lack of creativity and a disinterest in how the information is used (Breen et al. 2002). These results support the earlier findings of Matarazzo and Prusak (1995). Their research focused on the value placed by management on the corporate library. Findings showed that while everyone appeared to like libraries and librarians, few firms thought of them as 'mission critical' (Milne 1999).

Numerous websites document attempts to change the old stereotypes under which librarians have suffered. Name changes including those of 'progressive librarian', 'the shifted librarian', 'new breed librarian' and 'anarchist librarian' are all examples of these efforts (Hillenbrand 2005) – although the last may not appeal to employers anxious to maximize the management of their organization's intellectual assets.

It can only be hoped that, with developments in LIS education and in the range of professional and personal development undertaken by many in the profession, employers' perceptions may change (Abell & Oxbrow 2001).

Evidence for such a change is indicated in Morris's report (2004, p.121), which refers to signs that employers' perceptions are changing, based on the increasing number of advertisements for KM positions stipulating the desirability of an LIS degree. Nonetheless, expectations on both sides still need to improve.

2.7.5 Name problem

Closely linked to the problem of image is the name, *librarian*, which, although simple and functional, is seen to serve the profession as a whole rather poorly in the third millennium. According to *The American Heritage Dictionary of the English Language*, a librarian is a person who is a 'specialist in library work'. This has inhibited the participation of librarians in KM activities as reflected in Koenig's statement:

> Though the KM world has begun to discover the skills associated with librarianship and information science, it does not attribute those needed skills and assets to librarianship. It almost seems as if the business world is trying to carefully avoid the 'L' word. There is in fact no animus; it is just that the business world simply doesn't get it. What it calls librarianship is the 'T' word – taxonomy. It sounds sexier and more scientific (Koenig 2002).

Terminology does make a difference, although Abell and Oxbrow (2001) suggest that the title librarian should not necessarily determine the role that librarians play or how they are perceived. A title should not be constraining. People need to think in terms of what they can achieve rather than in terms of their nomenclature. To suggest, however, that position titles should not necessarily affect how librarians are perceived, is a purely normative statement and does not reflect the realities of organizational politics. This is not to say that the name should be changed, rather that images and levels of respect need to be addressed.

2.7.6 Visibility

For years some commentators have reported a general lack of awareness among managers about the real contributions made by libraries and information centers (see, for instance, Matarazzo & Prusak 1999). Research by Breen and her colleagues (2002) suggests that many of the jobs taken up by non-LIS graduates were compatible with the skill set of LIS graduates, but that there is a perception that information professionals are not among the first to be considered by business employers when they are employing knowledge managers. Corrall (1998) claims that the core skills of library and information professionals are both relevant and essential to effective

knowledge management, but that they are often under-utilized and under-valued. Surely it is the responsibility of LIS professionals, she suggests, to put this right. More recently, Hart, a leading library-qualified knowledge manager in Australia, told librarians:

> The level of interest in what we do is virtually nil. Smart library managers are able to take the money and re-use it for practices that match the department's managerial philosophy (Hart 2006).

2.7.7 Personal attributes

Some commentators believe that one of the main barriers for LIS professionals to engagement in KM at a high level is their personal attributes, which are based in a specific educational culture. Myburgh (2003, p.2) believes that the most dangerous threat to the profession is the 'librarian mindset'. In a key passage, Abell and Oxbrow put it this way:

> People in senior positions were not born with an innate understanding of their industry or organization. They acquired it throughout their career, just as information professionals do – or do they? Is that the difference – that those reaching top management positions never saw any barriers to doing so? Their training as an accountant, engineer or HR professional didn't somehow set them apart from the business of their organization. They expected that there would be opportunities for them and they were ready to take them. How many information professionals set out with the same attitude, or are ready to look for opportunities to extend their experience and influence? How many expect that they could and should succeed at senior management level? (Abell & Oxbrow 2001, p.166-167).

According to Davenport and Cano (1996), knowledge work is about the acquisition, creation, packaging, application or reuse of knowledge. They point to the need to take a process approach to knowledge work, maintaining, moreover, that people involved in KM initiatives typically showed attributes of ambition and risk taking. These are not, by general consensus, the characteristics of many people currently in the LIS profession (Davenport & Cano 1996). Another general criticism of LIS professionals is that they are reluctant and/or slow to change, even when the need to do so is apparent, with the result that they fail to seize opportunities (Sarrafzadeh 2004). For this reason, Loughridge (1999) suggests, more attention should be paid to the personality,

motivation and career aspirations of the students recruited. This is an area that may repay some study, because it is by no means clear that LIS schools and departments are attracting students who are significantly different from those recruited in the days when most LIS students were self-confessed bibliophiles. Indeed, while many might disagree, there is anecdotal evidence from educators that nothing much has changed in terms of student recruitment.

2.7.8 Lack of management skills

Lack of management skills is one of the main reasons given in the literature for librarians' low status and image among employers (van Rooi & Snyman 2006). It is worth noting that, although the British studies discussed earlier suggested that LIS students were graduating with the skills and understandings to work in the KM environment (Breen et al. 2002; Chaudhry & Higgins 2004), there is also some indication that LIS professionals are not generally involved in KM implementation at a strategic level (Rehman & Chaudhry 2005). Earlier it was suggested that there is a distinction between managing knowledge and being a knowledge manager, and that the latter involves effecting significant change in organizational culture, which itself needs strong management skills. The study of Australian KM job advertisements mentioned earlier found that a substantial proportion of the positions advertised required a high degree of strategic nous and were geared to objectives such as the fostering of knowledge sharing, the leveraging of corporate knowledge, the development of KM strategies and the attainment of cultural change. Characteristics looked for by the organizations or their recruitment agencies included:

> a strong background in business analysis, previous consultancy experience, experience of a wide variety of technologies, high-level conceptual skills, project and change management skills, and of course a significant track record in KM initiatives (Ferguson & Hider 2006).

All the evidence seems to suggest that lack of these high-level management skills constitutes a significant barrier to greater engagement by LIS professionals in KM.

2.7.9 Summary

There remains a considerable consensus that the LIS profession faces significant barriers if its members are to become major players in the KM domain. Part of the problem stems from the profession's long-standing focus on published information resources, as distinct from, for example, information resources and knowledge generated within organizations. According to Koenig (2005), the focus of KM is

broadening to include external information resources – which would remove one of the barriers to greater LIS engagement in KM – but the nature of that broadening remains to be demonstrated, and, in the meantime, the profession also continues to be hindered by its traditional focus on the information 'container', as distinct from the content. Linked to this is the continuing view – right or wrong – that members of the profession lack the business knowledge required to be serious contributors to the leveraging of corporate knowledge. There are also the related barriers of image, nomenclature and visibility, two of which may be beyond the control of the profession, the personality traits of librarians – if, indeed, one can generalize about these – and finally the management skills. On this last issue there is not a clear consensus. The British studies reported here suggest that LIS professionals are graduating with the required skills for the KM environment. Nevertheless it is widely agreed that KM requires a multi-disciplinary approach and, if job advertisements are any guide, organizations are looking for people with very high-level management skills and *experience* to effect the required changes in organizational structure and culture.

Chapter 3
Research Methodology

This chapter outlines and justifies the overarching research design of the thesis in order to address the central objective. First, the general characteristics of the proposed research methodology will be discussed and then the two main means of data collection will be described in detail.

3.1 An introduction to the research methodology

The purpose of the present research was to explore the relationships between knowledge management and the LIS professions through the viewpoints of LIS professionals. As part of the methodology, this research relied on the use of literature as a source of data. A comprehensive review of the literature on KM and LIS was performed to identify the key aspects of relationships between the two.

The methodology employed was a combination of qualitative and quantitative approaches. It falls within the interpretivist paradigm in that it seeks not to identify or test variables, but rather to draw meaning from social contexts (everyday concepts and meaning), in this case from the perceptions of librarians faced with major changes consequent on the emergence of knowledge management. In this study the combination of qualitative and quantitative methods has been employed in two phases. Phase One consisted of a survey, conducted via a web-based questionnaire. This first phase entailed the collection and analysis of quantitative data that helped the researcher to identify emerging themes within the relationship between KM and LIS. The survey population was then used as a basis for Phase Two of the research. In Phase Two, the method employed was qualitative, seeking to collect and analyse specific qualitative data through semi-structured in-depth telephone and face-to-face interviews with LIS professionals leading KM initiatives in their organizations. The data collected by the questionnaire were subjected to quantitative analysis using SPSS software, while the interview sessions were recorded, transcribed, categorized and analyzed qualitatively. A triangulation strategy was employed for the research comprised of literature review and document analysis, web-based survey and in-depth interviews. This helped to bring coherence to the research, while leading to an enriched understanding of perceptions and events.

3.1.1 Philosophical orientation: Interpretive

The present research falls within the interpretivist paradigm. It was designed not to identify or test variables, but rather to draw meaning from social contexts (everyday concepts and meaning), in this case from the perceptions of library and information professionals faced with major changes consequent on the emergence of knowledge management. Researchers operating in the interpretivist framework attempt to interpret and make sense of events, actions and interactions in context from the point of view of the individual participant as opposed to group experiences (Creswell 1998). According to Walsham, interpretive studies generally attempt to understand phenomena through the meanings that people assign to them (Walsham 2002). The goal is to try to gain access to the people in the study and their experiences and perceptions by listening to them describe what the experience means for them and as Holloway noted, the reality of that experience is based on peoples' definitions of it (Holloway 1997). Or again, the detailed descriptions of the participants' experiences give the researchers patterns and commonalities that are essential to interpreting and understanding the underlying meanings of the experience (Creswell 1998). The present research sought to create a picture of KM in the LIS field through the eyes of LIS professionals who had experience of the phenomenon.

3.1.2 Purpose of research: Explorative

The study was also exploratory in nature. Exploratory research usually occurs when a researcher studies a new topic of interest or where the subject of inquiry is relatively new (Neuman 2003; Babbie 2004). The goal here is to 'formulate more precise questions that future research can answer' (Neuman 2003, p.29). In the absence of previous empirical research into the relationship between knowledge management and LIS, this thesis entailed a descriptive exploration to determine 'what is'. No hypotheses were offered; and no attempt was made to build theories.

3.1.3 Nature of data and data collection: Quantitative and qualitative

Exploratory research usually employs qualitative techniques in data collection because qualitative research is more open to using a variety of evidence and uncovering new issues (Neuman 2003). However, quantitative methods such as surveys and experiments can also be used. The interpretive nature of the present research dictated the use of qualitative data. Qualitative data can provide rich, in-depth information about the phenomenon under study. In addition, qualitative data such as those collected through interviewees are also better for drawing out the tacit dimension to knowledge management, where the traditional positivist-quantitative methods fail. Although the

qualitative method seemed to best suit the purposes of this research, there was an obvious limitation to employing that method. With qualitative research, the research population needs to be limited. However, gauging the extent of differences of perceptions, clarifying issues in terminology and thematic significance and validating the key elements in the literature all required access to a larger research population. Therefore, the quantitative method was also employed in order to gain insights from the larger population and to obtain statistical, quantitative results. The results of the questionnaire were used to conduct follow up interviews, and to identify some of the deeper issues raised by the relationship between knowledge management and library and information science, including emerging themes and recurrent events.

The use of quantitative methods in interpretive studies has been supported in the literature (Glesne & Peshkin 1992). The blending of qualitative and quantitative research methods has also been supported by King et al., where: 'most research does not fit clearly into one category – qualitative or quantitative – or the other. The best often combines features of each' (King et al. 1994, p.5). Johnson and Onwuegbuzie (2004) also support using different research methods because, today's research world is becoming increasingly interdisciplinary, complex, and dynamic; therefore, many researchers need to complement one method with another. The nature of the present research is mostly qualitative, and the questionnaire itself included many open-ended questions resulting in qualitative data.

Lee et al. argue that the purpose of a qualitative study is to generate, elaborate on, or test research theories. In their view, theory generation occurs when a research design produces formal and testable propositions for further research. Theory elaboration arises when pre-existing conceptual ideas or a preliminary model drives the research design, but formal hypotheses are typically not present; and theory testing happens when formal hypotheses or a formal theory determines the research study's design (Lee et al. 1999, pp.164-168). The purpose of the present qualitative research was not to generate theory, but to contribute to the body of knowledge that might later result in theory generation.

3.1.4 Research questions

The major research question posed was: 'What are the implications of knowledge management for library and information professions?'

Different aspects of the relationship between KM and LIS were categorized in the following subsidiary questions:

1. What does knowledge management mean in the context of the LIS professions?
2. What are the implications of knowledge management for LIS education?
3. What are the implications for LIS professionals seeking a career in knowledge management?
4. What contribution can LIS professionals make to the practice of knowledge management?
5. What contribution can libraries make to the practice of knowledge management?

3.1.5 Research purpose and objectives

As a piece of interpretive research, the main purpose of this study lay in acquiring the multiple perspectives of knowledge management among LIS professionals and in assessing their implications for the future. The specific objectives were:

- To explore the perceptions of knowledge management among LIS professionals.
- To identify the skills needed for LIS professionals to successfully engage in knowledge management.
- To clarify the role of LIS professionals in KM.
- To identify the potential contribution of the LIS professions to the future development of knowledge management.
- To identify the implications of knowledge management for LIS education.

3.1.6 Rational for and significance of the research

Knowledge management has been a highly topical issue in business, management and other related fields for more than a decade. However, it is rare to find references to library and information services in the mainstream management literature, and this despite a general consensus on the value of information and knowledge to organizations.

In the case of LIS, there is a reasonable amount of literature on the connections between knowledge management and the library and information professions. It seems clear that there is much of relevance in KM to the future prospects of the LIS professions. However, an appraisal of KM articles in LIS journals shows that there has been relatively little contribution to the wider ramifications of the relationship between knowledge management and LIS. Nor, apart from some heroic examples, usually

involving a career change, is there much evidence of the engagement of LIS professionals in the practice of knowledge management.

LIS professionals have been encouraged, not only to become involved in KM through their IM competencies, but also to raise their profile to capture more senior jobs in KM, and act as a champion/leader of KM in their organizations. However, the literature is less voluminous on the high level contributions that LIS professionals might make to the core knowledge and practice of knowledge management. Much of the evidence for these claims appears to be anecdotal.

The wide diversity of opinions on KM among LIS professionals reported in the literature may not necessarily be representative of the LIS professions as a whole. Another reason for conducting the present research was a lack of published material on the practical implications of KM for the LIS profession. Much of the published work in LIS has little direct relationship to what is really going on. There is a lack of empirical evidence for the involvement of LIS professionals in KM. Also, although the LIS literature has plenty of general material on the role of LIS in knowledge management, there is relatively little coverage of the practical implementation of knowledge management in the LIS environment. It is still unclear from the literature how in specific ways the LIS professions might prepare for, engage in and exploit the opportunities presented by knowledge management. Furthermore, although there has been a proliferation of empirical studies of the technological and organizational dimensions of knowledge management in a business context, the conceptions of knowledge, and the principles and processes of its management, tend to be presented as broad generalizations, with little consideration given to the significance of different types of organizations or of the people involved. KM in the context of libraries has been subject to a somewhat limited scholarly appraisal. It is still unclear from the literature how KM actually operates in library settings, or the contribution that libraries could make to KM and subsequent implications for changes in libraries.

Of course there have been attempts to fill these gaps. For example, three pieces of empirical research have been conducted to explore the phenomenon of KM in the LIS context. The first (Southon & Todd 2001), investigated the perceptions of KM among Australian LIS professionals; the second (Ajiferuke 2003), focused on the role of LIS professionals in KM in Canadian organizations, and the third (Marouf 2004), investigated the contribution of library and information centres in American corporates. Although the purpose of all these three pieces of research lay in exploring the phenomenon of KM in the context of LIS, each had a specific focus: one on

perceptions, the second on the roles of LIS professionals and the last on the role of libraries in KM. They were conducted in three different countries, namely Australia, Canada and America, and used similar methodologies. In the following section, the major findings of each of these projects are discussed.

Southon and Todd

Southon and Todd (2001), sought to identify perspectives, practices, attitudes, and organizational responses to knowledge management. This included how it was conceptualized; its key characteristics; its relationship to information management; the significance of the difference between knowledge management and information management; and the level of organizational awareness, understanding and activity in relation to knowledge management. It involved fifty-six non-randomly selected Australian library and information professionals, primarily employed as library managers, managers of specialized information services within libraries, records, and information managers, and information consultants. Southon and Todd noted that the concept of KM was reasonably familiar to most library professionals. KM was perceived to be complex and holistic, involving organizational issues and human and social processes. However, the nature of responses to KM was varied. For some, knowledge management was seen as the saviour of a beleaguered LIS profession, as a means of moving it beyond the narrow confines of traditional roles and improving its image. Other librarians and information professionals perceived knowledge management to be simply a trendy way of describing information resource management, as traditionally undertaken by them for years. For others, knowledge management was seen as a key strategic organizational process, based on an understanding of the value of the collective knowing integrated into the organizational infrastructure. This variation in perception suggests the need to develop a strong, shared understanding of the nature of knowledge management, its underpinning assumptions and values, its emphasis on the value of people and organizations, and its multifaceted relationship to existing information work.

Ajiferuke

Ajiferuke (2003) sought to obtain empirical evidence for the role of information professionals in knowledge management programs. Three-hundred and eighty-six information professionals working in Canadian organizations were selected from the Special Libraries Association's Who's Who in Special Libraries 2001/2002. More than 80 per cent of those working in companies that were engaged in KM activities were involved in these initiatives. Many of those involved in the programs were playing key

roles, such as the design of the information architecture, the development of taxonomies, or content management in the organization's intranet. Others played lesser roles, such as providing information for the intranet, gathering competitive intelligence, or providing research services as requested by the knowledge management team. Respondents agreed by a strong majority that KM was not just another fad. More than half of these people considered themselves key members of the teams; although very few were in leadership roles. Of those LIS professionals involved with KM programs, more than 95 per cent cited 'understanding of the knowledge process within the business process' and 'ability to identify and analyse 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 outlined a number of other key skills for LIS professionals interested in pursuing work in this field. Respondents to this study agreed that communication, networking and teamwork skills were extremely important. Factors such as gender, age, and educational background (i.e., highest educational qualifications and discipline) did not seem to have any relationship with involvement in knowledge management programs.

Marouf

In a 2004 study of the six leading companies in the United States, Marouf analyzed the contribution of information centres to KM initiatives. She reported that these centres were involved in taxonomy building, the use of an intranet for networking, the creation of portals, development of a best practice database, the design of new search tools, and the creation of virtual libraries. Many of these centres reported placing a greater emphasis on literacy programs, on extensive search services, on a variety of activities for information architecture, the creation and maintenance of knowledge repositories, the design of research portals, and the development of comprehensive directories. However, quite a number of the KM initiatives identified went little beyond traditional information management activities.

3.1.7 The contribution of the present research

The researcher has investigated all major aspects of the relationship between KM and LIS. The research participants came from all over the world, and at the time of writing, this is likely to be the most recent research in this subject.

The results of the present research have been compared with the results of previous research, thus helping to identify the progress of KM in the LIS field.

This thesis accordingly contributes to knowledge both in that it adds to the body of research in an under-researched field, and that it contributes to the further understanding of KM in the context of LIS.

3.2 Methodology phase one: Survey

Although the nature of the present research was interpretive, dealing with a wide range of professional perceptions, a web-based survey was conducted as a basis for interviews in the second phase of the study. The purpose of the survey in this study was to gauge the extent of differences in perceptions, and to clarify issues of terminology and thematic significance, supplemented by a quantitative dimension in the form of some basic descriptive statistics. This would then be followed up by interviews with participants, to probe or explore results in more depth.

As the survey was aimed at subscribers to leading LIS mailing lists, including those in the specific domain of KM, the expectation was that data gathered from a combination of open-ended and closed questions would be a reliable guide to current perceptions of the impact and significance of knowledge management within the LIS professions. It was also intended as a means of ensuring that, in the interviews that comprised the second phase of the thesis, the researcher was asking the right questions. In this research the term ‘web-based survey’ is used synonymously with the terms ‘online survey’ and ‘internet survey’.

3.2.1 Why a web-based survey?

Web-based surveys have several important advantages over hard-copy surveys including:

- Extended reach: reaching potential respondents in geographically remote and widely-dispersed areas is easily achievable by web-based surveys.
- Reducing response times: one of the primary advantages of web-based surveys is that they dramatically decrease response times. While the typical turnaround time for traditional mail surveys is four to six weeks, it is only two to three days for web-based surveys (Granello & Wheaton 2004).
- Improved response rates: although for reasons which will be discussed in the next section, there are difficulties in calculating the response rates for web-based surveys, it has been found that online surveys can indeed increase

response rates for specific target populations (Hallam 2007). Unlike email surveys, a web-based survey can provide better assurance of anonymity and, therefore, the chance of higher response rates. In email surveys, the recipient's email address is attached to the response and this may contribute to the lower response rates (Granello & Wheaton 2004).

- Faster data processing: in internet-based surveys, responses are in electronic format and have been pre-coded. Automatic data entry in which responses can be directly sent to or saved in databases or spreadsheets, can help eliminate potential errors in data entry.
- Improved quality of response: there is a growing body of evidence that online surveys produce higher response quality than some offline methodologies (Gunter et al. 2002). The interactive features of web-based surveys have been found to lead respondents to engage more than they would with standard self-completion questionnaires. This has, in turn, led respondents to complete more items, make fewer mistakes, give longer answers to open-ended questions, and disclose more about themselves and, therefore, yield richer responses than in offline methods (Gunter et al. 2002). It has been argued that because of the anonymity of the process in online surveys, the answers are likely to be less influenced by the desire to please or to be seen in a good light (Gunter et al. 2002).

3.2.2 Review and pre-test

In the middle of February 2005, the questionnaire was pre-tested and evaluated by a random sample of leading LIS scholars in Australia, New Zealand, the United Kingdom, Ireland, and the United States. Although they suggested some changes to the structure of questionnaire and order of questions, very little in the way of major changes was suggested. Their feedback was incorporated into the final version of the questionnaire.

3.2.3 Survey design and questions

A brief introduction, providing full details of the research (its purpose and anticipated outcomes), information about the researcher (affiliation, supervisor, contact details for further information) and the approximate length of the time that it would take to complete was located on the top of the questionnaire.

The use of both closed and open-ended questions provided respondents with the opportunity both to respond to specific questions and to add additional information as

they desired. For the closed questions, dropdown boxes, radio buttons and check boxes were employed.

Two kinds of scales were used in designing the questions. They were: non-metric scales including nominal (age, gender, country, occupation, qualification and Yes/No questions) and ordinal scales (Likert scales indicating level of agreement and level of importance) to measure respondents' perceptions. The literature review served as a foundation for selecting questions for the survey. The questionnaire was divided into five sections (ten questions in total). Branch questions applied for each section. The details of each section of the questionnaire were as follows:

General perceptions and attitudes toward knowledge management

The first section sought responses with regard to general attitudes and opinions about KM. This section covered the following issues:

- perceptions and awareness of KM among LIS professionals (definitions of KM, if they regarded it as having the potential for longevity, its relation to IM, its place in organizations);
- the benefits of KM for libraries and LIS professionals;
- the role of LIS professionals in KM; and
- attitudes of LIS professionals towards KM.

To reflect the spread of responses to the foregoing questions, Likert scales were employed. In these a weighting of '5' was assigned to the answer 'strongly agree' and a weighting of '1' to the answer 'strongly disagree'.

Required competencies for knowledge management practice

The purpose of this section was to investigate LIS professionals' perceptions of the competencies required for KM. The data obtained from the literature review were collated and summarized into an initial list of required skills and knowledge for KM practice. The most frequently cited required competencies for KM practice that were extracted from the literature included:

- leadership skills
- communication and networking skills
- change management skills
- ability to use information technologies
- project management skills

- creative thinking
- information and document management skills
- team working skills
- decision making skills

Respondents were asked to show their perceived level of importance for each of the above competencies for KM practice using seven-level Likert scales (from 1 for unimportant to 7 for essential).

KM and LIS education

- what are the perceptions of LIS professionals concerning the potential inclusion of KM in LIS curricula?
- what is the rationale for proposed changes in LIS education with respect to KM?
- what are the implications with regard to appropriate course content?

KM practice by libraries

The purpose of this section was to gather evidence for libraries' involvement in KM practice. Respondents were asked if they were aware of any KM projects or developments in libraries or in which the library participated.

Demographic questions

This final section was designed to elicit general information to do with the age, gender, country of residence, job title, level of qualification and the email address of respondents. A predefined response format (for questions regarding age and gender) was used to achieve uniformity of data, and to help to reduce any subsequent workload in data cleaning and processing. A flexible format was employed for questions regarding the jobs and qualifications of respondents, because this open-ended format was considered to be more respondent-friendly and likely to elicit more information in these cases. Although use of the flexible format made it more difficult to analyze data, this disadvantage was offset by the provision of more extensive and richer information than would have been the case with predefined response. Respondents were invited to provide an email address to which, if they requested it, a summary of the survey results would later be sent. The majority of respondents opted to provide their email address. See the survey questionnaire in Appendix 3.

3.2.4 Ethical issues

As with all research proposals in the university, the research proposed for this thesis had to be approved by the RMIT Business Human Research Ethics Sub-Committee. This involved not only obtaining ethical clearance for the survey, but also providing potential respondents with full details of the ethics process and contact details for further information.

The survey population was obtained on the basis of membership of professional email lists owned by LIS groups around the world. Once the relevant lists had been identified, the researcher contacted the list owners by email seeking their permission to link the online survey to the list. This resulted not only in a positive response from list owners, but also in additional credibility to the survey because the researcher could assure potential respondents that official approval had been obtained from these authoritative sources. See the sample email in Appendix 1.

3.2.5 Pilot testing

Pilot testing of a data collection instrument is a critical step in a research process, because it helps to avoid errors and improve research validity. The questionnaire was piloted to test the clarity of wording, and to shed light on potential issues of interpretation and acceptance of the questions. For the pilot test, the survey was sent to the Middle East Librarians Association (MELA) mailing list. This mailing list was chosen for this purpose in order to check for changes of perception even though many members of MELA are found to live and work outside the Middle East. The pilot test resulted in a number of changes chiefly to improve clarity and to simplify certain questions.

Another goal associated with pilot testing of electronic surveys is that of reducing the number of unforeseen technical problems (Granello & Wheaton 2004). This was approached through submitting the survey through a variety of computers and internet connections, using different browsers and including all possible versions on different platforms (e.g., MacIntosh and Windows), and by seeking help from technical experts.

3.2.6 Survey participants

In preparation for conduct of the survey, the researcher assessed the relative merits of using a survey population obtained by random sample and, alternatively, of basing the exercise on as complete a response as possible from members of established and relevant groups. As the LIS professions are relatively coherent in terms of organization

and operation on the basis of clearly-defined interest groups, it was decided to opt for potential completeness rather than for random selection.

The main research population for this thesis initially comprised subscribers to two international LIS mailing lists, namely: IFLA-L (International Federation of Library Associations general mailing list) and KMDG-L (IFLA's Knowledge Management Section Mailing List). IFLA is the best-known international association in the LIS field, and the IFLA-L mailing list is the most general and the third largest (with nearly 2,000 subscribers at the time of the survey) of all IFLA mailing lists. In the selection of KMDG-L (IFLA's specific mailing list for KM), it was thought that people who were members of specific (in this case KM) interest groups would be more likely to respond to the questionnaire than would members of the general LIS community.

However, some additional and unexpected participants emerged, because these original respondents forwarded the link to the questionnaire to other LIS mailing lists including:

- ALISS discussion group (Association of Librarians and Information professionals in the Social Sciences)
- AGLIN (Australian Government Libraries Information Network)
- SLA (Special Libraries Association)
- aliaINFOLIT (ALIA Information Literacy Forum e-list)
- aliaAGENDIS (Information services in agricultural and environmental sciences)
- aliaNSWFNC (LIS issues on the far north coast of NSW)

Another unexpected group of participants were health librarians on a KM course in the UK (40-50 persons). Having come across the survey, the course coordinator contacted the researcher and sought permission to involve the class.

The final version of the survey was released during the period 11th of May to 5th July 2005. Potential respondents were sent an email embedded with a hyperlink to the web page where the survey was posted. Respondents completed and submitted the survey electronically through the website. Most responses emerged within the first few days, and in all the survey attracted 371 respondents.

3.2.7 Limitations of web-based surveys

Among the criticisms made of the use of online surveys are two that relate to sampling and data collection. These concerns are: difficulties in calculating response rates and regarding the generalizability of the findings.

Difficulties in determining the response rate

One of the major concerns with online surveys is the difficulty in determining the response rate. Unless the web-based survey uses a sampling method that allows only certain individuals to access the survey, researchers are not able to pinpoint the number of individuals who received the information, and, therefore, they cannot determine a response rate (Schleyer & Forrest 2000, cited in Granello & Wheaton 2004). There were difficulties in calculating the response rate for the present research, due to a lack of control over the sampling frame. As previously explained, participants in the survey were recruited via LIS electronic mailing lists and, with the exception of three mailing lists (IFLA-L, KMDG-L and AGLIN), none of the lists disclose the number of their subscribers. There was also considerable overlap in list membership among subscribers, which made it difficult to determine the size of the research population. In a more positive vein, but still problematic in terms of counting, was the fact that respondents also had the facility for forwarding the link to the questionnaire to other people who might have been interested in the topic. For example, one subscriber to the IFLA-L mailing list sent the questionnaire link to three different ALIA mailing lists. Accordingly, no attempt was made to work out a response rate for this survey. Instead, the alternative approach of reporting the total number of responses was adopted. According to Zhang (2000), the calculation of response rates in web-based questionnaires can often be difficult owing to difficulty in determining the size of a sample. In some circumstances this has led, not to the reporting of a response rate but rather, to reporting simply the number of responses.

Difficulties in obtaining a representative sample

There are general concerns that the sampling techniques used in web-based surveys can result in self-selection by respondents. This can impact on the level of potential bias in responses, on the overall validity of the survey, and the generalizability of the findings. For research questions which seek the responses of people in general, online surveys run the risk of failing to reach representative samples. However, this is less problematic in the context of interpretative research – like the present research – where purposive sampling of special groups was the objective. The aim of qualitative research, where purposive sampling tends more often to be applied, is to understand

how individuals make sense of the world around them, but not necessarily to establish whether such perceptions are normative (Savage 2001, cited in Gunter et al. 2002). In this instance, generalization of findings to the greater population may not be as important as gaining an understanding of how certain types of people respond to particular questions, and the ways they articulate their answers (Gunter et al. 2002). It was more concerned that the means by which the survey population for this research was obtained might result in bias towards the inclusion of a particular type of LIS professional, in this case of people with an interest in KM.

One approach adopted to help overcome this problem was to rely on minimizing sampling bias by obtaining an extremely large sample. As pointed out above, this was attempted by employing both the IFLA-L and the IFLA KMDG-L mailing lists. In selection of the KMDG-L (IFLA's specific mailing list for KM) it was thought that people who were members of specific (in this case KM) interest groups would be more likely to respond to the questionnaire than would members of the general LIS community.

3.2.8 Data management and analysis

Quantitative data obtained from answers to the closed questions were sent to a Microsoft Excel file and then were transferred to SPSS. Data analysis then was conducted with the SPSS 13 program. Participants were provided with the opportunity to review a draft of summary of findings.

The qualitative data obtained from answers to the open-ended questions were categorized based on research questions and then analysed qualitatively.

3.3 Methodology phase 2: Interviews

As the research orientation was interpretive rather than positivist, a qualitative approach was employed for the second phase of the research. In addition, knowledge management by its nature involves tacit knowledge, which can be extremely difficult to identify let alone quantify. Therefore, using interviews as a qualitative research method was appropriate for the topic. The primary advantages of qualitative interviews are the flexibility they offer and the rich, detailed data they can provide. An in-depth interview is the most frequently utilized instrument for data gathering in qualitative research (Marshall & Rossman 1999; King 2004).

In-depth interviews are often employed as part of an exploratory study, such as this one, where the researcher is attempting to gain understanding of the area, and to develop theories rather than test them (Minichiello et al. 1995). As Denzin points out:

> the researcher is led to seek out subjects who have experienced the types of experiences the researcher seeks to understand. The subject in the interpretive study elaborates and further defines the problem that organizes research. Life experiences give greater substance and depth to the problem the researcher wishes to study (Denzin 1989, p.49).

Qualitative researchers generally adopt the inductive approach by studying reality first, and then developing appropriate theories. In this case, the interviews employed were designed to gain a rich understanding of the practices, perspectives, issues and concerns of LIS professionals actively engaged in KM activities. These interviews were not intended to 'prove' anything. Rather, the 'results' were intended to be used to explore, understand and describe any theme emerging in the relationship between the LIS profession and professionals and knowledge management.

3.3.1 In-depth, semi-structured interviews

In-depth, semi-structured interviews, including both face-to-face and telephone interviews, were employed in the second phase of the present project. Semi-structured interviews offer a significant advantage for an exploratory study such as this one, because they allow the researcher to follow interesting tangents of data or themes that may not have been anticipated before the interviews. Interviews were in the main conducted over the telephone, with the exception of three that were held face-to-face. Telephone interviewing was chosen because most participants resided in countries other than Australia, or in other cities in Australia rather than in Melbourne. Sturges and Hanrahan (2004, p.107) claim that telephone interviewing can be used productively in qualitative research, and that no significant difference is to be found between the outcomes of face-to-face and telephone interviews (Sturges & Hanrahan 2004). Sturges and Hanaraham's suggestion is particularly applicable in a research project like this one, when expression and elaboration of opinions and feelings are more important than the observation of body language.

3.3.2 Interview questions

The interview questions were based on a broad review of the contemporary literature, and also on reflections on the answers to the questionnaire survey in the first phase of the research.

The interview questions were designed to be as open as possible. They ranged from the general to the specific. The point of interviews was less a search for comprehensiveness in response, than an attempt to obtain insights into relevant

issues (Thomas 2003). The major questions were as follows, with each major comprised of additional and more specific sub-questions.

- What is your perception of KM?
- What preparations are necessary for LIS professionals to migrate into knowledge management roles?
- In your opinion, what contributions can LIS professionals make to knowledge management?
- What do you think has contributed to your success as a knowledge manager?

3.3.3 Selection and description of participants

Participants for the interviews were recruited mainly from respondents to the survey. However, two of them were identified through the networking of researcher's supervisor. Those survey participants who reported their occupation with descriptions which assumed a leadership role in KM were noted, and asked if they would take part in an interview. Their job titles included those of Knowledge Manager, Director of Libraries and Knowledge Resources, Head of Library Services and Knowledge Management, and Vice Principal Knowledge Management. Before contacting potential participants, the internet was searched to gain more information regarding their experience of involvement in KM. Potential participants then were contacted via email and telephone, and eleven people agreed to give interviews. Although this was not a particularly large number of interviewees, it met accepted levels for interpretive research which typically involves the study of a small sample, a dozen, for example (Neuman 2003).

Because of the time differences between Australia and other regions, special care had to be taken to choose a time convenient for both interviewer and interviewee. Interviews were scheduled over several weeks and lasted from twenty minutes to more than an hour. The eleven in-depth semi-structured interviews were conducted over the two month period (July-August 2006)

3.3.4 Ethical issues

Before the interviews could be conducted, formal approval had to be obtained from the RMIT Business Human Research Ethics Sub-Committee.

With RMIT university ethics guidelines in mind, the participants were first contacted via email with a plain language statement attached (see Appendix 2). The purpose of that statement was to provide participants with information on key matters including the

background of the researcher, the nature and objectives of the research project, the right of the participants to confidentiality and to withdraw at any time and to emphasize that the participation was voluntary.

At the beginning of each interview, participants were asked if they were willing to allow the proceedings to be recorded. All of them agreed that the interviews could be recorded.

To facilitate the reporting of participant responses, the transcript of each interview was assigned a code. To comply with the RMIT ethics guidelines, the names of the organizations were changed. The participants' names, contact details and titles were also omitted in order to protect the confidentiality of the participants. As a consequence, 'p1' represented Participant 1, and so forth, and the numerical order followed was not indicative of the interview chronology.

All electronic copies of the interviews and transcriptions were stored in a safe place to protect the confidentiality of the participants.

3.3.5 Interview limitations

In contrast to positivism's emphasis on the generalizability of findings, interpretive research seeks a relativistic understanding of phenomena. Generalization from the content to a population is not sought. The focus is on achieving a deeper understanding of the phenomena. Only a relatively small sample of information professionals was interviewed, although these came from very different organizations and were all 'leaders' of KM in their organizations. Despite the credentials of the interviewees, the results of these interviews could not really serve as the basis for generalization. However, their perceptions and experience could be seen to be relevant to those of similar professionals and organizations elsewhere (Walsham 2002).

3.3.6 Data management and analysis

To ensure the accuracy of data collection and subsequent interview transcription, a digital recorder was used to record conversations for all interviews. Interviews were transcribed and each was filed in a Microsoft Word document. All participants were provided with a copy of the transcript of their interview to enable them to check for accuracy and to add any additional comments if they desired.

Qualitative data collected in interviews, as well as those obtained in the form of additional comments to open-ended questions in the survey were analyzed qualitatively.

At the first stage of analysis, all data collected were categorized. When categorizing, a passage of a text that exemplified an idea or concept was identified, and it was then connected to a subject category that represented that idea or concept. Categories were words or nomenclature representing topics and patterns. The researcher developed five main categories in regard to research questions. Each category had some sub-categories.

Chapter 4
Findings

The findings have been presented in five sections, each associated with a research question. Demographic data about research participants has been reported in a separate section.

In each section, the findings from the questionnaire have been combined with data from interviews. The result has been compared with the literature whenever appropriate.

Each section of the questionnaire included sufficient space where those who had additional or different point of views could add additional comments.

Where there were numerous relevant comments from the questionnaire and/or interviews to a topic these have been summarized in tables for ease of reading.

For ethics purposes the name of organizations and individuals were removed when presenting data.

4.1 Demographic data

4.1.1 Survey participants

Response rate

It is customary in reporting the results of surveys to begin by citing the response rate. However, due to the problems mentioned in the methodology section, it was impossible or at least very difficult to obtain the response rate for this study. According to Zhang (2000), the calculation of response rates in web-based questionnaires can often be difficult owing to difficulty in determining the size of a sample. In some circumstances, this has led, not to the reporting of a response rate but, rather, to reporting simply the number of responses.

The total number of useable, fully completed questionnaires was 371.

Country of residence

The overwhelming body of responses to the surveys came from professionals in English-speaking countries, which was probably a reflection of the earlier take-up of knowledge management in those countries, and the higher levels of engagement with the issues concerned.

The majority of respondents (62.5 per cent) were from Australia, USA and UK. They were followed by South Africa (9.2 per cent), New Zealand (5.7 per cent), Canada (3.2 per cent), Mexico (1.9 per cent) and India (1.3 per cent) respectively. The response from other countries ranged between one to three responses (see table 4.1).

Table 4.1 Country of residence of respondents

		Frequency	%	Valid %	Cumulative%
Valid	Australia	87	23.5	23.8	23.8
	USA	83	22.4	22.7	46.4
	UK	62	16.7	16.9	63.4
	South Africa	34	9.2	9.3	72.7
	New Zealand	21	5.7	5.7	78.4
	Canada	12	3.2	3.3	81.7
	Mexico	7	1.9	1.9	83.6
	India	5	1.3	1.4	85.0
	Others	55	14.8	15.0	100.0
	Total	366	98.7	100.0	
Missing	System	5	1.3		
Total		371	100.0		

Gender

Of the respondents, 81 per cent were female, which is perhaps not surprising due to the gender structure within the LIS profession (see table 4.2).

Table 4.2 Gender of respondents

		Frequency	%	Valid %	Cumulative %
Valid		5	1.3	1.3	1.3
	Female	300	80.9	80.9	82.2
	Male	66	17.8	17.8	100
	Total	371	100	100	

Age group

The majority of respondents (80 per cent) were between 36 and 55 years-old (see table 4.3). As indicated in table 4.3, the number of participants increased as the age of the respondents increased; from under 25 years-old with 4.1 per cent to 46-55 year-old with 30.3 per cent.

Table 4.3 Age groups of respondents

		Frequency	%	Valid %	Cumulative%
Valid	Under 25	15	4.0	4.1	4.1
	25-35	88	23.7	23.8	27.8
	36-45	98	26.4	26.5	54.3
	46-55	112	30.2	30.3	84.6
	56-65	51	13.7	13.8	98.4
	Over 65	6	1.6	1.6	100
	Total	370	99.7	100	
Missing	System	1	.3		
Total		371	100		

Occupation

The open-ended question asking about respondent's occupation sought to identify as wide a spread as possible of LIS professionals' job titles all around the world. All respondents' job titles were categorized into seven broad groups. These are summarized in table 4.4. More than 60 per cent of respondents were practicing librarians.

A content analysis of the job titles of respondents employing the keywords of library, librarian, information and knowledge showed that 162 people (52 per cent) expressed their occupation as 'librarian'. The word 'library' featured in the position title of 72 (23.15 per cent) participants (see table 4.5).

Qualifications

As is clear from table 4.6, about half of the respondents held Masters degrees in LIS and related fields (including knowledge management). More than 35 per cent of respondents held Bachelors degrees in LIS and related fields. Therefore, it can be said that the majority of respondents (about 80 per cent) were LIS qualified.

Table 4.4 Occupation of respondents

		Frequency	%	Valid %	Cumulative %
Valid	Practicing librarians	227	61.2	61.9	61.9
	Practicing information professionals	46	12.4	12.5	74.4
	LIS educators	19	5.1	5.2	79.6
	Students in LIS courses	9	2.4	2.5	82.0
	Doctoral students and researchers	11	3.0	3.0	85.0
	Practicing KM professionals	24	6.5	6.5	91.6
	Others (non LIS jobs)	31	8.4	8.4	100
	Total	367	98.9	100	
Missing	System	4	1.1		
Total		371	100		

Table 4.5 Content analysis of respondents' job titles

Keyword	Frequency	%
Librarian	162	52
Information	54	17.36
Library	72	23.15
Knowledge	23	7.39

Table 4.6 Highest level of qualification of respondents

		Frequency	%	Valid %	Cumulative %
Valid	Masters degrees in LIS and related fields	166	44.7	45.7	45.7
	Master degrees in non LIS fields	13	3.5	3.6	49.3
	Undergraduate degrees in LIS and related fields	129	34.8	35.5	84.8
	Undergraduate degrees in non LIS fields	13	3.5	3.6	88.4
	PhD, Doctorate	38	10.2	10.5	98.9
	Others	4	1.1	1.1	100
	Total	363	97.8	100	
Missing	System	8	2.2		
Total		371	100		

4.1.2 Interview participants

Participants for the interviews were recruited mainly from the survey. Survey participants who reported their occupation with descriptions which identified a leadership role in KM were noted and asked if they would take part in an interview. Eleven people agreed to give interviews.

Job titles of interviewees

Their job titles included those of Knowledge Manager, Director of Libraries and Knowledge Resources, Head of Library Services and Knowledge Management, and Vice Principal Knowledge Management.

Among the eleven participants, five were from universities, three from government bodies and three from corporate environments.

Country of residence of interviewees

Regarding the country of residence of participants, two were from the USA, three from the UK, four from Australia, one from Belgium and one from South Africa.

Age groups of interviewees

Of the participants, six were in the age group of 36-45 years-old, two in the 46-55 range, two in the 56-65 range and one did not disclose his age.

Gender of interviewees

This interview population consisted of nine females and two males.

Qualifications of interviewees

The details of qualifications held by participants were as follows:

- Professional library qualification, plus an undergraduate degree in business and a Masters degree in public administration.
- Graduate Diploma in Business Administration.
- Bachelor of Jurisprudence/law degree plus post-graduate studies in librarianship.
- BA in education and postgraduate studies in librarianship.
- Masters Degree in Library and Information Science.
- BA in Librarianship (two participants).
- Masters degree in LIS (two participants).
- Masters degree in LIS, plus PhD in organization and management.

One of the participants did not disclose her qualifications.

4.2 Perceptions of KM held by LIS professionals

4.2.1 Introduction

One of the objectives of the present research was to explore perceptions of KM among LIS professionals. The first part of the questionnaire was allocated to this topic and was comprised of three questions. The first question addressed definitions of KM; the second sought responses to a series of statements about KM and its relationship with LIS; and the last question sought to assess the perceptions of LIS professionals as to the most effective location for the KM function within organizations. These were all closed questions, but respondents were invited to add additional comments if they desired. In an attempt to enrich the findings of the questionnaire, data on the perceptions of KM among LIS professionals were also sought through in-depth interviews with LIS professionals who had attained leadership positions in KM. These findings from the questionnaire and the interviews were triangulated with material drawn from the literature.

4.2.2 Definitions of knowledge management

The first question addressed the definition of knowledge management. The researcher drew upon a wide range of what were often very different definitions of knowledge management, before selecting a group that offered the most likely combination of diversity and relevance to the LIS environment. Respondents were asked to choose from five definitions of knowledge management, or if they preferred to provide their own definition. It was believed that gaining an understanding of concepts of KM among LIS professionals would help the researcher to investigate more effectively the implications of KM for the LIS professions. As shown in table 4.7, more than half of the respondents chose option ‘b’ which described knowledge management as:

> The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, and organized for the benefit of the organization and its customers.

Table 4.7 Which definition of KM do you find most acceptable?

Knowledge management definition	Frequency	%	Valid	Cumulative %

			%	
Valid	10	2.7	2.7	2.7
a) The acquisition, sharing and use of knowledge within organizations, including learning processes and management information systems.	93	25.1	25.1	27.8
b) The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organized for the benefit of the organization and its customers.	195	52.6	52.6	80.3
c) The process of capturing value, knowledge and understanding of corporate information using IT systems in order to maintain, re-use and re-deploy that knowledge.	22	5.9	5.9	86.3
d) The capability of an organization to create new knowledge, disseminate it and embody it in products, services and systems.	17	4.6	4.6	90.8
e) The use of individual and external knowledge to produce outputs characterised by information content and by the acquisition, creation, packaging or application and reuse of knowledge.	21	5.7	5.7	96.5
f) Other (please explain if you have a preferred definition).	13	3.5	3.5	100
Total	371	100	100	

It is worth pointing out that this particular definition does not mention the management of knowledge per se but, rather, management of the organizational environment. By implication, knowledge itself cannot be managed. The focus here would be on a knowledge environment characterized by *intangibles* (people, culture and relationships) and on the overall goals of particular organizations. The fact that more than half of the respondents chose this particular definition might well indicate some degree of maturation in the mindsets of LIS professionals with regard to knowledge management. LIS professionals have not as a rule paid much attention to such concepts as intangibles, and research for this thesis still points to a certain tardiness on their part in getting to grips with business goals within their parent organizations.

The second most popular choice (25.1 per cent) was option ‘a’, which defined knowledge management as:

> The acquisition, sharing and use of knowledge within organizations, including learning processes and management information systems.

This definition focuses heavily on the use of technology and ignores such considerations as organizational goals.

The remaining three definitions appealed in total to less than 6 per cent of the respondents. It is worth noting that this definitional question resulted in a particularly high response, with only 2.7 per cent of the participants failing to answer it. This might be taken to indicate that the majority of respondents felt sufficiently knowledgeable about knowledge management to answer the question. Some 3.5 per cent of respondents suggested their own definitions of KM, a list of which is provided at the end of this chapter. The diversity of viewpoints contained in these definitions was matched by what appeared to be an absence of any holistic view, or one that took account of larger organizational goals. Not surprisingly, as the following comments indicate, a number of respondents found KM to be problematic and, therefore, difficult to define:

> I don't think there's a clear definition that everybody understands, so what one person thinks is knowledge management, somebody else might think is something else. So, as a term, I find it problematic, because I don't really know what people are talking about when they say knowledge management.

> Knowledge management is one of those terms that means a lot of different things to a lot of different people.

4.2.3 Attitudes toward knowledge management

In this section, respondents were asked to show their level of agreement or disagreement with certain statements about knowledge management, using a five-point Likert scale. These statements were based on the literature. There was some overlap in the questions, which enabled the concepts to be approached from different perspectives. What follows here is a report on those statements .The responses to this question are reproduced in summary form in table 4.8. In order to add to the data on levels of agreement/disagreement with these statements, information emerging from interviews is included here, along with relevant comments drawn from open-ended questions asked elsewhere in the questionnaire.

Table 4.8 Percentage of agreements/disagreements with the statements in section 2 (What has been reported in this table are only some of the responses to certain statements in the first section of the questionnaire. Other statements have been discussed in relevant sections of findings of other chapters.)

	strongly disagree	disagree	don't know	agree	strongly agree	overall (mean)[9]
a) KM is just another management fad.	16.9	47.8	15.0	16.4	3.8	disagree
b) KM is a new term for what LIS professionals have always done.	3.0	35.3	2.7	46.5	12.5	don't know
c) KM promises much but is slow to deliver.	.8	24.0	24.3	44.1	6.8	don't know
d) It is hard to tell the difference between IM and KM.	5.5	47.4	3.6	35.6	7.9	don't know
e) KM can provide new career options for LIS professionals.	.3	2.4	10.0	61.5	25.7	agree
f) KM is a threat to the status and future of the LIS professions**.**	24.7	54.3	12.2	7.6	1.1	disagree
g) KM has increased job opportunities for LIS professionals.	1.1	7.7	26.0	49.7	15.6	agree
h) KM can help LIS professionals move from being service-oriented to being value-oriented.	1.1	8.7	23.3	50.1	16.8	agree
I) KM is essentially a management phenomenon.	10.9	50.0	16.6	20.4		don't know
j) LIS professional bodies should make promotion of KM a priority.	2.6	12.6	28.7	44.8	11.3	agree

Interpretations of table 4.8

Based on the data in table 4.8 the following interpretations have been made:

a) KM is just another management fad

As shown in table 4.8, nearly 70 per cent of respondents disagreed (combining the options disagree and strongly disagree) with the statement that knowledge

[9] The researcher designed the following scoring system for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44= strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don't know; 3.45 to 4.44= agree; 4.55 to 5= strongly agree.

management was just another management fad. There is support for this viewpoint (that KM is not just another management fad) in the literature. For example, Koenig (2005) compared the publication patterns in knowledge management with those for previous management trends such as total quality management (TQM) and business process reengineering (BPR) and found that unlike these others, the volume of knowledge management publications did not decline dramatically after a five-year period. Therefore, he argued, knowledge management was not a fad (Koenig 2005). One of the interviewees had this to say on the subject:

> It's interesting to hear some people say that it's just a fad, a bit like quality management. I don't think that's true. If you look around to what universities are trying to achieve now, they're trying to get people to collaborate more, to not duplicate information across organizations, they're trying to get people who will mentor people into better practice in learning, it's all about knowledge management, and it just doesn't have a name attached to it.

b) Knowledge management is a new term for what information professionals have always done

It is interesting (although perhaps not altogether surprising) that 59 per cent of respondents agreed with the statement (combining the options of *agree* and *strongly agree*) that knowledge management was basically a new term for what information professionals had always done. Typical was an additional comment from one respondent to the questionnaire who added:

> I don't like the term knowledge management. I think what you really mean is called information management. Information consists of external data that can be objectified, measured, analyzed and managed.

There is support for this view in the literature. Davenport and Cronin (2000) for instance have argued that an analysis of the information science literature would place KM essentially within traditional information science frameworks, with just an additional attention to the conceptual and organizational dimensions. Hence: 'We would of course recognize "KM" as librarianship, or at least as an extension of "librarianship" – but unfortunately the business community does not recognize that essential identity' (Koenig 1996, p.299).

In the following comments to the questionnaire, the ownership claims for KM are clear:

> Find a way to help everyone understand KM and understand what LIS professions do and how the roles are interlinked. It seems that a lot of people

> see them as two separate things and LIS professionals are missing out on jobs aimed at KM managers.
>
> Librarians have been fulfilling a type of KM role for decades not simply an information role. Managers seem to have become increasingly aware of the importance of knowledge within organizations over the last decade or so, and have dignified such knowledge acquisition/use with the term 'KM'. I am skeptical that the KM term is any different from past usage of knowledge by librarians and personnel in other areas.
>
> Both fields have many similarities, except KM is viewed from the business perspective while librarianship is always thought to be traditional.
>
> Often we are saying the same thing using different jargon.

Some participants perceived KM as an extension of LIS. One of the interviewees observed:

> It [knowledge management] is a natural progression of librarianship. One of the things that intrigued me when I was in library school was the fact that we all acknowledge that people will go to other people for their information before they go to the library, but we weren't doing anything about it.

One of the questionnaire participants encouraged LIS professionals to contribute to KM rather than just engage in making ownership claims:

> LIS people have to get over the fact that we have been doing KM for years. What matters is KM is here now. We have a HUGE opportunity to shine in our organization. We have to reprioritize our current workloads and give up some of our comfort areas. A KM project in an organization means you have to get up from your desk and actually interact with people in their environment. You have to be willing to argue and stand your ground.

Debate seems likely to continue as to whether knowledge management is librarianship or information management under another name (Koenig 1997; Wilson 2002). However, a dominant view in the literature sees IM as a sub-system of KM processes. (Choo 1998; Owen 1999; Butler 2000; Abell & Oxbrow 2001; Al-Hawamdeh 2002; Bouthillier & Shearer 2002). In this context, Middleton (1999) described knowledge management as a combination of information management (IM) for managing the documentary form, and human resource management (HRM) for managing the expression of knowledge.

c) Knowledge management promises much but is slow to deliver

More than half of the respondents agreed with this statement (combining the *agree* and *strongly agree* options) that knowledge management promises much but is slow to deliver in terms of outcomes. Dealing with intangibles makes it hard to have quick results through KM. For example, creating a knowledge sharing environment requires changing peoples' mindsets and attitudes, which itself takes a long time. Among remaining respondents, some 24.8 per cent disagreed with the statement. A total of 24.3 per cent of respondents replied that they did not know, possibly because they had difficulty in understanding the meaning of the statement.

d) It is hard to tell the difference between information management and knowledge management

A total of 52.9 per cent of respondents disagreed with the statement that it is hard to tell the difference between information management and knowledge management. However, 43.5 per cent agreed, indicating the presence of a considerable amount of confusion when it comes to being able to make a distinction between knowledge management and information management. The following comments to the questionnaire are relevant:

> Stop inferring that there is a great difference between the two concepts. They are in fact quite similar, with KM a combination of library and record management skills.

> LIS has failed to make the distinction between knowledge and information – a huge mistake.

It may well be that a lack of awareness among LIS professionals of the differences between KM and IM could act so as to inhibit their potential contribution to KM. One participant in the questionnaire commented:

> Librarians are often adaptable enough to move into KM but they need to understand that it is not information management and I do not think librarians are good (necessarily) at managing the ambiguity demanded by this role.

As it happens, the problem is not so marked in the literature. Among the clear and useful distinctions between knowledge management and information management to be found are:

> Knowledge management is working with people; information management is working with objects;

> Unlike information management, knowledge management deals with unstructured/tacit knowledge (Koenig 1997; Schwarzwalder 1999);
>
> Learning is a fundamental component of knowledge management, but not of information management (Gandhi 2004);
>
> Knowledge management requires information – not only from external resources – but also concentrates on acquiring internal information, not so information management (Koenig 1997; Gorman 2004); and
>
> Unlike in knowledge management, there is little emphasis on knowledge creation and knowledge sharing in information management (Davenport 2004).

Nonetheless, within the LIS literature there is a strong element that, while accepting that IM is an essential component of KM, would regard the latter as being both broader in scope and different to library and information management, owing to its concern with management and with organizational issues, including an emphasis on less tangible and elusive resources like human expertise (Broadbent 1998; Loughridge 1999; Bouthillier & Shearer 2002; Gandhi 2004). Another key distinction between KM and IM lies in their different goals. The success of KM depends on the capture, sharing and use of knowledge. However, the ultimate goal of an IM project is achieved when the preservation and the retrieval of information is guaranteed. (Martensson 2000, cited in Bouthillier & Shearer 2002).

e) Knowledge management can provide new career options for library and information professionals

A total of 87.2 per cent of respondents perceived that knowledge management could provide new career options for library and information professionals. Only 2.7 per cent of participants disagreed with this statement. Put differently, this would appear to indicate that a majority of LIS professionals surveyed believed that knowledge management was beneficial in that it could lead to expanded job opportunities for LIS professionals. One of the obvious benefits perceived is the potential for an increase in salary by moving to a KM position. As one of the interviewees observed in the context of such a change of position:

> Even the technicians who came to us from the X and she got real – we all got our salaries reviewed this week, and she was like, oh, this is so good, I'm so excited, compared to if I was still a librarian at the X, I would be just on this salary, and I'm at the top of my career, you couldn't go any higher and I think it has got to do with the knowledge management connection that we have.

f) Knowledge management has increased job opportunities for library and information professionals

Some 65.3 per cent of respondents agreed that knowledge management had increased job opportunities for library and information professionals. A relatively high percentage (26 per cent) of respondents was unable to comment on this statement, possibly owing to a lack of individual awareness of and/or a lack of opportunity for participation in knowledge management initiatives. Nevertheless, there is little in the LIS literature to indicate that LIS professionals have engaged to any significant extent in organization-wide KM activities, or that they have seized the new opportunities that KM presents. Among participants in the present research project, only 24 respondents to the questionnaire (6.5 per cent of all participants) had position titles that included the word *knowledge* . This point has been discussed in depth in another chapter of the thesis.

g) Knowledge management is not a threat to the status and future of the LIS

Almost 80 per cent of respondents disagreed with the statement that KM is a threat to the status and future of the LIS.

h) Knowledge management is essentially a management phenomenon

Of the respondents, 61 per cent disagreed with the statement that KM is essentially a management phenomenon. While clearly linked to individual perceptions of KM, this result could be cause for concern if it signaled any future lack of interest in the obtaining of management skills and qualifications on the part of LIS professionals. Such a development would clearly mitigate against their involvement in KM, and could represent a failure to make the most of the opportunities likely to become available.

i) Knowledge management can help library and information professionals move from being service-oriented to being value-oriented

Some 66.9 per cent of respondents agreed that knowledge management can help make library and information professionals make the transition from being service-oriented to being value-oriented. Once again, moreover, there is ample support for this perspective within the professional literature. For example, Loughridge suggests that librarians should shift away from their service orientation to involvement in decision-making and strategy formulation partnerships in order to enter the knowledge management domain (Loughridge 1999). It is worth making the point that the main thrust of this question was towards a change in the balance of activities, and did not

imply the need for abandonment of the service ethos. One respondent to the questionnaire clearly took this point:

> Library professionals should not only focus on being service providers but go to the extent of being value oriented. They should engage themselves in researching information and ideas that will not only improve their service but also give value to the profession.

j) LIS professional bodies should make the promotion of knowledge management a priority

A total of 56.1 per cent of respondents agreed with the above statement. This is interesting in view of the fact that leading professional bodies are already engaged in the promotion of KM and have been for some time. Knowledge management has featured as a topic at many library conferences, and it now has formal status as the 47th section of the work of the International Federation of Library Associations (IFLA). IFLA and other LIS professional bodies (including SLA and ALIA) have promoted KM from its beginning and have been concerned about the role of the LIS professions in KM. What would appear to be a more important issue is that of the need for promotion of LIS skills for KM practice, something which may be the responsibility of individual LIS professionals themselves. As one of the interviewees observed:

> Anytime I go out and speak at a conference, and I've been to several, as an invited speaker, I emphasize the fact that I have a library background, and anybody that's getting involved in knowledge management needs to have a librarian as part of that team.

One of the respondents to the questionnaire had an alternative proposal for the promotion of KM skills within LIS:

> It could be a database with best practices of successful KM initiatives conducted by library and information professionals. I think that such BP database could show LIS professionals how they are important for KM and how they can raise their role in KM.

Comparing responses to the statements in section 2 of the survey questionnaire according to the age groups and country of residence of respondents

To investigate if there was any difference between responses according to the age of respondents and their country of residence, two of the statements which seemed to be potentially most controversial were tested. The comparison was based on the mean of responses to each statement. It is worth noting that respondents to the questionnaire

were not representative of all LIS professionals and, therefore, that the results of these comparisons can not be generalized.

In table 4.9, peoples' responses to the first of these statements about KM are compared based on their age group. The mean score is between 2.20 to 2.59 for the six age groups. As can be seen in the table, the levels of response from four age groups were very similar. Overall, they indicated disagreement with the statement that KM was just another management fad. Those respondents in the age group 46 to 55 years (30 per cent of all respondents) and over 65 (a clear minority by age group) had a different point of view. The mean of their responses emerged as *don't know*. However, as the number of people in each age group was not equal, it cannot be inferred from the results that there is correlation between age and KM perceptions.

Table 4.9 KM is just another management fad

Age	Number of respondents	Mean	Overall selection
Under 25	15	2.20	disagree
25-35	86	2.27	disagree
36-45	97	2.41	disagree
46-55	112	2.59	don't know
56-65	51	2.41	disagree
Over 65	6	2.50	don't know
Total	366	2.42	disagree

Table 4.10 KM is a new term for what information professionals have always done

Country	Mean	Number of respondents	Overall selection
Australia	3.17	86	don't know
USA	3.52	83	agree
UK	3.29	62	don't know
South Africa	3.32	34	don't know
New Zealand	2.95	21	don't know
Total	3.29	364	don't know

The responses of people based on place of residence were also tested, using the five countries from which the bulk of the responses emerged. For this comparison, the second statement 'KM is a new term for what LIS professionals have always done' was tested (see table 4.10). It is interesting that people from the USA exhibited a different point-of-view from those in other countries. However, as respondents to the

survey were not representative of all LIS professionals in each country, it cannot be suggested that there is any correlation between country of residency and KM perceptions.

4.2.4 Perceptions of LIS professionals on the place of knowledge management in the organization

Question 3 of the questionnaire sought to identify the perceptions of LIS professionals on the location of the KM function in organizations. Respondents were given five options to choose from. The first four options were the information technology (IT) department, the human resources department, the corporate affairs department and the library and information unit. The fifth option was posed as an open-ended question to give respondents an opportunity to propose their own suggested location. What follows are the reported findings from an analysis of responses to question 3 of the questionnaire, and also some relevant statements from the interviews.

As shown in table 4.11, more than half of the respondents opted for either the IT department or the library and information unit as being the best location for the KM function. Some 28 per cent of LIS professionals believed that KM should be located in the library and information unit, with almost the same percentage nominating the IT department. Such support for the location of KM in the library and information unit is not surprising, given that respondents were members of LIS community. The topic of KM leadership by libraries is discussed in depth in a later chapter.

Table 4.11 Where is responsibility for KM most likely to reside?

	Frequency	%	Valid %	Cumulative %
Valid	17	4.6	4.6	4.6
Information technology department	103	27.8	27.8	32.3
Human resources department	31	8.4	8.4	40.7
Corporate affairs department	48	12.9	12.9	53.6
Library and Information unit	104	28.0	28.0	81.7
Other (please specify)	68	18.3	18.3	100.0
Total	371	100.0	100.0	

There was considerable support for the location of KM in the IT department. As it happened, respondents to the survey afforded equal importance to the library and information unit and the IT department as potential locations for the KM function. There

is support for this outcome in the literature. KM is a process that has been heavily influenced by the growth and application of computer technology to data and information management. That may be the reason why, traditionally, KM has been located in IT departments. This assertion was partly corroborated by a bibliometric analysis of the field of knowledge management that showed that the field's popularity was largely due to the dominance of information technology applications (Wolfe 2003).

Nevertheless although 28 per cent of respondents believed that KM should be located in the IT Department, there was a strong sense in some quarters that technology should be seen to play a supporting rather than a leadership role. The comments of people calling for a supportive role for IT are summarized below.

> IT often is involved because systems are involved; but rarely do they understand the core business.
>
> It shouldn't reside in IT, but it is most likely to.
>
> A narrow understanding of KM places it in the IT department.
>
> KM leadership should never come from IT, but IT is an important partner.
>
> It shouldn't lie in IT department.
>
> Historically KM projects with an IT focus have failed. The literature is pretty clear on this therefore information professionals need to focus on what they do best and let the literature demonstrate why a KM project does not get run by IT or IT solutions.
>
> There is a belief out there that KM is solely an IT domain because management and dissemination of knowledge utilise this technology. This needs to be dispelled. The professions are not dissimilar, in that both manage information and knowledge for different audiences /purposes and more work needs to be done on recognising the similarities and common practices.

In regard to locating KM in Corporate Affairs departments, 12.9 per cent of respondents voted in favour, and only 8.4 per cent of respondents voted for its location within the Human Resources Department. One of the interviewees explained the reasons for disagreement with locating KM in HR departments in terms of HR's lack of understanding of the organization:

> The people aspect is, but then you're saying that only HR people understand people, which is not strictly true, because if you speak to a librarian about what knowledge people are looking for, and where they look for it, they all have a much deeper understanding of the users' requirements than the HR people, the only place where HR can sometimes play a role is the culture, what the organization's culture is, and where you can play a role, but if you speak to the business units, they have a deep understanding of what their culture is anyway, because you can have an organizational culture, but each business unit in that organization has its own mini-culture as well, and the only people who really know that are actually the people in that business unit.

Analysis of comments to question 3

Respondents were provided with the opportunity to suggest alternate locations for the KM function to those provided in the questionnaire. In all, some 97 respondents (26 per cent) provided responses to this question. Of these, 18.3 per cent suggested other potential locations for the KM function. For ease of exposition these suggestions have been categorized a to c as follows:

a) It is context dependent and depends on the organization

Several respondents mentioned that the location of KM in an organization depends on the organization's structure and culture. Their comments are summarized below.

> Depending on the organization all of the above.

> All of the above, whatever is most appropriate for the organization

> It depends on who first pushed for it within an organization.

> It all depends on the person that brings the concept to the company.

> Wherever management and KM champions think it fits best in the particular organization.

> KM's place in the organization depends upon an organization's understanding of, and commitment to KM as a means rather than an end in itself.

> Totally depends on the individuals and culture within an organization and also depends on how KM is understood within the organization.

> It does not really matter where the responsibility resides, but it really matters who has the budget to run a KM division.

b) Other suggestions for location of the KM function

Other alternative locations proposed for the KM function included:

- Administration
- Strategic planning unit
- Business development
- KM department
- Marketing department
- Research and development
- Line management
- Communication department
- Top management
- A combination of two units/departments with responsibility for KM. For example: HR and IT, HR and library and information, IT and library and information, IT and information management

c) Location within all units/departments

Many questionnaire respondents believed that the multidisciplinary nature of KM required widespread cooperation and, therefore, it should operate across the organization and involve all sections in the organization. Their comments have been summarized below.

> I think that KM must reside in every unit of an organization. The IT department must provide technology support to KM activities. The HR Department could maintain a knowledge map of the organization and stipulate employees to update it. The Library is also very important.
>
> For a working practical KM all sections must cooperate. It is essentially about the flow of knowledge and any restrictions to this are made to the organization's detriment.
>
> All of these departments may have an aspect of information and KM.
>
> It is a hybrid application – quasi management with new skills competencies and content; has business implications; consider it more of an application that can support lots of units. It is difficult to place a value for any of these elements.
>
> Across the board – and if everyone isn't on board nowhere.

In our organization the key to our success was to reside KM among a core group of staff from all areas of the organization (HR admin tech librarian and non-library staff) both from upper management and grass roots. The key was to spread KM throughout the organization.

Pieces of KM reside in each of these departments. The challenge is to bring them together.

I think that HR library and corporate services all approach KM in different but complimentary ways.

The most successful KM initiatives I've come across involve several departments taking joint responsibility.

All of the above. KM should be part of the corporate identity of the organization part of its culture. Part of how it learns, grows and develops or on the reverse side of the coin how it might fail should KM be done badly.

KM should be at the vice president level and should incorporate all departments.

All departments with executive sponsorship.

A combination of the above options. Each has particular competencies that can help add to KM in an organization.

Future leaders in KM will be able to build multi-disciplinary teams that can mobilize knowledge effectively, rather than encourage 'turf wars' between IT – HR – libraries etc.

4.2.5 Discussion and conclusion

From the results of this part of the present research a number of points have emerged with some clarity:

1. LIS professionals involved in this study showed a reasonable level of awareness of KM, with only 2.7 per cent of respondents failing to choose their preferred KM definition. This may be because only LIS professionals familiar with the subject participated in the questionnaire survey.

2. More than half of the respondents chose the same KM definition from the five definitions provided. This can be interpreted as meaning that there is a level of commonality among LIS professionals on what KM means to them.

3. Those KM definitions that most LIS professionals chose or those which they themselves provided showed that their view of KM is broader than what would be embraced by librarianship and information management. This was clear from the breadth of their perspectives, which extended to the consideration of intangibles and human capital.

4. There was very positive feedback as regards attitudes towards knowledge management among the LIS community. Not only did they regard KM as a potentially long lasting phenomenon, but also they saw positive implications for the LIS professions in terms of opportunities for new career options in KM.

5. Although a majority of LIS professionals participating in this research, considered KM as being distinct from IM, there was some level of uncertainty as regards any distinctions to be drawn between KM and information management. For almost half of the respondents, it was hard to tell the difference between information management and knowledge management.

6. Some level of ownership of KM was demonstrated by LIS professionals participating in the research – particularly among those from the USA – with also more than half of respondents believing that KM was something that information professionals had always done. Whereas such a level of response was not to be unexpected given that the respondents were members of the LIS community, it contrasts oddly with the tenor of responses to question 3 of the questionnaire where, when asked to choose a location for the knowledge management operation in organizations, only 28 per cent of respondents nominated the library and information unit.[10]

7. As it happened, respondents to the survey afforded equal importance to the library and information unit and the IT department as potential locations for the KM function. Although this might appear to be a rather curious outcome, it could be explained by the fact that LIS professionals accept that to some extent, the successful implementation of KM is dependent upon competencies in the development and management of IT infrastructures, applications and systems. However, there were cautionary words from some respondents, pointing out

[10] The topic of KM leadership by libraries has extensively be discussed in findings of KM and libraries.

that IT should occupy a strictly supportive (rather than a leadership) position in organizations.

The researcher compared the results of the present research with similar research findings produced by Southon and Todd (2001). Southon and Todd conducted their research among Australian LIS professionals during the period 1999–2000. The present research was conducted five years later in 2005–2006, and involved LIS professionals all over the world. Although the research population was different in these two research projects, it can be asserted that the level of awareness of and commonality in perceptions of KM have increased among LIS professionals. In the earlier research project, it emerged that LIS professionals' views on KM tended to be fragmented, focusing on explicit pieces of the whole – such as technology, knowledge or information objects, or specific information management processes – rather than portraying a more holistic encompassing notion of KM as commonly portrayed in the substantive literature to that date. In addition, their views were often seen in isolation from other functions, processes, divisions and personnel in the organization. However, the results of the present research suggest that LIS professionals are now quite familiar with the subject and that they take a holistic view of KM and see it as being distinct from information management.

4.2.6 Appendix: Alternative definitions of knowledge management supplied by respondents

Here are the preferred definitions of KM provided by LIS professionals. There is a lack of a holistic view and an ignorance of organizational goals in following definitions:

> KM is a process of collecting data, organizing data into meaningful information through categorization and contextualization, validating accuracy of information, matching information to a need (systems or human) through storage or dissemination, validating the applicability of the information to the need, combining information with other information, providing paths to application of the information, evaluating of the application of knowledge after the fact and collecting new data through insights from the application of knowledge.
> [The same respondent provided a shorter definition, as follows]
> Drilling down into complex data deriving meaning applying it to a need and generating additional data.
>
> KM is the generation of knowledge/information, codification of that knowledge and transfer of the knowledge within the organization.

> KM means concepts, methods and technologies with which the organization aims to make sharing, enriching and utilization of knowledge more effective.

> What I see knowledge management as being, is trying to capture institutional knowledge, and nail it down in some kind of tangible way, which is a tricky thing to do.

The following definitions have focused on processes:

> KM is an integrated systematic way of identifying, collecting, organizing, arranging, sharing and dissemination of the intellectual and knowledge assets of organizations for the benefit of all employees so as to achieve organizational objectives.

> KM = actions that are taken for the purpose of increasing and securing the organizations entire body of knowledge. The actions could take various forms: a human interaction with at least one another human or a technical solution …

> KM is the capability of and process by organizations to create, collect, capture value of information which when disseminated, used and understood leads to knowledge and development.

4.3 Knowledge management and LIS education

4.3.1 Introduction

KM has been described as a potential survival factor for the LIS profession and consequently for LIS education. Faced with the need to be relevant in today's knowledge-based environment, LIS schools are in many cases redesigning their curricula in order to accommodate the inclusion of KM. The literature reveals a variety of responses to the need to educate professionals in aspects of KM, and also to provide them with the appropriate knowledge-related skills and capabilities which would facilitate their entry into the KM job market.

To find out the implications of KM for LIS education, the researcher investigated the perceptions of LIS professionals on the role of LIS education in preparing knowledge-literate professionals for the job market. This involved asking the following questions:

- What are the perceptions of LIS professionals as regards the inclusion of KM in the LIS curricula?

- What is the rationale for changes in LIS education with respect to KM?
- What is likely to be the most appropriate course content for KM programs in LIS schools?

The perceptions of LIS professionals on the implications of KM for LIS education were investigated both in a questionnaire and in follow-up interviews. Analysis of the responses to both the questionnaire and the interviews is reported here, and is compared to what is reported in the literature.

One section of the questionnaire was allocated to the topic of KM education. Questions were both closed and open-ended and in some cases employed five-point Likert scales for measuring the level of agreement with statements.

4.3.2 The perceptions of LIS professionals towards the inclusion of KM in the LIS curricula

Respondents to the questionnaire were asked if they agreed that education for LIS must change to accommodate developments in knowledge management. As shown in table 4.12, 81.9 per cent (a high majority) of respondents replied 'Yes' to this question.

Table 4.12 Do you agree that education for LIS must change to accommodate developments in KM?

		Frequency	%	Valid%
Valid	Yes	304	81.9	81.9
	No	45	12.1	12.1
	Missing	22	5.9	5.9
	Total	371	100	100

The importance of including KM in LIS curricula is apparent in the following comments provided by participants in the questionnaire:

> LIS educators need to address the knowledge management phenomenon – when I completed my MLIS in 2002, knowledge management was presented as a fad. My previous (and subsequent) experience proved otherwise. LIS education needs to improve links with practicing knowledge managers business and law librarians if the library profession is to lead in this field. Some serious research is a good start.
>
> I think there needs to be more post-graduate support for Lib professionals who want to move into the broader realm of KM.

4.3.3 The rationale for changes in LIS education with respect to KM

Respondents to the questionnaire were asked to indicate their level of agreement with some statements as rationales for proposed changes in LIS education. The statements and the answers have been summarized in table 4.13.

Table 4.13 Rationale for changes in LIS education with regard to KM

	strongly disagree	disagree	don't know	agree	strongly agree	overall (mean)
a) Mainstream LIS curricula are outdated	0.9	21.9	24.8	38.9	13.5	don't know
b) A more business-oriented curriculum is needed	2.5	16.7	14.8	50.6	15.4	agree
c) Without curriculum change LIS graduates will lose out in the job market	0.6	11.0	19.5	50.6	18.2	agree
d) Mainstream LIS curricula do not equip people with the competencies demanded by KM	0.9	10.7	20.2	49.8	18.3	agree
e) Prospective students will demand change	0.6	6.9	32.7	50.0	9.7	agree
f) Employers will demand such changes	1.6	6.4	23.6	51.1	17.3	agree

a) Mainstream LIS curricula are outdated

It emerged that about half of the respondents (52 per cent) agreed with this statement, (combining both 'agree' and 'strongly agree'), and 21.9 per cent disagreed (combining both 'disagree' and 'strongly disagree'). There was a high percentage of 'missing' and 'don't know' responses to this question. Thirty-five per cent of respondents either did not answer or chose the 'don't know' Option. As indicated in table 4.15, most of the uncertainty with regard to this statement came from respondents in Australia, the US and the UK. This is understandable as in these countries presumably LIS curricula are quite advanced. Nevertheless, in a rapidly developing field such as KM, there can be little room for complacency. However, as the following comment taken from the questionnaire shows, in some other countries there is a need for more fundamental issues to be addressed before seeking to accommodate KM within the curriculum:

> In Mexico's case it is important first to improve the curricula at LIS schools before getting into something bigger such as KM.

b) A more business-oriented curriculum is needed

Combining both the ‘agree’ and ‘strongly agree’ responses, 66 per cent of respondents believed that a more business-oriented curriculum was needed. In an additional comment, one respondent to the questionnaire added:

> I think some knowledge of business and management would help, because librarians in their education, just learn about organizing, the organization of knowledge, and visit other libraries, dealing with explicit knowledge, but they don’t learn too much about management and business. I think that this should be included in the LIS curriculum.

And a follow-up interviewee stressed the importance of business knowledge:

> Even if you work in a public library, you need to have some sense of business management skills, you’re always going to managing budgets, supervising, that’s gonna happen, no matter where you end up being, and if you are a (solo) business librarian, and you’re still going to have to manage budget, you may not have any direct reports, but you’re going to have to be able to manage people interpersonally, and if you are doing knowledge management more than traditional library skills it’s especially true, coz that’s even harder to touch.

However, almost 18 per cent of LIS professionals who participated in the questionnaire disagreed with the statement, demonstrating a negative attitude toward the development of business-oriented curricula. Hence:

> I have been in KM classes where LIS students dropped out because it was ‘too business oriented’.

> I am currently studying but chose not to attend one unit due to the very ‘business’ nature of the course.

> There needs to be a change in terms of focusing on the social and cultural aspects of information and its use and links to development whether of organizations or social groups, nations. This doesn’t necessarily come with a more ‘business-oriented’ curriculum.

Nevertheless, there is ample support within the professional literature for the introduction of an enhanced business element to the LIS curriculum. For example, Koenig has noted that KM professionals should possess sufficient understanding of business and economic concepts (Koenig 1999). Similarly, Lai emphasized the importance of a business element in LIS education in order to prepare students with proper understanding and expectations of corporate culture and its environment:

> The professional should have a proper background in business as well, so that she/he can communicate proficiently using the same language that the business community speaks (Lai 2005, p.352).

As was discussed in the literature review, a lack of business knowledge has been identified as a major barrier inhibiting the participation of information professionals in KM activities. Obviously, there is a role for LIS education to help overcome this barrier.

c) Without curriculum change, LIS graduates will lose out in the job market

Combining both the 'agree' and 'strongly agree' responses, 68.8 per cent agreed with the above statement. The 19.5 per cent level of uncertainty about the statement might well reveal a certain lack of awareness of developments in the job market among respondents.11.6 per cent of respondents disagreed with the statement.

As shown in table 4.15, the majority of support for this statement came from respondents in Australia, the US, the UK and South Africa. In an additional comment to the questionnaire one respondent observed:

> All curricula need to reflect changes in the industry by offering courses that are relevant to the needs of employers.

d) Mainstream LIS curricula do not equip people with the competencies demanded by KM

Here again, 68.2 per cent agreed with this statement. In the LIS literature, however, it has been suggested that to some extent at least the LIS curriculum is capable of preparing students for a knowledge management career (Lai 2005). This argument of course is not new. As Reardon (1998) maintains, some of the 'makings' of knowledge management are, and have been present in LIS for a long time. This includes a wide range of competencies, including information skills; information technology skills; multimedia and communications technology skills; skills in publishing and document design, both conventional and electronic; and in database and information system and service design. These skills, in Reardon's words, need to be developed and modified to meet the need for managing knowledge, but they do not, of themselves, constitute knowledge management.

e) Prospective students will demand change

Almost 60 per cent of respondents agreed with the statement. There was a high percentage of 'don't know' responses to this question. Almost 33 per cent of respondents chose the 'don't know' option. Again, this level of uncertainty about the

statement might well reveal a certain lack of awareness of developments in the job market among respondents.

f) Employers will demand such changes

Some 68.4 per cent of respondents agreed with this statement. Some of those who disagreed with the statement acknowledged the lack of awareness of LIS skills among employers. One of the respondents to the questionnaire stated:

> I don't think employers will demand that information professionals update their skills to include KM. However, it would be in the best interests of LIS students to adopt new management practices before the field is overlooked in these areas.

There is support for this view in the literature where, despite the central roles of information and knowledge in organizations, the results of a study by TFPL Consultants show that the true nature of the work of LIS professionals has not been recognized within organizations (TFPL 1999). Therefore, it is the responsibility of LIS professionals to promote themselves within the KM job market.

4.3.4 Content of KM Curricula for LIS professionals

In order to gauge the most meaningful approach to KM education, respondents were asked to choose from a list of those approaches to KM curricula which would best meet the needs of LIS professionals. As shown in table 4.14, some 62.8 per cent of respondents selected the option 'A curriculum that embodies core elements of LIS, management, and information systems'. This can be interpreted as indicating that respondents saw all these three as core components of the KM curriculum, and carrying equal importance in LIS education. About 12 per cent of respondents chose the option 'A curriculum based largely in LIS, and supplemented with modules on organizational behavior, knowledge and the knowledge-based economy'. Only 3.5 per cent voted for a 'curriculum based largely in the management domain (human resources, strategy, marketing, and so on), supplemented with modules on information and knowledge and the knowledge-based economy.'

Additional comments regarding approaches to KM curricula supplied by respondents to the questionnaire now follow. While acknowledging the importance of LIS, management and IT in KM curricula, one of the respondents commented:

> All three (LIS, management, IT) are necessary at least as awareness raising. The danger is to be master of nothing and so not respected.

Table 4.14 Which approach to KM curricula in your opinion would best meet the needs of LIS professionals?

Approaches to KM curricula	Frequency	%
	49	13.2
A curriculum based largely in LIS (information dissemination, retrieval, etc.) and supplemented with modules on organizational behaviour, knowledge and the knowledge-based economy	46	12.4
A curriculum based largely in the management domain (human resources, strategy, marketing, etc) supplemented with modules on information and knowledge and the knowledge-based economy.	13	3.5
A curriculum largely based on the information systems domain (databases, advanced and web-based systems) supplemented with elements of natural language processing, artificial intelligence and the design and use of web technologies	11	3.0
A curriculum that embodies core elements of all three examples	233	62.8
Other (Please specify)	19	5.1
Total	371	100

Having all three (IT, Management, LIS) but with a specialization in LIS was a suggestion from another respondent to solve the above problem:

> A curriculum that allows basic knowledge in all three (LIS, management, IT) but a specialization in LIS. This would allow the student to gain an understanding of each but focus on the area [where] they anticipate employment.

Some respondents identified LIS and management in KM curricula as being more important than IT:

> If I had to choose one it would be either the LIS or the management approach as the people aspects and the information content aspects are more important to the success of KM than IT. However, there is also a need for people to develop the systems aspects of KM.

Other respondents argued that the content of KM curricula depended on students need. Therefore there should be elective courses in the programs to suit different needs:

> Any of these could be valid depending on the approach and emphasis that the student wanted to pursue.

> It is context dependent. For some institutions the curricula have moved and some post graduate KM courses are now on offer so perhaps an elective

> versus core competency elements of the curricula is an avenue of interest to explore.

This latter view has also been advanced by Al-Hawamdeh (2005) where he suggests a number of multidisciplinary elective courses for KM curricula including: The Learning Organization, Business Intelligence, Electronic Records and Document Management, Electronic Commerce and Knowledge Management, Knowledge Discovery and Data Mining, Human Capital Management, and Knowledge Management Measurement.

Some respondents to the questionnaire acknowledged the importance of collaboration and strategic partnerships with business schools for designing a multidisciplinary KM program:

> Faculty should be drawn from different fields. Having professors who were themselves traditional librarians is not very helpful to new students seeking to modernize their current positions or who (having come from diverse industries themselves) can envision a broader role for themselves in information management.

> There needs to be closer cooperation between LIS and Business Management Departments to ensure our students have the requisite skills.

> Library schools cannot teach business experience which is a requirement for understanding the importance of KM. There must be interaction between the disciplines of business and LIS both at the academic and professional level.

This latter view has been supported in the literature. The results of a study by Rehman and Chaudhry, for instance suggest that collaboration seems to be the most important strategy in making KM courses successful (Rehman & Chaudhry 2005). Consequently, effective education for knowledge management will require the emergence in various places of cooperation between different academic units (Koenig 1999).

The need for the inclusion of management courses in LIS education

Only 3.5 per cent of respondents were in favour of a management-oriented KM program. This is not surprising, as the majority of LIS professionals who participated in the questionnaire survey believed that KM was not essentially a management phenomenon (see the previous chapter).

However, in additional comments to the questionnaire, other respondents emphasized the need to equip LIS students with more management knowledge:

> The management element in the curriculum becomes more important as it helps students understand the management perspectives.
>
> LIS professionals are already trained in database and web design. They already know information organization/management. They need more general management: human resource strategy, change management, organizational behaviour, etc.
>
> Still, the LIS curriculum should be supplemented with management courses to prepare information professionals to undertake roles outside simply information management.
>
> LIS plus management studies, including staff management, knowledge management and budget management.
>
> If one thinks of management as a different domain librarians need to be trained in management principles.

Reviewing the list of KM enablers from the Australian KM Standard (Standards Australia 2005), led Ferguson to conclude that almost half of the thirty-four enablers listed were drawn from the field of management. Others, however, such as content management, document management, environmental scanning, information auditing, leveraging information repositories, and taxonomies and thesauri, were viewed as coming straight from the information manager's set of tools, techniques and activities (Ferguson & Hider 2006). However, management skills are said to have been neglected in LIS education (Milne 1999). A lack of management skills has been identified as one of the major barriers for LIS professionals' involvement in KM (see chapter 2.7). Clearly, there is a role for LIS education to help overcome this barrier.

4.3.5 Comparisons

It would have been interesting to compare peoples' responses on the basis of their country of residence. Unfortunately, as responses were dominated by returns from five western and largely English-speaking countries (all others amounting to no more than 3 per cent), this option was not really viable. Accordingly, the only meaningful comparison possible on the basis of these data was one between two groups of countries, Australia, the US and the UK on the one hand, and New Zealand and South Africa on the other.

To compare people's responses based on where they lived, their overall response (mean) to part 2 of the education section of the survey was analysed. It is interesting

that except for one statement, people from Australia, the US and the UK had similar views, and their responses to the first and second statements were different from those in New Zealand and South Africa. However, as it can not be claimed that respondents to the survey were representative of LIS professionals in each country, it cannot be suggest that there is a correlation between peoples' responses and their country of residency (table 4.15).

In table 4.16, peoples' responses to the statements in part 2 of the education section have been compared based on their age group. As can be seen in the table, all six age groups had similar views. The only exception was that people in the age group 36-45 (26.5 per cent of respondents) had a different point of view from other age groups. They agreed that mainstream LIS curricula were outdated. However, as the number of people in each age group was not equal, it cannot be argued from the results that there is any correlation between age and perceptions of KM.

Table 4.15 The overall responses (mean)[11] to the statements based on the residence of respondents

Country	Mainstream LIS curricula are outdated.	A more business-oriented curriculum is needed.	Without curriculum change LIS graduates will lose out in job market.	Mainstream LIS curricula do not equip people with competencies demanded by KM.	Prospective students will demand change	Employers will demand such changes.
Australia	don't know	don't know	agree	agree	don't know	agree
USA	don't know	don't know	agree	agree	agree	agree
UK	don't know	don't know	agree	agree	agree	agree
South Africa	agree	agree	agree	agree	agree	agree
New Zealand	agree	agree	don't know	agree	agree	agree
Other countries	agree	agree	agree	agree	agree	agree

Table 4.16 The overall response (mean) to the statements based on the age group of respondents

Age	Mainstream LIS curricula are outdated.	A more business-oriented curriculum is needed.	Without curriculum change LIS graduates will lose out in job market.	Mainstream LIS curricula do not equip people with the competencies demanded by KM.	Prospective students will demand change.	Employers will demand such changes.
Under 25	agree	agree	agree	agree	agree	agree
25-35	don't know	agree	agree	agree	agree	agree
36-45	agree	agree	agree	agree	agree	agree
46-55	don't know	agree	agree	agree	agree	agree
56-65	don't know	Agree	agree	agree	agree	agree
Over 65	don't know	don't know	agree	agree	agree	agree
Total	don't know	agree	agree	agree	agree	agree

4.3.6 Analysis of additional comments

In view of the interesting nature of the additional comments to open-ended questions of the questionnaire, the responses are reported below within broad categories.

LIS should remain LIS

[11] In statistics, the mean is an arithmetic average; the sum divided by the number of cases. The researcher has designed the following scoring system for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44=strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don't know; Mean: 3.45 to 4.44= agree; Mean: 4.55 to 5= strongly agree.

Some respondents were not interested in the potential inclusion of KM in the LIS curriculum. Specific comments included:

> LIS should by and large remain LIS. Otherwise the LIS curriculum would become a KM curriculum. There's no point in that: not all LIS people will want to go into KM and there is no need to.

> I feel that information professionals should focus primarily on a curriculum based largely in LIS. Those wishing to specialize in management or information systems should consider going into management or IT.

> KM is one aspect of the LIS profession. Not everyone going into the field must have KM rammed down their throats. Different LIS schools can (and do) have teaching/training strengths in different aspects of the LIS profession.

These views have been supported by the findings of other researchers. Ferguson and Hider (2006) investigated the content of KM courses in Australia, and the extent to which the understanding and skills developed by students of these programs overlapped with those which ALIA required as core knowledge and skills for the LIS sector. The results led the researchers to conclude that there is presently, in general, only a limited amount of overlap between what are considered (by ALIA) to be the core LIS professional attributes, and the curricula of the KM courses offered by Australian universities. Rather, it appears that there are separate KM and LIS courses for different job markets. It appears that Australian universities have not yet found a way of squeezing sufficient coverage of both disciplines into a single postgraduate course (Ferguson & Hider 2006).

KM should be just a component or an elective element in the LIS curriculum

Although some respondents argued that KM should be integrated into all LIS courses, others did not believe that fundamental changes to LIS curricula were needed, supporting only the inclusion of KM as a component or as an elective within the LIS curriculum:

> I believe strongly that core skills need to continue to be taught and provide a foundation for KM. However there do need to be some changes to address KM as a function where LIS skills can be applied.

> I think the change can really come from the elective rather than the core subjects in most circumstances.

> I think that KM has its place in an LIS curriculum but it doesn't necessarily have to be front and center. Perhaps a KM course or two should be part of introductory requirements.
>
> A specific course could help librarians think strategically about KM.
>
> Rather than replacing traditional LIS curricula, KM should be added to existing LIS tracks.
>
> KM should become one more 'subject' within the curriculum.

LIS education already includes the required knowledge and skills for knowledge management

Some respondents believed that KM skills are already taught in LIS curricula, although they may not be labeled as such. Hence:

> Core competencies are taught by LIS programs; however they usually are not tagged as KM nor placed in a business context. Curricula need to overtly include KM content.
>
> LIS curricula in general meet the demands of the market. After graduation it's up to the individual to keep up with new developments.
>
> LIS education is focused outward to managing external information. Competencies can be applied to facilitating KM within an organization.

The result of Lai's research supports these views. Lai investigated the required skills for KM through KM job advertisements, and compared them with the LIS curriculum at the University of Pittsburgh in the US. The results show that to a certain degree, current LIS curricula are associated with some of the knowledge and special skills listed in KM job requirements (Lai 2005). Therefore, LIS graduates could well apply their skills to the new context of KM. The following comments to the questionnaire are particularly relevant:

> LIS students need to recognize the skills they have that are applicable to KM and learn about the concept of KM and what it involves and be able to recognize potential jobs suitable to them when they might not be labeled as librarians or be in a library setting.
>
> More LIS students need to broaden their idea of the profession and how even traditional skills can be used in new applications.

However, there are cautionary words from others (Davenport & Cronin 2000; Milne 2000; Todd & Southon 2001; Al-Hawamdeh 2002, Abell 2000). They point out that, although there may be a degree of overlap between core competencies for KM and LIS, the required understanding of and skills levels in KM go far beyond what is provided by traditional LIS education. In Koenig's words:

> professional schools tend to educate for the skills needed for entry level positions, whereas KM jobs are senior level jobs that require a deep understanding of the organizational context and culture (Koenig 1999, p.17).

Communication skills should be highly regarded within LIS curricula

Some respondents believed that communication skills were the most important skills which the KM curricula should include. Hence:

> Communication is an essential skill for KM (and other LIS careers too) but it is overlooked. The LIS curriculum and many students (and faculty) are in desperate need of improvement in this area.

> A curriculum should also teach students how to communicate with the organization's management influencing and challenging an organization's management.

Once again support can be found in the literature for such assertions, with the results of Lai's study of KM job advertisements showing that excellent oral and written communication skills is the most important skill required by employers (Lai 2005).

4.3.7 The role of qualification in facilitating entry into the KM job market

Some respondents believed that individuals had to take responsibility for their own learning, and that the LIS professionals should update their knowledge and skills to seize the opportunities arising from KM, and not necessarily through formal KM education. Specific comments included:

> We must as professionals be willing to learn more and change because libraries are changing.

As Srikantaiah observed: 'to adapt to rapid changes, continuous education and training must be the norm rather than an exception, and occur throughout an individual career' (Srikantaiah 2004).

Similarly Pantry and Griffiths stated:

> In the past many professionals felt that, once they had attained their qualifications that was the last major effort they had to make. The wise ones realized that this was only the beginning and looked to ensure their continual professional development (Pantry & Griffiths 2003, p.107).

One of the interviewees who held only a BA in librarianship, explained her success in taking on a senior role in KM in terms of lifelong learning:

> Like a lot of people, I try to make sure I keep on updating my knowledge regularly, read a lot, I go to conferences when I can. And the other way that I keep in touch is subscribing to things like the educational journals online, and make sure that I'm keeping up with what the current thinking is, you can always take home one or two things. But I quite often read in other areas as well, I read in IT a bit, future management and IT, I work in, I think a lot about other areas of my professional experiences, and, amazingly enough, all other professions aren't all that different, in the way that they're being managed, and so you can pick up some really good ideas by reading in management in other areas. We can use it to keep reading more and more, because the more you read the more you take in, and change your mind about things, and you build up knowledge. And I look back to papers that I wrote two years ago on things, and I think my goodness, that must have been a long time ago! We don't have a lot of time, from time to time, if your sitting on airplanes, or trains or something, take a paper with you on the train. One of the other reasons I've been successful is, I do put in an enormous number of hours into my work, All week long, I do. But I think the reward for doing that is you have a really interesting job, so I've never regretted doing it. But more importantly, I take time out to visit other libraries, see what other people are doing, take away some good practices, or better practice than we're working on. I keep up my international connections, and I'd definitely say to anyone, opportunities to have international connections is really, really good. I regularly visit the British Library, and I'm on their advisory council, they're all ways in which I keep my knowledge up-to-date, and I find that for communities of practice, you look around for people who you admire, think are doing well, and you make sure that you keep in touch.

Most interviewees believed that migrating to KM roles was not simply dependent on having non-LIS qualifications, although relevant qualifications could play a part:

> It is not about qualifications, it is about mindset and attitude, and that's what I have built this on as well. There's been a lot of work gone into recruitment of librarians for this team, looking at their attitudes rather than their qualifications.

> The most benefit that you get is actually from experience of KM, it's not so much having qualifications. And the qualifications that you can get in this country are very theory-based. There's very little practical experience.

Two of the people interviewed were LIS professionals with only a BA in Librarianship, but had attained the position of knowledge manager in their organization. Others had other qualifications along with either a BA or a Masters qualification in LIS including: business, public administration, management, law and education. Therefore, it seems that having an additional qualification can be helpful in migrating LIS professionals to KM roles. Those with a BA in librarianship also had attributes of lifelong learning, hard work and networking which contributed to their migration from being a librarian to becoming a knowledge manager.

Two of the interviewees stressed the importance of having relevant qualifications to taking a KM role:

> Deliberately undertake some other qualifications, because see, I think management skills are important if you want to get on, but you wouldn't necessarily expect to find them necessarily in a LIS degree, I would expect you to go and have to do a management degree, or a MBA, or a MPA or a Bachelor of business, or something like that, that equips you with marketing, and HR management, and accounting, and statistics, all that sort of stuff.

> I think you can only do it peripherally, within an LIS curriculum, because there is so much else that you need to cover in an LIS curriculum, I think that there probably needs to be some element, but to get the in-depth skills, I think you need to go and do some more qualifications, or, take some targeted courses. There are many, many modules or units or subjects that you could and should perhaps take, understanding the political environment.

Nor need having a formal KM qualification necessarily guarantee successful KM practice. As one interviewee stated, formal KM education is theory based. However, to practice KM successfully, LIS professionals need to communicate with people who are practicing KM:

> I run the forum in the city I work in, and a lot of the people who are members of the forum are information specialists, or librarians. So what they have done is they have studied further in knowledge management, they have done either a masters or an honours in knowledge management to up their skills, and then they join these forums to find out what those of people who aren't librarians are actually doing with knowledge management. And that sharing of skills and

> experience is very beneficial, because it's very practical, whereas some of the people who are studying it, are, they tell us what they're studying, and it's all theory-based, so when they're finished studying, they actually aren't much better off than they were before, so that what they're learning is actually the implementation of KM, when they actually try out some of these things, that's where the greatest learning takes place.

4.3.8 Discussion and conclusion

As is clear from the findings from this part of the study, the issue of whether KM programs should be part of the LIS curriculum is one that is being taken seriously within the profession. There are various reasons for this, including recognition by LIS professionals of the potential opportunities emerging for people with some kind of KM skill or qualification. This includes opportunities in markets and organizations which would not always have been particularly fruitful sources of employment for LIS professionals. Although not all respondents necessarily agreed as to either the newness of these markets or the need for significant additions to the skill base, a clear majority saw developments in KM as being a positive thing for the LIS professions.

The high levels of support for changes to the LIS curriculum in order to facilitate moves into KM, have to be qualified in respect of the regional and national breakdown of respondents by origin. The majority of respondents came from five countries, namely Australia, the US, the UK, New Zealand, and South Africa. Although there were differences in emphasis between the New Zealand and South African respondents, and those from the other three countries, the common denominator was not just support for an expansion into KM, but, in all likelihood, some experience with the phenomenon. In countries where for historical and other reasons, the theory and practice of LIS might not have advanced to the same levels as in these five, the introduction of new elements to the curriculum, not least those with a strong business and commercial flavour, would not be expected to have gone so far, if it happened at all.

Nevertheless even among those respondents with the least to say about involvement in KM, there was some evidence of appreciation of the need for LIS educators to borrow themes and topics from other disciplines in order to remain vibrant and relevant. Whatever the national or regional origin, the willingness of the LIS community to at least consider an expansion of their professional boundaries is quite clear from this study.

In regard to KM course content, the majority of respondents opted for a KM curriculum that embodied core elements of LIS, management and IT. However, there were words of caution with regard to the possibility that the inclusion of those broad topics in a single course could result in students acquiring only a superficial knowledge. There were some suggestions to solve the problem including: 1) offering students a choice of electives to enable them to specialize in a preferred area depending on their needs; and 2) offering KM at the postgraduate level so that students could come to their courses having a background to KM.

As information management skills are very important in KM practice, it seems more practical for LIS schools to prepare students mostly for this function, and to add additional elective subjects from the wider management curriculum to prepare graduates for entry to the KM job market. However, there may be a danger that the focus on information 'containers' at the expense of content is perpetuated by educational programs, where LIS educators attempt to add KM to already full LIS programs, instead of providing separate KM programs (Ferguson & Hider 2006).

To apply their skills to the new context of KM, LIS professionals need to extend their focus from one on information objects to one on people aspects; to take a holistic view of the organization and to increase their levels of business knowledge. In this latter case, business knowledge can be acquired through education. As was discussed in the literature review, a lack of business and management knowledge has been identified as the major barrier for the involvement of LIS professionals in KM. Respondents both to the questionnaire survey and to interview questions, reinforced the perception that a more business oriented curricula was necessary for LIS education. Further evidence for the importance of business knowledge for the involvement of LIS professionals in KM, emerged from research conducted by Ajiferuke (2003). This indicated that of those LIS professionals involved with KM programs, more than 95 per cent cited 'understanding of the knowledge process within the business process' and 'ability to identify and analyze business processes' as core competencies for KM practice.

Although an education that includes knowledge management can help facilitate access by LIS graduates to the KM job market, this is not to say that some form of KM education is essential for entry to the KM job market. In the course of this research project, two of the knowledge managers who were interviewed revealed that they held only BA degrees in librarianship. However, they possessed attributes to do with

recognition of the value of lifelong learning and networking which contributed to their success.

In an LIS context, the findings from this project reinforce those of earlier researchers. This includes suggestions that KM programs should ‘provide theoretical frameworks, and also the professional skills required for the effective management of information in the context of KM initiatives’ (Southon & Todd 1999). It also acknowledges the difficulties to be expected in attempting to make such provision in a situation where ‘professional schools tend to educate for the skills needed for entry level positions, whereas KM jobs are senior level jobs that require a deep understanding of the organizational context and culture’ (Koenig 1999).

Finally, the results from the present research suggest that library schools and the profession at large need to seize the opportunities offered by KM, in terms both of individual career development and the overall advancement of LIS. However, any such response to its perceived opportunities and threats needs to be more reasoned, thorough, and effective than has been the case to date. Specifically, there is a need to clarify the roles that LIS professionals can play within the spectrum of KM activities, and to amend or expand educational curricula to meet these requirements.

The topic of KM and LIS education has not been discussed in-depth in this thesis because, at the moment, a comprehensive PhD research entitled ‘The implication of knowledge management for LIS education’ is underway in the School of Business Information Technology of RMIT University by Ms Afsaneh Hazeri.

4.4 Role of LIS professionals in KM: Perceptions and evidence

4.4.1 Introduction

Although the role of libraries in KM is discussed in the next section, that section does not pay specific attention to the role of LIS professionals. This role is discussed here for the reason that LIS professionals do not necessarily work only in library or information centres, but have also found positions elsewhere. The role of LIS professionals in KM has, not surprisingly, attracted a good deal of interest in the literature, and not least with regard to the contribution that their expertise in information management can make to the practice of knowledge management. Although LIS professionals are frequently being encouraged to seek a higher profile in the knowledge management arena, including one that goes with occupying more senior KM positions, the literature is less voluminous in respect of these higher level

contributions that LIS professionals might make to knowledge management. Furthermore, although the literature contains plenty of general material on the role of LIS in knowledge management, there is relatively little coverage of the practical implementation of knowledge management in the LIS environment. Among the few empirical studies aimed at identifying the specific contribution of LIS professionals to KM, is one conducted in Canada by Ajiferuke (2003).This revealed that information professionals involved in KM programs were playing key roles, such as in the design of the information architecture, the development of taxonomies, or in content management for the organization's intranet. Others were playing more familiar roles, such as providing information for the intranet, gathering information for competitive intelligence or providing research services as requested by the knowledge management team (Ajiferuke 2003). In seeking additional evidence for how LIS professionals perceived their role in KM, and also to shed light on the nature of their contribution to KM, the present researcher raised these issues both in the questionnaire survey and in the follow-up interviews. The questions were designed to provide illumination in respect of:

a) Perceptions

Whether LIS professionals perceived KM as a career path and the nature of the roles they envisaged themselves playing in KM. This was investigated through both the questionnaire and interviews. Data emerged from the questionnaire in the topic were both qualitative (additional comments to open-ended questions in the questionnaire) and quantitative (recording responses to questions employing Likert scales).

b) Evidence

Evidence for the involvement of LIS professionals in KM. The search for evidence was conducted through both the questionnaire survey and the interviews, but with a difference in focus. Whereas the questionnaire targeted all levels of involvement by LIS professionals, the interviews investigated their higher level contributions, say as leaders of KM in their respective organizations.

These findings and later findings relating to perceived barriers to the involvement of LIS professionals at senior levels in KM are now discussed.

4.4.2 Perceptions of LIS professionals of their roles in KM

Quantitative data

There is a general acknowledgement within the literature that, since information management lies at the heart of knowledge management, LIS professionals with the relevant information management skills have the potential to be significant players in knowledge management programs. So far as specific contributions are concerned, the literature review contains ample references to the role of LIS professionals in facilitating access to information (explicit knowledge).

In seeking to identify how LIS professionals actually perceived their role in KM (if any), the researcher asked respondents to respond to a set of statements. The statements and the responses to them have been summarized in table 4.17.

Table 4.17 Perceptions of LIS professionals of their roles in KM: Quantitative data

	strongly disagree	disagree	don't know	agree	strongly agree	overall[12] (mean)
The major contribution that LIS professionals can make to KM is through their IM skills	.5%	13.4%	12.0%	55.9%	18.3%	agree
LIS professionals should focus on their own competencies and ignore KM	32.6%	56.5%	7.3%	3.3%	.3%	disagree
KM should be left to managers	37.4%	52.7%	6.6%	1.9%	1.4%	disagree

A total of 78.2 per cent of respondents perceived that the major contribution that library and information professionals could make to knowledge management was through the application of their information management skills. The LIS literature indicates that there is a clear recognition that the information skills of LIS professionals could make a major contribution to the success of knowledge management programs. Corral states that: ‘People often used to describe librarianship as the organization of recorded knowledge, so perhaps our time has come (Corrall 1998). Likewise, the organization of knowledge is one of the fundamental skills of librarians. The structuring of information

[12]The researcher has designed the following scoring for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44= strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don’t know; 3.45 to 4.44= agree; 4.55 to 5= strongly agree.

through creating subject structures and thesauri, developing organizational taxonomies and designing records and coding tools have been emphasized by Abell and Oxbrow as the most obvious ways that LIS professionals can contribute to KM (Abell & Oxbrow 2001).

There was very little support for the statement that LIS professionals should ignore KM and, on the contrary, 89.1 per cent (a high majority) of respondents disagreed with this statement. Furthermore, only a small minority of respondents regarded knowledge management as being solely a business phenomenon and therefore, of no direct relevance to LIS professionals (under 4.0 per cent when responses to the options *agree* and *strongly agree* were combined).

It seems clear from the evidence of this research that any engagement by LIS professionals in KM need not necessarily imply a break with their core area of expertise. Rather it is more likely to result in an extension of their roles and in conducting them in different contexts. As Abell and Oxbrow (2001) say, moving out of a specific information role for a while does not necessarily mean leaving the profession. It could be the opportunity to acquire experience that enables professional expertise to be applied with more obvious benefit.

It is interesting that 60.9 per cent of respondents to a previous question in the survey (see chapter 4.2) disagreed that knowledge management was essentially a management phenomenon; an even bigger majority, 90.1 per cent believed that the management of knowledge ought not to be left to managers. This of course refers to managers other than library managers. There is a clear implication here that LIS professionals should become more involved at managerial level and not only as knowledge managers. However, this perception may have a negative impact in a sense that LIS professionals ignore improving their management skills which are very important for KM practice.

Qualitative data

In addition to the closed survey questions that provided the evidence reported in the section on quantitative data (above), responses both to open-ended survey questions and to questions posed during the interviews contributed to a deeper understanding of the perceptions of LIS professionals of their role in KM. Allowing for a degree of difference in professional perceptions of such involvement, it seems safe to say that in the main this has involved a contribution to the management of information or in the language of KM, of *explicit recorded knowledge*. This interpretation was also clearly

revealed in comments obtained from both open-ended survey questions and those asked of interview participants. Specific roles identified included: information research/audit, taxonomy development, content management, records management, provision of a personalized current awareness service and training staff to retrieve and use information, developing portals and databases. However, few respondents to the questionnaire and few interviewees mentioned a potential role for LIS professionals in developing expertise directories to facilitate knowledge sharing through easy access to human assets in the organization. The perceptions of LIS professionals of their role in KM are summarized in table 4.18, which shows responses to the questionnaire and interviews.

Table 4.18 Perceptions of LIS professionals of their roles in KM: Quotes

Participants' statements	**Theme**
Our key skills are around the organization and retrieval (whether in print electronic etc) of knowledge. These are key to KM. it is just about using those skills or advising others on what we need to be done in new contexts. I know this makes it sound very easy but that is what we need to remember because if we don't do it someone who hasn't developed these skills will think they can.	Information organization and retrieval
LIS professionals should focus on where their competencies lie. Most KM applications involve identifying organizing classifying publishing and marketing information so that it can be shared, used or re-used to foster efficiency and innovation. Leave other KM applications such as succession planning to other professionals**.**	Information organization / Marketing
Information is not equal to knowledge. It is the key to it. Therefore the importance of library and information professions to entwine [sic] their role within KM.	Information management
Taxonomy development (harnessing enterprise/institutional content) is an area where LIS skills should be extremely useful. Taxonomies are a real hot issue in KM because knowledge tends to be made explicit and transferable in documents.	Developing taxonomies
In some ways I think records management is the link. LIS people don't necessarily understand a basic archival concept of information being relevant in the context of its creation and provenance.	Records management
Participants' statements	**Theme**
I see the LIS as having a key role within KM in the organization by providing the services it does. Everything we do supports KM within the organisation. Particular examples would be provision of a personalised current awareness service and training staff to retrieve and use information.	Information literacy training/current awareness services
It's the distribution, the collection of information, and making it available to as many people as possible, through all kinds of different channels. Whereas, the other component, is more human resources	Information organization and retrieval
Librarians tend to know who is doing what and who is who in organizations and in that sense are natural information and knowledge gatekeepers, notably in regard to tacit knowledge.	Developing expertise directory

Librarians also need to be trained on the fact that a community of practice, or a knowledge map is an extension of what they're already providing in a library. It's just a different format.	Developing expertise directory

4.4.3 Roles of LIS professionals in KM: Evidence

This section reports comments on the contribution made by LIS professionals to KM in their organizations. These comments emerged both from responses to open-ended question 8 in the questionnaire and also from interviews with knowledge managers.

- As is clear from the findings below, respondents to the questionnaire were involved mostly in the IM side of KM, dealing with activities related to the management of explicit knowledge. This picture largely mirrors that of the role of LIS professionals in KM as presented in the literature, a role confined mainly to the management of explicit recorded knowledge. As table 4.19 shows, LIS professionals surveyed or interviewed for the present study also perceived their roles mainly in managing explicit knowledge. However, leaders in the LIS field (Davenport & Cano 1996; Klobas 1997; Broadbent 1998; Corrall 1998; Davenport et al. 1998; Milne 2000), believe it is in the best interests of librarians to 're-invent' themselves (and raise their profiles within their organizations) by extending their roles as managers of recorded information to include working with unrecorded organizational knowledge. That this is having some effect was reflected in the current research, where a minority of respondents reported their involvement in activities less familiar to the practice of LIS. Elsewhere, van Rooi and Snyman (2006) conducted a content analysis of twenty-eight English journal articles on knowledge management opportunities for librarians. The following opportunities were identified:
- transfer of information management and related skills to a new context linked to business processes and core operations;
- management of information in a digital/electronic environment;
- development of corporate information literacy;
- managing the corporate memory; and
- facilitating an environment conducive to knowledge sharing.

Although the first three activities in the above list might look familiar to the LIS profession, the last two would require LIS professionals to move well out of familiar territory. In fact, the last one sounds more like a job for cultural change experts. However, findings emerging from interviewing knowledge managers from an LIS

background supported the case for change, with reports of involvement in activities associated with capturing tacit knowledge and facilitating knowledge sharing, activities normally considered as being outside the LIS domain. Although those LIS professionals interviewed were all in senior KM positions, the evidence suggests that non-traditional involvement by LIS professionals can operate at more junior levels as well.

Evidence emerging in the questionnaire

Question 8 of the questionnaire asked respondents if they were aware either of the successful implementation of knowledge management in a library, or of a knowledge management project in which a library was a participant. Responses to this question have been fully discussed in the findings of KM and libraries. However, some comments are relevant to the topic of this chapter. Those comments have been analysed in the following (and see table 4.19, which shows quotes in responses to the questionnaire).

Once again, the dominant role identified was that of the management of explicit knowledge. However, a few respondents reported involvement in the activities of capturing tacit knowledge and knowledge sharing. The development of expertise directories for the purpose of facilitating knowledge sharing was mentioned by two respondents to the questionnaire. Successful KM depends very much on recognition of the fact that people are the most important asset of organizations. Providing easy access to human resources including knowledgeable experts, by identifying their area of expertise and experience is a potential area of activity for LIS professionals. According to Choo (2002), maintaining online and current vitae and resumes of employees in the organization is one way to track who owns what knowledge and how they can be contacted. In a similar vein, Webster states that:

> librarians already catalogue images, maps, music and seminar presentations, so cataloguing people seems a logical next step … managers of all teams have to know the capabilities of the members of their teams, but KM systems take this a stage further by making those talents more tangible to a wider audience within the organization (Webster 2007, p.83).

Table 4.19 Roles of LIS professionals in KM: Quotes

Participants' statements	Theme
The librarian has been a core team member in a project to improve corporate record keeping through the implementation of an electronic document management system.	Document management

Records management implementation at X company that supplies the capital of Y with electricity geothermal heating for every home and cold water utilities	Records management
Within my own organization I am leading the development of the KM agenda. I have developed a strategy and have various strands of work and pilots that we have/are testing out. Success is varied.	KM Leadership
Currently a document management system is being introduced where I work. Various library staff have been involved in its introduction	Document management
We have a unique accessible archive dedicated to the collection preservation and dissemination of all manner of materials (documentary biographical social etc. in all formats) on our region our city and our University--a proud center and source for all who come manned by a staff of local pensioner-volunteers with a professional director. They even go out into the community to solicit taped interviews from local old-timers...	Knowledge organization and retrieval/ capturing tacit knowledge
I work in the Knowledge Management Unit (i.e. library records web sites and ministerial documents) of the Ministry of X in country of Y. We are currently leading a project which is develop a programme to embed knowledge sharing across the organization	Knowledge sharing
We as local librarians are part of a new knowledge management directorate within an X organization and we are in the process developing a pilot project to look at a KM approach to information sharing and organization. Initially the project is based around the national priority of Coronary heart disease and we are collaborating with clinical and data colleagues. We hope as stage one of the process to have an intranet site established for sharing knowledge.	Knowledge sharing
I have been involved in attempts to build Directories of Expertise. We gathered information from a wide range of internal and external sources in order to give people in the organization access to corporate know-how, and also to address the problem whereby people were slow to update their personal information on web sites and in databases. This work had been strongly influenced by work undertaken in the X by a government department called Y.	Developing expertise directory
Projects include: Communities of Interest in scientific areas. A database which captures information about employees including a list of their skills; organizing information for the intranet.	Developing expertise directory

Evidence emerging from interviews

This section reports the key activities of LIS professionals working as knowledge managers who were interviewed for the present research project. This included knowledge managers in a range of public and private organizations including law firms, government organizations, universities and commercial companies. The wide variety of KM pursued was based on different approaches to KM depending on the kind of organization involved and its goals.

Capturing tacit knowledge and facilitating knowledge sharing

Evidence for the capture of tacit knowledge and for the practice of knowledge sharing in organizations is presented from respondents working in two kinds of corporate entity, law firms and universities.

a) In law firms: There is a growing element in the LIS/KM literature to do with the activities of law firms and law librarians in the field of knowledge management. For this thesis, interviews with two knowledge managers in law firms (both qualified librarians) revealed their involvement and that of other staff (library and legal/par-legal) in activities associated with the capture of tacit knowledge, and with knowledge sharing on both a formal and informal basis. Statements from those interviewees are presented in table 4.20.

To some extent, the successful uptake of knowledge management had to do with the size of the organizations concerned (medium-sized law firms), and the fact that all the staff was located under the one roof. However, one of the interviewees believed that her understanding of the culture of her organization had been a significant factor in success:

> It's hard when you are going into a new job, coz you don't know the people and how the culture of the place, but I've been in my job for nineteen years, which I think is a bit too long, but I know, also, well what the people are, I know the relationships.

b) In universities: There is reference in the literature to the fact that, of all organizations, universities might best deserve the description of being knowledge-based. This said, there is relatively little in the literature to reflect any wholesale emergence of universities as either knowledge-based organizations or as benchmarks for knowledge management practice. A similar picture emerged in the research for this thesis, with responses to both the survey questionnaire and the interviews showing KM as at best a work in progress in the university setting. One interviewee did mention the need to capture and reuse tacit knowledge in universities, but she identified the presence of cultural barriers to such practices:

> Quite frankly, most universities are pretty bad at sharing knowledge because most schools and colleges grow up in a kind of an ad hoc way, doing things the way they do it, they've all got different computer systems, they don't always necessarily speak to each other, and because of things like, intellectual property rights, they don't tend or want to share knowledge a lot.

Table 4.20 Examples of the involvement of LIS professionals in knowledge sharing in law firms

Interviewees' statements	**Theme**
We spend a lot of time marketing, and the way that I do it is very informal, I tend to go round and visit, and I'll have breakfast seminars, lunchtime seminars and we'll do that sort of thing, really nice lunch, and I'll sometimes get in speakers, and, then I'll go visit	Capturing tacit knowledge through informal gatherings

departments, making times to talk to them informally	
When you say capturing the tacit knowledge, I immediately think of recording it, but actually, about meetings, what I do is, the article clerks are the first year, when they first come out of law school, they have a year doing articles, it's a traineeship, and they get rotated to different departments, so what I've started doing is four times a year, each time they rotate, the week that they rotate is meeting with a role, just like this, in a room, no Human Resources people, and they're saying, okay, how's it going? What experience did you have that the person coming into your department- what secretarial duties, what time your meeting is each week, if you have any problem, And they all go oooh! And they start telling each other exactly what they've been doing, and sometimes they come and say, I can't stand this person, they're driving me crazy, and that person will say, oh, I had that same experience, and they're sitting down, and that is exchanging tacit knowledge, and they really love it, they say, oh, gosh, we've got that meeting coming up with you, I've got all these things I want to say! it really works well, because I say Sue, can you tell Hans exactly how you found what routines that went on in your department, what was unusual, what was different to what you've experienced in the other departments, and it was interesting.	Knowledge sharing through informal gatherings
And you go to meetings. I try and get to a group- in the departments, because we've got seven major departments, and I go to their group meetings, and just sit there, sometimes they all think I should say something, because, I'm attending, and it's really not the same there, it's really just to listen to what- I mean, you could say we've got this library, and are you doing this, and remember to send us knowledge- documents to go in our knowledge management database, but the main thing I think is just the presence, and also to listen to what they're doing, for example, a commercial last week, has found that he was- they're interested in developing their practice in the anti-money laundering area of new legislation that's just gone through, so I got a flyer from one of the publishers yesterday saying that there was a new service coming out, so I could immediately send it to him, saying, I think we should get this for you.	Capturing tacit knowledge through formal meetings

The knowledge-sharing activities of universities summarized in table 4.21 suggests knowledge sharing in universities has been limited to capturing the knowledge of academic and other university staff, whereas little attempt has been made to capture the knowledge of students. In view of the avowed customer-centric nature of knowledge management, this is curious as it implies ignoring the potential contribution of customers.

Table 4.21 Examples of the involvement of LIS professionals in knowledge sharing in universities

Interviewees' statements	**Theme**

It would seem to me, that we could be a lot more efficient, and effective, and a lot more creative, if we could get people more inclined to work together, more inclined to want to talk to each other, to share knowledge, particularly in the areas that libraries work, so for example, when I went to the University of X, I decided, that when we have a knowledge strategy, it was going to be totally functionally based. Having groups discuss is one of the things that I think is really important, because I try to do more of a more matrix management style, and that is, I have IT, library, and e-learning under my area, with six divisions, and what I like to do is pick an issue that's really important in that particular time, and get people from each of the areas who have some skills in it to come together and actually think about how to resolve the issue.	Knowledge sharing through groups discussion
I have a series of meetings with deans, and heads of colleges, and heads of support areas, and while it's not about trying to capture what they do, it's about setting up linkages, you know, I've been told, up in the University plaque for good communication practice, but because I talk to everybody, if I know about something that's happening when I'm talking to somebody else, I'm passing on, did you know that Fred Blogs is doing such-and-such, or, you know, that somebody else has got an issue with this particular service model, so- but it's not being committed to paper, or to some medium, it's more verbally being transmitted.	Knowledge sharing through formal meetings

Staff development

Among the activities reported by LIS professionals in their roles as knowledge managers were those within the realm of human resources management. This included attention to staff development and in particular, enhancement of the skill levels and knowledge of staff:

> Most of my senior staff probably have their own networks within their areas of expertise, so (the) person who's in responsible for repositories undoubtedly keeps in touch with people who were developing repositories in the US and the UK, but I think for junior middle-level, and junior staff, probably it's not going to conferences, we bring in people to talk to our staff on a regular basis, once a fortnight we have a guest speaker coming in to talk about something with learning, anyone who's traveling through X, which is a nice place, so a lot of people travel through, I try to invite them to come along and talk about what they're doing in Australia, or what they're doing in the US, or others. try to keep people focused on looking on the outside as well as just thinking of their day to day work, and also, I've just appointed someone who's just started development of research, to try and make sure that we're not ignoring the more junior staff, in building skills, the normal skills, I'm particularly looking at the sort of skills that you need in a knowledge environment, which are much more an ability to project manage, and matrix manage, all of those sort of things that will

> help people to work in that environment more comfortably, because I think people are afraid to give up power, because they won't get it back!
>
> We are looking at how we can improved the skills of clinical staff in information retrieval to enable them to produce evidence based care pathways and to be able to disseminate their own skills and results to their teams. I am taking part in a small pilot looking working with our quality practice teams together with a clinical librarian from another hospital who's leading on this project.
>
> Also not to have a black box library service. It is to be about adding value to client's decision making, the client capability and enhancing their skills and knowledge to do their job better.

The following anecdote from a law firm, clearly demonstrates the nature of the librarian/knowledge manager's extended role in staff development:

> Because they come in, they're nervous, they've done a law degree, their expectations are very high, in fact, there was a report in the paper last week saying that in law firms, there's generally a very depressed environment against a lot of lawyers, we had a very good presentation on depression in the workplace, and X came and talked to us, it was very good. And so that tied in when I read that report and so having read that lawyers coming in are very positive, after six years they're the most depressed, I decided, and this sort of thing I think you can do when you have a bit more of a view of the services, I suggested to the committee that what we do is bring in a program where we a lot – because the young lawyers are enthusiastic, and they're idealistic, and to stop them going down, depressed in the years, we've gotta give them things other than terrible budgets that they've gotta make work pressures so we've a system by which we mentor a group of kids, secondary students, who haven't got the advantages of parents that have been to uni, or that know the system, or can proofread essays, and we've matched up a lawyer to a student, and then they can send essays in to have them corrected or proofread, that they can ring them up and say, look, I'm doing this subject, what do you think, so you can just talk. I think I have a special little bond with them [staff], and they'll come to me if they're upset about something.

Knowledge dissemination/knowledge push

For many years, librarians have taken responsibility for the selective dissemination of information or for current awareness services in printed and electronic versions. The skills involved in creating a detailed profile of users and their information needs are the same skills needed to create profiles for use with *push* technologies in KM to enable

the right information to be delivered to the right people at the right time, and not to overload users or send irrelevant items outside the scope of their interests (Webster 2007). One of the interviewees said:

> Some of my best research librarians are ex-cataloguers. Because they understand how the databases are built, they know the mindset behind it, before they go to do the research, and they can find things that other people don't find.

Further evidence for the involvement of LIS professionals in knowledge push-type activities came from a Governmental department:

> We use a lot of push technology. we've actually done some very weird things, some of our services have been moved out into a demilitarized zone, which is outside the firewall, it has an authentication layer on top of it, so all our clients can get to it twenty-four seven, so that's been a really good push, because we have to work across three IT platforms, this is one of the ways of reaching our clients that, got around the issue of all the IT platforms, basically. As long as they had an internet access, they could get to it. We've also used a lot of push technology, so finding out what people need, developing systems that actually push it to them in little chunks, as they want it, rather than great big online heaps of information that they don't know how to deal with, so we're trying to get over that info-glut type issue, as well, so people have the most relevant, most up-to-date and the most comprehensive and concise amount of information that they need in their subject area, so, the library catalogue got redeveloped where we index an abstract of all our journal articles into it, everything goes into it, and then you set yourself up a profile, like libraries used to have (SDI) services. And then that's actually pushed to you, if you want it hourly, if you're silly enough to want it hourly you can have it, but most people ask for it weekly, and it comes through to them as an email, with just the links, one click and it's to them.

Training

Involvement in education and training is not an unfamiliar experience for LIS professionals. In fact for a number of years, librarians have been developing a role in preparing and delivering information literacy training to users both formally and informally (Abell 1999; Koenig 2001; Blair 2002; Henczel 2004b; Sinotte 2004; Webster 2007). There is clear potential for an extension of such activities into the field of training for the effective use of information and systems. Knowledge workers need to be able to make effective use of information and systems. Blair 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' (Blair 2002, p.1027). The following evidence for involvement of LIS professionals in information literacy training came from interviews conducted for the present research:

> And then we also have people who focus on training, so we've got a very strong architecture for knowledge management here, in Lotus Note, so there's quite a lot of training we have to do with new staff members, on how to use it, and there are people in a specific place who do that, all the new people that join the firm are put on a training course with that.

> We go in to each team in the organization and train them to use our information products, the less of the unit cost. So if you are paying $50,000 for a database but you have got 10,000 people using it, that's dirt cheap. So this is the driver, getting more and more people to use our products and services so that they do become cost effective.

> Doing industry analysis and providing knowledge training and course support for the staff. The more traditional library doesn't really exist like it used to.

In the university context, however, information literacy training is now emerging in a much wider context, one of lifelong learning, something that is already being integrating into curricula:

> The other side of it is trying to build in information literacy training, into the curriculum, because, the skills, those generic skills, of being able to search and manage and sort of evaluate information, is a lifelong learning skill that needs to be embedded in a graduate, but the best way to embed it is to embed it in a curriculum, and some way make it accessible, and main stream, rather than an add-on, oh well, there's a thing going on at the library, you can go to the class.

The development of e-learning in universities has extended the educational role of LIS professionals. LIS professionals have been developing their e-learning skills through producing electronic training packages for their users (Webster 2007). One interviewee stated that: 'Computer supported e-learning requires many of the skills LIS professionals are already good at.'

Activities related to facilitating e-learning have mostly been developed in universities. LIS professionals in universities have taken leading role in e-learning. E-learning

requires team working: ‘If you want to be part of e-learning, then you need to work with e-learning professionals and IT professionals and academic staff and library people.’

Table 4.22 E-learning activities in universities with a KM dimension

Interviewee’s statement	Theme
We are putting learning objects into repositories.	Developing repositories for learning objects
We are trying to build more capacity amongst the staff to be able to use e-learning tools. All of that comes within the library’s limits as well.	Staff training
I’ve just appointed a copyright advisor, to make sure that what we’re using is legal, because academics in particular just, use whatever they think is appropriate for their teaching, whether it is legal or not, so, we’re doing a program to try and set up a system, and processes, that will manage IP, licensing, copyright clearances, and helping academics to do the right thing.	Dealing with copyright issues
trying to develop, and to manage curriculum material, for delivery through an e-learning platform and then also trying to leverage off , what would have been traditionally library material, and trying to get that more embedded in the curriculum, and in the e-learning environment.	Managing curriculum material

Capturing explicit internal knowledge

LIS professionals have always been involved with organizing external knowledge (Koenig 2005). However, they can extend their role to apply their skills for organizing internal knowledge. Knowledge created by the employees in the organization (internally generated knowledge) needs to be organized and managed. The importance of internal knowledge has been reflected in claims that anything between eighty and ninety-five per cent of the information used in an organization is generated *internally* (Abell & Oxbrow 2001) and again:

> Librarians are generally seen as experts in finding and processing external information. They manage the published knowledge base and make it available for integration into other sources of information and knowledge, but they have not established their claim on internal information in many cases. Yet look at the obvious benefits of integrating internal and external information resources. Librarians must make it clear that their professional activities and skills have equal relevance whatever the source of the information they are processing, and that the same techniques can help users of internal knowledge as much as those consulting their library collections of published works’ (Pantry & Griffiths 2003, p.106).

In a similar vein Dewe states: ‘The skills of managing external information (cataloguing, classification) are transferable to managing internal information (metadata,

taxonomies)' (Dewe 2005, n.p). One obvious area of opportunity for LIS professionals in this regard is the selection, and management of information held on organizational intranets, an opportunity which is already being exploited (Webster 2007). Another potential area of opportunity within the KM domain for LIS professionals was identified by Dewe. She cited the potential involvement of librarians in the development of open access publishing via institutional research repositories as an example of the kind of internal knowledge activity that could take them closer to the heart of the knowledge distribution process (Dewe 2005). In responses to interview questions on such opportunities, interviewees commented as follows:

> Trying to keep up with what was being created within the organization, get it captured, get it approved to be distributed, get it distributed and that kind of thing.

> I put my efforts into getting all the university's policies into a staff intranet so that they can find things. That wasn't really so much my responsibility at all, but I just said because I have got knowledge in my title …

In responding to questions relating to opportunities and potential new roles, interviewees identified problems to do with lack of technological infrastructure, lack of top management support, and the presence of cultural barriers to the capture of internal knowledge:

> The biggest ongoing problem was just getting people – well, they were parallel – getting people to give you information, and then just having the time and the bandwidth to do the processing necessary to get it classified, get that information up and on to websites, or, into whatever distribution system you were using, there were a couple of them that were being used. we've always sort of felt that if we had a better distribution system, people would be more willing to give us their stuff, but we also didn't have enough bandwidth to process more material to get it into the distribution system, and it was always a little bit of a chicken and egg thing there, but in that scenario also, I think it wasn't something that was high on the bankers' priority list either so getting access to the materials was always something that you had to do.

Cultural barriers:

> I am trying desperately to break down the silos. It requires reorganization; it requires fights with the unions. It is about changing the whole culture. Power is not the information I know and going to keep it is really having people understand that we are all in this together.

> There was a partner two years ago who was a hoarder, and he just had a room you could hardly move in, he just printed out everything I sent him, and he wouldn't let go of it, he was too worried, and he had to move into another room, and that caused him to do a clean up, and he gave us everything.
>
> There was very much a relationship piece to it, because the people who you were going to get information from, who were going to send you things, specifically, were the people you had a relationship with, who trust you, that when they sent you the material that you were going to be careful with it, and not, post some confidential page that, somewhere, and that kind of things, so you definitely had to be out and talking to people all the time.

In universities, the focus of managing internally generated knowledge has mostly been in capturing academic publications which traditionally were not available to other members of the university until they were published in journals and collected by the library. However, the advent of KM has enabled universities themselves to become publishers, with a focus on providing access to their universities' research output. This has been reported by LIS professionals in respect of the KM activities of their universities and is summarized below

> At X, we are now looking at trying to work with our faculty and capture and preserve long term materials that they are creating, the things beyond- they always wanted to have access to articles that they had published. We try to publish these data sets.
>
> We're responsible for rolling out Reference Manager and Endnote, coz we're creating a research reference database of academic publications for the RAE exercise, so we're leading that one across the university, so that's knowledge management.
>
> We are creating repositories of materials that fits particularly interests in their areas. We are pushing the university's own research into a repository.
>
> We are doing a lot of work with filling our virtual repository and finding ways to capture things that are created by the professors and has keep up with that and make that more accessible.

4.4.4 Barriers to the implementation of KM

Interviewees were asked what problems they had encountered in trying to implement KM in their organizations. As is clear from table 4.23 most of them identified cultural barriers and a lack of staff awareness of KM and its benefits as obstacles to the

implementation of KM. It took them a while to overcome those barriers. It is clear that whatever the organization or the context, these are common barriers which every knowledge manager might face. The details of barriers reported by interviewees are summarized in table 4.23.

Table 4.23 Barriers for KM implementation

Interviewees' statements	**Theme**
I think if we can get people to think about knowledge management, and not just do the easy bit, which is the information management, that's the barrier, because it is hard work to go out and talk to people, and build a broader knowledge base, it does take a lot of effort in thinking through how you're going to do that. It's also difficult to initiate discussions with senior executives if you're not a senior person to actually talk to them about the business, and like I said, you can't just go cold to these meetings, you've got to know something before you go, with some suggestions as to how you might be able to support the business in different ways than you are right now. And I think that would be appreciated. So I think it's a bit about the culture, we're a rather conservative culture by nature, and we don't tend to want to break out. It's risky, if you don't succeed, if you don't look like you're doing something different. People will be sceptical about the value of knowledge management.	Cultural barriers
It took me a number of years to use the word knowledge management, because I waited for the howl of oh, knowledge management, what are you on about? They now accept that, but you've just gotta be careful that you don't make things seem unapproachable and esoteric, or that you're trying to make them – to impress them with something.	Cultural barriers
It is a longer term goal, and I think that's one of the problems, that people- if they don't see an immediate improvement, then they find knowledge management more difficult to understand, so sometimes, you have to try and articulate what your strategy is, and get a few quick wins, in order to be able to get, so, for example, at the university of X, the same would be true in councils, I imagine, there was a lot of wastage in the IT environment, everyone had grown their own desktop systems, no one could talk to each other, and what I decided to do immediately was to *[continued over page]* bring in policies, which, over a three-year period, would reduce that duplication, and obviously, return money back to the university, or, staff time. And, by being able to demonstrate that, then you'd be able to demonstrate why there's a value of having knowledge management.	Cultural barriers
I think there's a fear factor around the word, once you get in and start working with people, and talk about how knowledge relates to the work that they do, they're fine. But it's putting it in the language of business outcomes. And until you actually make it real, and give them examples of where things go wrong, because knowledge was not right, or knowledge was not shared, or something like that, they go, oh my God, you're quite right, that's a really big issue.	Lack of awareness of KM
they knew that, instinctively, knowledge management was important, but they didn't really know what it was, and it probably took about six months with the help of my boss, who is the chief of technology research, and innovation, talking to leadership, and talking to the employees about what knowledge management was really about, and breaking it down for them, and showing that there really was a return on investment, just like there is	Lack of awareness of KM

on libraries.	

LIS professionals in senior KM positions

As was discussed in the literature review, despite the relevance of LIS skills to KM practice, it seems that LIS professionals appear to have had little involvement in organization-wide KM activities, and have failed to make the most of the new opportunities that KM presents. Furthermore, in the present research project, only 24 respondents to the questionnaire (6.5 per cent of all participants) had the word 'knowledge' in their position titles. For that 6.5 per cent of LIS professionals involved in KM related jobs, the following position titles emerged:

- librarian (university) and director of knowledge management
- knowledge strategist/writer/speaker
- team leader client services (managing a team of knowledge professionals)
- knowledge manager (six respondents)
- knowledge management specialist (two respondents)
- knowledge management coordinator
- library and knowledge manager
- head of knowledge management at a healthcare organization
- knowledge management leader
- knowledge services manager
- knowledge management officer
- knowledge management services manager
- knowledge specialist
- knowledge information specialist
- librarian and knowledge manager
- manager knowledge centre
- knowledge management, vice principal

Reviewing the above positions reveals that only thirteen participants (3.5 per cent of the participants) were engaged in leading KM roles in their organizations.

What are the barriers for LIS professionals' migration to KM roles?

Despite the relevance of LIS skills to KM practice, it seems that there continue to be barriers which inhibit the full engagement of LIS professionals in KM. These barriers to LIS professionals' engagement in KM have been discussed in the literature review.

According to the literature, part of the problem stems from the profession's long-standing focus on published information resources, as distinct from, for example, information resources and knowledge generated within organizations. According to Koenig (2005), the focus of KM is broadening to include external information resources – which would remove one of the barriers to greater LIS engagement in KM – but the nature of that broadening remains to be demonstrated, and in the meantime the profession also continues to be hindered by its traditional focus on the information 'container', as distinct from the content. Linked to this is the continuing view – right or wrong – that members of the profession lack the business knowledge required to be serious contributors to the leveraging of corporate knowledge. There are also the related barriers of image, nomenclature and visibility, two of which may be beyond the control of the profession, the personality traits of librarians – if, indeed, one can generalize about these – and finally the management skills. Participants in the questionnaire and interviews for this thesis identified similar barriers which are outlined below.

Image of librarians

As was discussed in the literature review, the traditional image of librarians seems to incline employers to exclude librarians from consideration for senior KM positions. Furthermore, some participants in the present research project also perceived the negative image of librarians as a barrier to their involvement in KM. Relevant comments to open ended question 9 of the questionnaire, which asked respondents if they had ideas for improving the relationship between KM and LIS are summarized below.

> Possibly one of the stumbling blocks for the profession is the traditional image of the librarian.
>
> Many employers are not aware of what a librarian/information professional can do. KM is just another example of this lack of understanding. It is probably up to all of us to change this.
>
> Information professionals are often not valued members of staff in organizations.
>
> Librarians are seen as part of their own world of the library rather than people with a good educational background and who could become a valuable asset in general to the organization on non library issues. Librarians need to be regarded as a diversely skilled knowledge professional.

> Make it easier to sell to management. I qualified years ago and after 13 years in the same organization still have not been able to sell the idea of progression beyond the Library environment.

> Starts with the business and with IT professionals. Neither recognizes librarians as having something to bring to the party.

> One of the problems within our profession is that our skill set is not acknowledged. And yet, it's needed.

It could of course be argued that the problem is not solely one of image, but of a failure on the part of librarians to promote their skills as potential contributors to KM. One of the respondents to the questionnaire observed:

> They use taxonomy, but it's a classification system which librarians have been involved with for years. But we're not taking credit for the fact that we've been doing this for years, we don't do a good job of advertising ourselves. They're not able to communicate, that they can do more than just grab a book for somebody.

Furthermore, so far as participants in this research project were concerned (certainly those who had attained positions as knowledge managers), the negative impact of the image of librarianship had not turned out to be a problem, especially for all those knowledge managers interviewed who had the title of 'librarian' in their previous position. One of the interviewee's observed:

> They value library background anyway, because libraries are well regarded, and if you've been a good manager within your library, then they assume that you could manage other things well.

And these successful knowledge managers were no less proud to be librarians:

> I don't feel, being a librarian, having made the transition, I still feel like I'm a librarian. That's important, because I think a lot of people got out of the library, and becoming something else, I do not have the feeling that I have become another creature; I still feel like a librarian.

Ignorance of business goals

The practice of KM requires an integrated approach to the achievement of organizational goals. In this context, the potential contribution of LIS professionals to KM initiatives might be seen to be inhibited by a general lack of business knowledge. A

lack of business knowledge could have the effect of distancing LIS professionals from the business goals of their organization. The ignorance of business goals has been identified as one of the most important barriers to the migration of LIS professionals into KM roles, as three of interviewees observed:

> Librarians have a tendency to get stuck down on the fluff balls on the floor, and forgetting that they need to step back and say, okay, what is it we're trying to achieve, in the organization?

> You have to understand the organization that you're in, and I don't care whether you're in fed, corporate, higher ed, or state government, you gotta understand the people that you're serving, and what's important to them. It's not enough just to set up a question development policy that says we're gonna collect information on road construction. What, specifically, do they have to know? And they can't know that if they're not really familiar with the field. So people need to understand the business. They need to understand how they fit into it, and what they can offer. How they can sell that to their leadership.

> I think we have a resistance to get involved in the business of the organization, and that really does work against us. I think we feel, somehow, that we don't need to, or we're too junior, or whatever it is, I'm not too sure, I mean, I think those conversations about what business is, and where people are going to, and what the long term goals are terribly important.

Furthermore, librarians need to be able to communicate in business language in order to participate fully in the business activities of their organizations. As one interviewee observed:

> I remember we interviewed a librarian for a job in Sydney, and he came to the interview and started using library speak, which to me, you know, I understood perfectly what he was talking about, the managing partner, who was sitting in on the interview, and the human resources manager, when he left the room, they just started rolling around laughing, and saying, I can't believe people use the library terms.

Lack of lateral thinking

A lack of lateral thinking and a tendency to focus too much on details were identified by participants in the research project as barriers to the engagement of LIS professionals in KM. Some respondents to the questionnaire, and some interviewees, believed that librarians' reluctance to look beyond traditional librarianship had worked against their involvement in KM. Their views are summarized below.

> Most of the librarians are – that I'm working with, see themselves, in a very classical role, sitting on a stack of books and providing service.
>
> The other thing that I find is librarians feel a little bit uneasy about is they've been used to being king of their own patch for a long time, king or queen, of their own patch for a long time, and the only way that knowledge management works is to give up some of your control to other people, so that you can partner and get better results, and so sometimes, you have to be a good follower, rather than a good leader, and you have to know when is a good time to collaborate and partner with people, and when is the right time to take the leadership yourself, so if there is somebody else in your organization whom you think oh, wow, what they're doing in knowledge, I could really support this and I could make it a lot better, it's better to actually work with those people.
>
> What I have found is that traditional librarians find it very difficult to evolve into KM, so they will stick with what they know.
>
> What we're probably seeing is that the old-school librarians still probably have their head in the books, sort of thing, and we've got to create a new bread. if they realise that they've got skills, and there are opportunities out there to do things differently…
>
> Librarians tend to show the attitude of 'we are JUST librarians'. I think we need a change in attitude towards information sciences and update our own values about the occupation.

4.4.5 Discussion and conclusion

This section has reported on the perceptions of LIS professionals as regards their role in KM, and also has presented evidence for such involvement. LIS professionals do see a possible career path in KM, and see their skills as being relevant to KM practice. They believe that it is a field in which LIS professionals can be involved, provided they are willing to extend their current roles. Evidence for such involvement revealed that LIS professionals in general have been largely engaged in the information management side of KM. Accordingly, LIS professionals were more likely to advance within the organization by staying within the information management framework. Specific roles include: information research/audit, taxonomy development, content management, records management, provision of a personalized current awareness service and training staff to retrieve and use information, developing portals and databases; and knowledge distribution/knowledge push. The results of the present research, therefore, confirmed the earlier findings of Ajiferuke (2003) in that

information professionals participating in KM programs were involved in basically information management roles, such as the design of the information architecture, the development of taxonomies, or content management for the organization's intranet.

However, the advent of KM has resulted in the skills of LIS professionals being seen as relevant to new contexts, with a consequent potential (and, in a growing number of cases, actual) extension of their roles. For example, the capture of explicit internal knowledge has not been traditionally within the realm of the LIS profession, although it demands similar skills to those for capturing explicit external knowledge, which is something that LIS professionals have always done. The development of directories of expertise, entailing the cataloging of the skills and expertise of people within organizations represents another opportunity for the modified application of traditional LIS skills. Only a minority of participants to the survey reported their involvement in such unfamiliar roles as capturing tacit knowledge and facilitating knowledge sharing. However, findings emerging from interviews revealed that leading LIS professionals employed as knowledge managers were fully engaged in those activities. This confirms that LIS professionals potentially are competent to have a role dealing with tacit knowledge as well.

The results of the present research support the picture presented in the literature of little involvement by LIS professionals in senior KM positions. Although evidence emerged in the current research project that LIS professionals were making a contribution to KM at a basic level, their involvement in more senior positions tended to be more the exception than the rule. Hence, only thirteen respondents to the questionnaire (3.5 per cent of all participants) were leaders of KM in their organizations.

The researcher interviewed eleven of these thirteen LIS professionals who were leaders of KM in their organization. They were knowledge managers in a range of public and private organizations including law firms, governmental organizations, universities and commercial companies. They provided a wide range of KM activities undertaken by these librarians/knowledge managers in their different organizations, each varying with the organization and its particular goals. For example, the KM focus within universities was on e-learning; in law firms it was on knowledge sharing; and in government organizations it was on enhancing peoples' skills and knowledge. Treating people as knowledge resources was pervasive in all cases.

Although the results cannot be generalized beyond the individuals and organizations participating in this research project, it can be argued that in the context of the present

research, LIS professionals are already making their contribution to KM. Clearly this contribution lies mainly in the application of the information management skills of LIS professionals. Most of the activities reported by participants as characterizing their involvement in KM could be considered as an extension of records management, information management and data capture and analysis activities into the new context of KM. However, the research produced little evidence for the involvement of LIS professionals in leadership roles within KM. If this involvement at a senior level is to be increased, there is a clear role for LIS education. Extending the LIS curriculum to include business and management subjects, and also promoting desirable personal attributes, could better equip LIS professionals for operation within the domain of KM and give them the confidence to move forward. This point has been discussed before in the context of education for LIS and KM.

4.5 KM and libraries

4.5.1 Introduction

As was discussed earlier in the literature review, there is a gap in the literature as regards the relationship between KM and libraries. Relatively few empirical studies have investigated the contribution of libraries to the implementation of knowledge management in their organizations. Marouf (2004) investigated the role of corporate library and information centers in knowledge management in the USA. The results reported widespread involvement by librarians in the development of knowledge repositories and databases of best practices and lessons learned. Also, their involvement in the use of intranets, portals and knowledge-sharing technologies was pervasive. However, quite a number of the KM initiatives identified went little beyond traditional information management activities (Marouf 2004). There is not much evidence on how different kinds of libraries can contribute to KM in their organization. The literature also does not have much to say on the use of knowledge management as a tool for the management of libraries.

To shed light on these under-researched areas, the researcher sought to gain insights through the perceptions of the LIS community on relationships between KM and libraries, including potential benefits for libraries and the contribution of libraries to KM practice. She also sought to provide evidence for the involvement of libraries in KM practice, and for the outcomes of such involvement, identifying the principles and practices commonly associated with KM in so far as they seemed to be of potential importance or relevance to library and information services.

To achieve these objectives, some of the questions in the questionnaire explicitly addressed the position of both KM in libraries and libraries in KM. Questions were both open-ended and closed. Although the LIS community was generous in its response, not least in providing additional comments to open-ended questions, further information was obtained through interviews with leading LIS professionals. Hence the findings reported here are a combination of the analysis of both questionnaire responses and interview data triangulated with in-depth analysis of the literature. It is worth noting that the role of LIS professionals in KM, although relevant to the topic of this chapter, has been presented in a separate chapter because LIS professionals do not necessarily work in libraries and, also because the library function is missing in many organizations. Therefore, in this chapter only findings directly related to a place which performs a library function have been presented.

4.5.2 The benefits of library involvement with KM

In the wider world, knowledge management is now gaining recognition as a key factor in organizational success. As this applies to organizations of many kinds, profit and not-for-profit, there would be potential benefits in the application of knowledge management within libraries, and their parent organizations and in the communities they serve. To identify the perceptions of the LIS community on potential benefits for libraries through their involvement in knowledge management, the topic was investigated through both the questionnaire and interviews.

Survival factor

There is a view in the LIS literature that libraries are in danger of being left behind in competition with other information suppliers. Knowledge management has been seen as a survival factor for libraries, helping them to respond to challenges the LIS profession faces in a discontinuously changing environment (Shanhong 2000; Teng & Hawamdeh 2002; Wen 2005). There is support for these views in the literature, where one researcher found that for 88 per cent of libraries in legal firms, the share of internal budgets was rising due to the introduction of knowledge management (Valera 2004).

To see whether LIS professionals regarded KM as a survival factor for libraries, respondents to the survey were asked to respond to a statement using a five-point Likert scale ranging from *strongly agree* to *strongly disagree*. As is clear from table 4.24, 82.2 per cent of LIS participants in the research survey *agreed* and *strongly agreed* with the statement that KM can contribute to an improvement in the future

prospects of libraries.This finding is supported here by comments drawn from the questionnaire and the interviews which have been summarized below.

Table 4.24 KM can contribute to an improvement in the future prospects of libraries

strongly disagree	disagree	don't know	agree	strongly agree	overall[13] (mean)
0.5%	3.8%	13.4%	59.9%	22.3%	agree

Potential benefits of KM for libraries, direct quotes from surveys and interviews

> KM came just in time. It has given libraries a new lease of life.
>
> That's where we can both think of one department where the library was going to be closed and the library came up with a new vision and quite quickly the library became very much appreciated and it is a leading player in the KM field.
>
> One of the things that we have discovered is we are actually able to show more of a return on investment for the library because of their involvement with KM, they have got higher profile.
>
> I have seen companies who grasp the value of KM realize the need for their libraries to be involved in the process. Thus given value back to the corporate libraries. So while public school and academic libraries are closing, corporate libraries due to KM are progressing.
>
> our library is expanding, as a result of having become involved in knowledge management. Other places, the library's downsizing.
>
> if librarians don't move, they're gonna become obsolete, because there's not a huge demand for libraries any more in business, so if you don't change with the times, then you're gonna be left behind, and I think that those who've realised that have made an attempt to move themselves into the next area, which is KM.
>
> We are all in business and to stay in business, we have to be competitive and to say that you are not in business and that you are not in competition is actually denying the reality. Certainly librarians are not in competition with each other, but they would certainly be in competition to get funding within their own organization. KM would help libraries to survive in competitions.

[13] The researcher has designed the following scoring for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44= strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don't know; Mean 3.45 to 4.44= agree; Mean 4.55 to 5= strongly agree.

Increasing visibility of libraries

As has been mentioned earlier in this thesis, libraries have frequently been accused of being insufficiently aligned with the goals of their organizations. The ultimate aim of knowledge management is that of achieving the organization's mission. Therefore, all parts of an organization (including libraries) must participate in ensuring that the contribution of knowledge management to realization of the organizational mission is supported. Adoption of this knowledge management perspective could assist LIS professionals in meeting user needs in the light of ultimate organizational goals. Furthermore, KM gives libraries an opportunity to collaborate with other units in their organizations and hence, to become more integrated into corporate operations and enhance their overall visibility within the organization. To test if LIS professionals believed that KM can enhance the visibility of libraries, they were asked to show their level of agreement with the statement below. Their answers have been summarized in table 4.25. A clear 82.2 per cent (a high majority) of respondents to the survey, *agreed* and *strongly agreed* with the statement.

Further support for this view came from comments to the questionnaire and interviews which have been summarized below.

Table 4.25 KM can help make libraries more relevant to their parent organizations and users

strongly disagree	disagree	don't know	agree	strongly agree	overall[14] (mean)
1.1%	3.8%	12.8%	55.7%	26.5%	agree

KM and enhancing visibility of libraries, direct quotes from survey and interviews

> I see a lot of libraries that in one way or another, have managed to become the fifth wheel on the wagon of the organization. It means that being unnecessary or in a very loose functional side to the core organization. That's a problematic situation and I see KM as a way out of that situation.
>
> KM made librarians aware of the need to look outside the realm of public books and think in terms of bigger picture about working with individuals within the organization.
>
> new people who come into the department are often sort of, oh, it's just a library, and then what happens is, our existing clients become our champions, they sort of say, no, no, no, you've got to go to this library, you have no idea what they do, and in fact, we had one person at a recent morning tea we ran, came up to me and said, you know, I accepted the job in this organization because of the library. I knew I had the research backup I needed to do my job here.
>
> I definitely think that it can be beneficial within the profession. I would like to see us do more knowledge management within the library, and I think it offers us opportunities outside the library, to be accepted, we're providing knowledge management services for the university and coming from a position where I was- coming from a position where I was a knowledge manager, I certainly saw it as a valuable role, and a valuable service for a library to be providing.
>
> An understanding of KM may help library and information professionals to see the libraries and information departments in an organization in a broader framework.

[14] The researcher has designed the following scoring for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44= strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don't know; Mean 3.45 to 4.44= Agree; Mean 4.55 to 5= strongly agree.

A small minority of participants in the present research regarded knowledge management as being solely a business phenomenon and, therefore, of no direct relevance to libraries. As one of the respondents observed:

> As we're seeing in the global economy, competition tends to end up with a few very large businesses eliminating the competition. Libraries work on the basis of cooperation. No single library can own or provide everything, especially when services need to be delivered locally. It is essential for libraries to cooperate among themselves.

4.5.3 Evidence for the involvement of libraries in knowledge management

In search of evidence for the involvement of libraries in knowledge management, respondents to the questionnaire were asked if they were aware of either the successful implementation of KM in a library, or of a KM project in which a library was a participant (see tables 4.26 and 4.27). Those who answered '*yes'* to the question then were asked to provide basic information about that library or project. Responses to this question are shown in the comments below. Almost 11 per cent of respondents were aware of the successful implementation of KM in a library context. As regards the second choice, nearly 23 per cent of professionals know of a KM project in which a library was a participant.

Table 4.26 Are you aware of the successful implementation of KM in a library?

		Frequency	%	Valid %	Cumulative %
Valid	No	330	88.9	89.2	89.2
	Yes	40	10.8	10.8	100.0
	Total	370	99.7	100.0	
Missing	System	1	.3		
Total		371	100.0		

In terms of the geographic distribution of reported library involvement, it is clear from table 4.28, that this largely extended to the activities of libraries Australia, the USA, the UK and New Zealand.

As table 4.28 shows, the number of respondents who were aware either of library involvement in a KM project, or of the successful implementation of KM in a library was exactly the same for Australia, the USA and the UK, with New Zealand (based on a much smaller total respondent population) being just under half the response level of the other three.

Table 4.27 Are you aware of a KM project in which a library is a participant?

		Frequency	%	Valid %	Cumulative %
Valid	No	287	77.4	77.6	77.6
	Yes	83	22.4	22.4	100.0
	Total	370	99.7	100.0	
Missing	System	1	.3		
Total		371	100.0		

Table 4.28 Library involvement in KM by country

Countries	Total number of participants	Number of participants who were aware of KM practice in libraries	%
Australia	87	25	28.73
USA	83	25	30
UK	62	25	40.32
New Zealand	21	12	57.14
Canada	12	3	25
Mexico	7	1	14.28
India	5	1	20
Others	55	21	38.18
Total	371	122	32.88

Can KM happen in a library alone?

As is clear from tables 4.26 and 4.27, most of the evidence for KM projects was for those in which libraries were involved with other players, rather than for projects operating within libraries themselves. This, however, is not an unexpected outcome in that KM requires a holistic approach, and one that should of necessity involve the library as an element of the organization. This point is reflected in comments to the questionnaire shown below.

KM in a library alone, comments to the questionnaire

> KM doesn't happen in the library. It happens in the organization. The library or information professionals may implement or be part of the KM project but it cannot (by definition I would have thought) be isolated from the rest of the organization.
>
> KM should embrace libraries. Libraries are a tool for KM. KM is not necessarily a tool for libraries because it is a broader concept than access to peer

> reviewed high quality literature. KM and library professions need to understand how much or little libraries can really take responsibility for KM.
>
> I think that libraries are one part of it, sometimes people make mistakes- libraries make the mistake to think that's the be-all and end-all of KM, but it is only a part of KM. you do have people beyond the library, outside the library and so some will be out to and organize all of that side, outside the library, staff are doing this in our organization, getting into that, up and running and got the detailed look at how to organize all of that, within the organization, so if you start it is a part, it is more of a large thing, but if you start talking in terms about how you are organizing things, different ways to get that same for it.

The research did not provide any guidance for the implementation of KM in the library environment. However, two interviewees provided examples for knowledge sharing and capturing tacit knowledge within the library and between librarians themselves:

> What we've set up in the library, it's been our groups that are producing that, and we have several, smaller groups, that are doing a really excellent job of their own knowledge management, that are preservation groups, we have a group, book preservation, and they've put together a website, and they've done a lot of capturing and putting together processes, they've done a really excellent job of capturing that kind of internal management, internal knowledge, capturing their own knowledge and making it available, and they have conversations, and our cataloguers have done some of that as well, not as extensively as the preservation focus, but the cataloguing groups has some groups together. How much they're talking to one another is an open question, I don't think so much that they are. But within their groups, they're creating information, and capturing it, so one of the challenges going forward is to make sure that the left hand knows what the right hand is doing.
>
> We have very good librarians, I train them a lot in communities of practice, that's one thing, in the librarian community, and almost all federal librarians are united in that community, but that's also an internal knowledge management function, they do a lot of knowledge sharing, which they didn't used to, they used to be in their vertical organizations, and not have much contact, one with the other.

The contribution of libraries to KM in their organizations

Respondents to the questionnaire were aware of KM projects in which libraries were a participant. As shown in table 4.27, in all 22.4 per cent (83 people) answered '*yes'* to this question and reported evidence of such involvement, although some of these

respondents perceived basic information management activities as being KM. Relevant comments have been summarized below.

Basic information management activities perceived as KM, reported by some questionnaire respondents

> Project which allows access through the library catalogue to other information resources e.g., patient leaflets guidelines etc. Is that what KM is?
>
> Not sure about the practical aspect of KM but very familiar with uses of databases and virtual libraries but doubt very much if that is the meaning of KM.
>
> I guess there are lots of projects but they are not necessarily labeled as KM. I am involved in setting up and maintaining a database of topics being proposed for publication and some being selected for publication in my organization. The database acts as a place to store all the topics and it is possible to search and retrieve topics as well as acting as a planning tool for the organization.
>
> Our internal archive purports to be a KM project.
>
> Building of a database of author publications of the organization.
>
> Our library is about to embark on a project involving corporate blogs. With regard to the collaborative aspect of blogs and engaging users in the blogs this would be a KM initiative in our organization.

However, in some other evidence of libraries' involvement in KM reported by respondents to the questionnaire, libraries were mostly involved in an information management role within KM through developing institutional repositories, intranets, and database of FAQs. These comments have been summarized below.

Libraries in the information management side of KM, direct quotes from survey

> Particular examples would be provision of a personalized current awareness service and training staff to retrieve and use information. I have also been involved in a project across libraries in the X to find out the information needs barriers etc for primary care staff. I ran two focus groups with health visitors.
>
> Many corporate libraries and specialized academic libraries perform acts of knowledge management as a matter of their routine operations.
>
> The X to which I serve as head of IT department organized a knowledge repository for Y library information consortia. The repository includes contracts, licenses, projects, subscription database guides and correspondents.

As library manager I worked as part of a small team to develop a trust intranet as a knowledge sharing tool.

We're doing the record management for the group in the library.

In our organization the library is part of the KM division. Librarians are internal consultants in taxonomy creation management of best practices and lessons learned repositories and organizers of special collections supporting communities of practice.

Our library led the move from an email culture to a web culture for global staff communications. We developed requirements for a news application that was created by IT. The database archives global messages to all staff so that they are searchable and can be referenced when needed. We led the creation of a knowledge base that contains the answers to questions frequently asked by staff or the public. It classified information for browsing and searching and pushes information to our intranet or to our public website.

Our library is responsible for web management, content collection and redistribution within industry teams.

Library staff led implementation of corporate intranet including news posting tool to replace mass email.

After considerable initial resistance intranet has been widely adopted to distribute corporate news media coverage share documents and provide access to information tools.

The library has seconded a librarian to the relevant agency and that librarian is responsible for capturing precedent documents and advices and making them available via a searchable database. The librarian also performs maintenance on the database and also 'weeds' the information contained in it to update it to be in tune with changes in that area.

A knowledge framework developed for a X organization which included librarians as key team members for their information skills. A college Knowledge Exchange Team which includes librarians, teachers and the web development team members that uses the notion of collaboration builds trust and shares knowledge.

Knowledge and information are shared among HR through emails and intranet AND are disseminated to users and visitors through the webpage of the library.

Daily feedback and updates are posted on the webpage. Also through current awareness programs.

X has had a special library for years (close to 100 years) and when the global firm implemented KM the library formed an integral part of the implementation. It is an example of a library that was and is now a very successful KM resource.

We as X librarians are part of a new KM directorate within an Y in Z and we are in the process developing a pilot project to look at a KM approach to information sharing and organization. We are collaborating with clinical and data colleagues.

As a library manager, I worked as part of a small team to develop an intranet as a knowledge sharing tool.

Our public library has staff involved in managing the council's intranet project and participating in the development of the knowledge management strategy.

In our firm information services partners with knowledge management to provide a holistic approach to overall information management (both internal and external). This has been extremely successful. We both report to the same partner as well which is helpful.

In the law firm where I am information resources manager, KM is integrated with library services.

In several previous employers (commercial organizations), I was involved in KM projects where the IT department contributed hardware/software expertise and the library contributed knowledge on how to capture and organize the information stored.

New roles for libraries emerging from their involvement with KM

Traditionally, libraries have been involved in managing explicit recorded knowledge. However, the ethos of KM is to make knowledge accessible in whatever format (Webster 2007), including the tacit unrecorded knowledge of people. KM recognizes that people are the most important asset of organizations. In libraries, the exploitation of this asset has been achieved in two ways:

1) Providing easy access to human resources including knowledgeable experts by identifying their area of expertise and experience is an area of activity for libraries in capturing tacit knowledge.

The following comments (which are reported verbatim) show that this has been practiced in some libraries:

> It is true that librarians have been primarily concerned with explicit knowledge, or information, but they have a role to play in tacit knowledge as well. One of the things that we're doing is using social network analysis to determine who the experts are in the agency, along with some other things, and we actually are finding metadata, to the people, to any tacit knowledge that we capture through interviews, that could be audio, video, it could be (translated) into like key-points, it could be a narrative, somebody telling their story, so that puts the knowledge into context, and having a library background myself, I thought that it was really important that we be able to combine the internal organizational knowledge with the external, as well, the research and extra material out there, which meant that we needed to have a really solid metadata scheme. So that's probably their primary role, but they are also involved in helping to locate tacit knowledge, or explicit knowledge that's out there in the organization, that, for instance, somebody's getting ready to retire, they will often contact the library, and say, I have this old report, or I have this old guideline, and that kind of starts the individual knowledge mapping.

> The library maintained an opinions database whereby the librarian would help select opinions to be indexed and placed in a searchable database. A 'competency directory' whereby a directory was created with each lawyer listed along with tier subject areas any second languages spoken and any professional organizations they belonged to.

2) Another popular approach to the management of tacit knowledge is through the operation of communities of practice.

Wenger defines two roles explicitly in communities of practice, one is that of the 'coordinator' and the other of the 'the librarian'. The librarian's role is to keep the community alive by bringing in current awareness materials; and also by stewarding information by recording community activity and archiving it so that it can be preserved for reuse (Wenger 2002, cited in Cox, et al. 2002, n.p). One of the respondents to the questionnaire supported this view commenting as follows:

> It is about breaking down community of practice barriers. Very hard to do … because strong COPs are at the heart of successful KM. By fostering strong COPs you tend to create knowledge silos. The library needs to work across COPs and have allies embedded within them. This often happens with a

> common focus on research and just people in COPs who see the usefulness of synergy between the library and the COP.

4.5.4 Libraries as leaders of KM in their organizations

As reported earlier, in some cases the library has been an active driver of knowledge management. This is not altogether unexpected in that libraries are themselves sources of knowledge, and thus as good a place as any to start a knowledge management project. Some respondents to the questionnaire and also interviewees supported this view. Their views are summarized in the quotes below.

Libraries as good places to start a KM project, direct quotes from survey and interviews

> It often starts from the library. So if you have a quite progressive librarian, who runs the library, she can evolve the library into KM and that I have seen in several organizations that that person then becomes a champion for KM.

> In our library, there was a certain amount of sharing that took place, there was a lot of research that was going on by the team and so it did provide a lot of knowledge support for the business and KM evolved from there. I don't believe we would have been as successful in KM if we hadn't started with the library. And I have seen it in other organizations as well that start KM from the library.

> If you have a library, it is always a good place to start KM. if you want to start a KM initiative, because it is a place where you are going to have some form of knowledge sharing taking place, even if it is just books and people doing research, but people get used to that kind of thing. If you don't have that, and you introduce KM, there is no solid foundation for it.

> Library and information professionals must rapidly raise the profile and status of libraries in organizations so that they become the hub of KM- by proving they are indispensables in the technological age- and the necessary funds should flow to the library.

> Library people could try implementing KM in their own domain for a start: creates a good example.

Much of the involvement of libraries in knowledge management takes place in law firms, medical libraries, consultancies and perhaps to a lesser extent in university libraries. Relevant comments to the questionnaire have been summarized in the quotes below.

KM leadership by libraries, direct quotes from survey

> I am currently working on developing knowledge management processes at X my role is based within the library there and I work with the other information professionals. I am working on developing a database for experts and sharing practice and developing training on different techniques that can be used to share knowledge within teams. It is the library that has seen the need for KM.
>
> The library manager at X is responsible for the development of the intranet and the KM function.
>
> At X Inc, the majority of the current KM team are former library staff members who were supposed to be 'on loan' for the project. That was several years ago. They just acquired another company and the head of their library is now in charge of reengineering the way they capture analyst skills and knowledge areas including actually capturing the data establishing a governance model and partnering with IT to develop a system to manage the data across the organization.
>
> In X university the knowledge management working group is led by a university librarian.
>
> In the X the library has started several projects in the KM domain. One of the projects is a knowledge repository which is an excellent library (information management) kind of project.

Interviews with knowledge managers from a LIS background revealed that some of them were running KM from the library. Key KM activities in which those libraries were involved are set out below.

KM leadership by a governmental library

One of the experts interviewed was leading a KM initiative in a governmental setting, based on the library. What was particularly interesting about this very successful government-based project was that all the full-time staff involved in KM were professional librarians:

> We refer to our team members as 'librarians' – our salaried staff are all professional librarians – We've got about thirty-four full-time equivalent staff, of which twenty-three are professional librarians, the rest are contract staff, and they can be professional or para-professional.

Librarians in that organization have been trained to enhance their knowledge/skills:

> the big thing here has been building people's skills base as a librarian, so I concentrate on building their skills as librarians, so when they come in, um, they've gotta have a good, a base degree, is what it takes, and then they're put through a whole series of internal and external courses, around, one's called internal consulting skills, which is about working with the clients, another is, they have to be able to project manage, they have to be able to do, just trying to think …

The focus of KM in that organization was on the people, on the people who required their services and the people who provided them:

> Building new knowledge through talking to people with different sets of knowledge. Being a librarian and a client and getting them to work together to build what I would call new knowledge which is concept of knowledge elicitation.

> To provide knowledge enhancing services which add value to client decision-making and client capability, and to enhancing skills and knowledge, both among our own staff and among our clients. And we decided to move away from the survival model – so common in government organizations – to an innovation model, combining a holistic view of what we do with a continuous evaluation process.

The means of enhancing the skills base here was through people-to-people interactions and relationship building:

> What you need to do is to show how what you do supports what they do. You do it by observing how the clients are working, and then you show them how what we do, as knowledge services professionals, links to what they do. We've got the business intelligence for what they're working on, and we can lead them to it. And a by-product of that is a trusting, sustaining relationship that the knowledge customer can come to count on. The idea of the librarian as a trusted friend is an idea that resonates with customers. They need us, but they also have to know that we want to provide the services they require. We work hard to establish that relationship, and to keep it going once it is established.

KM leadership by law libraries

Two of the experts interviewed during research for the thesis were law librarians working as knowledge managers in organizations where the library was driving the KM effort. However, in both cases the library had been renamed as 'the knowledge centre', and the words library and librarian had also been removed from position titles. In both

organizations, the processes of knowledge acquisition and knowledge sharing were regarded as being of fundamental importance, and both operated under largely informal arrangements. In these firms, knowledge managers were in direct contact with lawyers, and worked closely with them and as a result, could gain insights into their information needs and practices.

Hence:

> there are 220 people and 100 lawyers and they are all stuck in the building. They can't escape, and we have got email, we bombard them with email, walk around their rooms, you have got them – they are captive, and it is much easier to present a whole lot of stuff and make them more accountable for things when you have got them in there, and they need it.
>
> … we then say to the department, we want all the articles you've gathered, all the press releases, anything you've got sitting around in your room, or in files, that you might think you, one, want to retain yourself, and two, might be of value to someone else in the firm, so we keywords according to the thesaurus, and enter them into the database, and then they get catalogued into subjects, filed, and, well, most of them are hard copy, and from then on, it encourages, well, once they see this wonderful file in their department of knowledge management documents, they then are encouraged to send things to us, and the departments with them are much better at organization like mine.
>
> … as soon as the lawyers join, every lawyer has his own library induction, and at that induction, one of the things I say to them is, we are a sharing organization here, we don't hoard knowledge, in fact, it's looked upon highly if you share, not looked upon highly if you hoard, and definitely mention the performance review at the end of all that. It's part of their annual performance review. So if they're looking a bit bored, they soon switch on when you mention annual performance review.

In these two law firms, having a library as a physical entity, a place to work or for legal staff to go, made it easier for knowledge managers to capture knowledge through informal contacts:

> No signs, no cross, no shush. They are allowed to sit and eat food in the library. They do all the crosswords, the puzzles and smoko. Every lunch time about eight young ones come in. They are noisy and I love that. They will come in and have a cry. They will complain, they get things of their chest. It is different to a traditional library.

> And so you have every day someone would come in and say, how are you and if you ask the extra question, they will say, oh, you know, something has been bad and then they will sit down and talk to you, so it is not really what you learn at information school.

Although as both interviewees made clear, a proactive librarian does not wait for customers to come to the library:

> One of the best things I can do is be proactive, instead of waiting for them to come and say can we have this, is to put it out and say look I think this is an area that you are wanting to develop and they love that.

> I tend to go round and visit and I will have breakfast seminars, lunchtime seminars and we will do that sort of thing. I will sometimes get in speakers and then I will go visit departments, making times to talk to them informally.

> And they start telling each other exactly what they've been doing, and sometimes they come and say, I can't stand this person, they're driving me crazy, and that person will say, oh, I had that same experience, and they're sitting down, and that the tacit knowledge – Exchanging tacit knowledge, and it's very – they love it, they really love it, they say, oh, gosh, we've got that meeting coming up with you, I've got all these things I want to say! – we meet on the Tuesday, so it's the day of going to their new rotation, and it's just – it's a knowledge exchange, it really works well, because I say to Sue, can you tell Hans exactly how you found what routines that went on in your department, what was unusual, what was different to what you've experienced in the other departments, and it was interesting.

In one of these two law firms, the librarian also played a leading role in the application of IT. Hence:

> I set it up years ago with a law student, I set it up and she just played with it, and she was quite smart at that sort of thing, and it's always come from the library, so IT luckily don't want it, and marketing have tried to put it in, but couldn't get into it a bit, but we keep changing it, and we've re-vamped it, so we make sure that they realise that we want to change it, and keep up with it, and so it does come from the library, but it doesn't always, other firms that you talk to, the library's got nothing to do with it, and it's IT usually, or it's marketing, or they have an independent person within the firm who just does the internet, but we've costed them so little by doing it through the library, they haven't had to employ any consultants …

KM leadership by university libraries

As is clear from the following comments from the questionnaire, KM has led to a larger role for libraries in the broader academic community. Apart from their information management role, university libraries have been involved in educational activities, as well in managing electronic learning resources, including the conduct of web-based tutorials and the promotion of lifelong learning. Relevant comments to the questionnaire are reported in the quotes below.

Contribution of university libraries to KM, quotes from questionnaire participants

> The library at X is designing and implementing a university wide system to manage electronic learning resources.
>
> The library is project managing a learning object repository which captures manages and tracks all intellectual property embedded in those objects.
>
> As library services manager I chair a knowledge management committee. We are a sub-committee of an education committee. Part of our remit involves assessment of scope for e-learning. We serve primarily in an advisory capacity.
>
> X university Y library particularly in the web-based tutorials for students in the various subject areas.

Two of the experts interviewed during research for the thesis were university librarians working as knowledge managers in their organizations. In those universities, libraries were heavily involved in KM. The library was integrated with learning. The following example shows that developing e-learning in universities has increased usage of library materials:

> Trying to leverage off, what would have been traditionally library material, and trying to get that more embedded in the curriculum, and in the e-learning environment. because the – a lot of well, missed opportunities really, because if students want easy access to information, they do it through course reading lists and the like, but to try and create a learning environment that, isn't exactly spoon-feeding, so that it gives students access to the information that they need.

Libraries have also been involved in more administrative roles, such as student support, which have taken them beyond their traditional roles:

> The library is responsible for the first line support for students who've got IT or library or, photocopying sort of, any nuts-and-bolts student support, so we

> provide that across the whole, all the three campuses, and it's a triage service, so they escalate it to the IT position, or to the liaison librarians, depending on who needs to the next level of support.

The general case for KM leadership by libraries

As was reported in section 4.2, the responses to question 3 of the questionnaire survey did not support the view that libraries should play a leadership role in KM. In that question, respondents were given five options for the location of the knowledge management function in the organization. The first four options were the Information technology department, the human resources department, the corporate affairs department and the library and information unit. The fifth option was posed as an open-ended question to give respondents an opportunity to propose their own suggested location. As shown in table 4.11, more than half of the respondents opted for either the IT department or the library and information unit. Some 28 per cent of LIS professionals believed that KM should be located in the library and information unit, with almost the same percentage nominating the IT department. Only 8.4 per cent of respondents voted for locating the KM function within the human resources department.

Although it was expected that most LIS professionals would nominate the library and information unit as the most appropriate location for the KM function, only 28 per cent of LIS professionals believed that KM should be placed in the library and information unit. Furthermore, there were those who were critical of proposals to locate KM within the library and information unit. Two of respondents to the questionnaire observed:

> I do not think that librarians had a strong claim to ownership of KM. Rather I thought this should be the business of human resources management and learning functions because it has to do with people, work practices, capabilities, and so on.

> It takes a whole change in the corporate culture of a company. The library staff cannot do this alone.

4.5.5 Barriers to libraries' involvement in KM

Perceived distance from the business goals of their parent organizations has been recognized as a major barrier to locating KM in libraries. One of the survey's participants observed:

> Traditional libraries have been doing KM without linking it to the business processes.

In the following comments from survey/interview participants, libraries were encouraged to link their activities to their organizations' goals.

Libraries' lack of alignment with business goals as a barrier for their involvement in KM, direct quotes from survey and interviews

> Getting libraries to think less about themselves less about what they do in a day to day basis and think about how they can make their organizations more creative and more efficient, more effective at what they do and obviously more competitive. Thinking out of the square is always the best way to do things.
>
> The more classical the library is the further away in fact from the mother organization, the more difficult it is apparently to take on a role in KM. there is a relation between the perceived function of the library in the organization and its agreed role within it already functions in the KM context.
>
> That is about leading our business not just ourselves, but to the business of the organization to innovation and increased business flexibility.
>
> Those conversations about what business is and where people are going to and what the long term goals are terribly important.
>
> Especially in the government libraries it is vital to link between library and your organization.
>
> The way to get more funds for the library is show to the top management how libraries progress their strategic directions. This is something that not all librarians understand. They don't know how to engage with that strategy. Showing how that's allied can make a great difference. That will get worse particularly in the newer universities where resource constraints are really hard and the top people are really concerned with the amount of money we go through in the library and want to justify why we are putting so much money into information that is available on the internet.
>
> What it is that they see in people the ability to work across an organization, and to contribute to the whole, contribute to the strategy of the organization, and not just stay in the library, because librarians who just attend the library are beginning to look rather archaic.

> I think we have a resistance to get involved in the business of the organization and that really does work against us. We feel somehow that we don't need to or we are too junior or whatever it is.

To address the problem of a lack of alignment, and to encourage greater involvement by librarians in the wider activities of the organization some respondents suggested that:

1) Librarians take part in planning sessions in order to be more familiar with the organizations' goals and what is happening.

2) The activities/outcomes of libraries should be expressed in the language of business.

3) Library users should be considered as customers.

In this regard, the following comments are relevant:

> [in universities] students are customers. Making sure that you put them in the middle of the equation and that everything that you do is to make it easier for students to succeed. That is the biggest challenge, because there is still the sense of I know best, I am the professional, but if they haven't really asked students what they wanted, and how they perceived the service that they are currently getting, how can you ever set it right?

> One of the most obvious ways of being effective is to begin to manage knowledge right across a university, or right across the entire cultural environment that you are in, rather than just lying in information which could be done – you could outsource that to anyone, really.

> let go of any preconceived ideas about what a library does, get up off your bottom and go out and meet your clients, take any opportunity you can to network, or to be part of their project teams, or to sit on their committees, whatever, really. But you do have to let go what you think libraries do.

> I thought, I could see how libraries could be much, much more resourceful in knowledge management, if they could take a step outside of just the organized knowledge and think about knowledge in a much broader sense, including ways of how people in universities come together and share knowledge, in a much more efficient way than we do.

> See if you can sit in on planning sessions so that you find out what the real directions are but you go prepared to those. You can't just go cold to these

> meetings. You have got to know something before you go with some suggestions as to how you might be able to support the business in different ways than you are right now and I think that would be appreciated. if you don't contribute, then you will be dropped out as quickly as you have been brought in, because it is about looking up all the websites and finding out as much as you can about what these people are working on, what they are doing, finding out where the company is, where it is going. You need to go with some suggestions as to how you might be able to support the business in different ways than you are right now.

One librarian/knowledge manager said that she has used university liaison librarians to make a link between libraries and the whole business:

> I have just appointed in my library three academic – we are calling them academic liaison officers who I want to be sitting in on the planning meetings for all of the schools and colleges, knowing where they are actually going to, maybe in the longer term, move out of particular courses, because we can't any longer justify resources evenly across the entire portfolio. What we do is we support business. If we support the business, then we have to know what the business priorities are and that's where we move more resources and less resources into where it is not a priority but we have been trying to run libraries so democratically for so long that we can't just say this department should get exactly the same as that department and but without trying to match that against the aspiration of the colleges or schools and so, it is terribly important that we begin to understand those aspirations better. Fifty per cent liaising with academics sitting in on meetings, looking for business efficiency.

And perhaps another way is to apply business language through for example, disclosing library outcomes in the form of numbers:

> One of the things that I have learned is qualitative does not go over well with the leadership. They want numbers. So even if we are polling qualitative stuff, we try to attach numbers to it.

But again numbers should show their relevance to business goals:

> We tend to take an incremental approach to things and sometimes we just need to get out of the fray. We tend to think journals this year are X and next year they will be an extra five per cent and the year after that they will be ten per cent, because it will be that five per cent plus another five per cent. But if you think constantly about okay, the organization is not going to keep on doing this forever. How can I change my business to improve what I am doing, still

> make it as good or better, but be less of a just the last thing any senior administration wants is for librarians to come twittering to them about another five per cent from last year and another five per cent without actually bringing the plan that says if we do this, this is how much more creative we can allow the people to be, because they will have access to all kinds of things, that no one else will have access to. Or, if we do this, we will be able to make sure that our people have this information in seven hours instead of twenty-four hours and that will speed up the way in which work can be achieved. Something like that fairly demonstrates. Absolutely lovely! Oh, look, aren't they sweet!

Apart from a perceived lack of alignment with business goals, there are other barriers to library involvement with KM which include:

The image of libraries

The traditional perception of libraries has been identified as a barrier to their involvement with KM. This is reflected in the following statements from the questionnaire and interview participants.

The image of libraries is a barrier for their involvement in KM, direct quotes from survey and interviews

> It is more of a socialization issue. In my experience many KM projects start off within the library but when it becomes bigger and successful it is moved to another department. LIS is not recognized and is undervalued.
>
> When we're talking about libraries and information centers and the like, the level of interest in what we do is virtually nil. Smart library managers are able to take the money and re-use it for practices that match the department's managerial philosophy.
>
> If you talk about generating revenue from KM and more capital, they immediately just switch on, it really makes a difference, where if it was a library, they wouldn't give you a starter.
>
> The more classical the library is, the more old-fashioned the more difficult the gulf for the library to work in the field of knowledge management.
>
> When we went out and talked to project managers and some of the engineers that are in the field was one, they didn't even know we had a library. And two they didn't know that the library could help them get some of the latest facts and information about what a state across the country was doing and that kind of thing.

> There is not as much interest in a push to capture institutional knowledge within the library, there is a big push to capture institutional knowledge external to the library.

> The redesign of the local intranet to host more documents and make information more accessible about the trust. The person involved in the development was later recruited to the IT department and the work removed from the library.

To overcome this perceived barrier, some libraries have changed their names and have removed the title of librarian from the position. This has mostly happened in law libraries.

> In our organization librarians are responsible for KM but we no longer use the title librarian.

> if you start using some of that library speak in a law firm, they just laugh at you. we've got to remove it from everything.

> No, officially it's a knowledge centre, and my title is a knowledge manager. But, we still talk about the library, because some of the, especially the older lawyers, still want to- you know, they like their library.

> I see library as quite a generic term. I know lots of people have moved away from library and call it knowledge centre and cybrary or resource centre but what we recognize is that libraries have constantly changed over the years and that library doesn't really just necessarily just mean books. We should actually be proud of the fact that it has improved nevertheless. If it is politically impossible to just get by in having a library, then I guess you ought to think about changing your name to Resource center or something else. Any thing but not cybrary certainly.

From a different point of view, one of the interviewees reported the benefits of keeping the library word:

> That [removing the library word] is really silly. Because the point is to change that initial perception of what librarians do. So we kept the word, we thought that was really, really important, and it's been very important in our relationship with X in particular, because one of the things that's really important about this is a code of ethics around librarianship, which is around information privacy. We cannot and will not divulge who is borrowing what to another agency, and that is about building confidence that even though we're a shared service,

> usage of the library itself, like subject matter, specific piece of research would never be shared with another agency.

Library staff resistance to participation in knowledge management

There is a barrier to participation in knowledge management on the part of library staff themselves. As a LIS leader observed:

> There was initial resistance to the idea of – I don't want to do KM, I am happy doing library stuff. It took time to get over that cultural barrier with them. I had to convince the librarians. The term KM doesn't go over well with everyone.

Lack of budget/staff

Operating a KM project requires both financial and human resources. The following statements taken from questionnaire and interviews are relevant:

> While we do have the understanding and identify the need, there is not always the capacity to go and make it happen. We know that there are opportunities out there to do things differently but without the system to manage some of this knowledge; it is a bit frustrating to do without extra staff. Now libraries in the main are never going to get more staff.

> I was part of KM project in my previous job at a pharmacy company and it involved creating a shared system between sales/marketing and medical information. The project was basic but had potential to grow but the organization was reluctant to provide funding for this. Funding for the library was also withdrawn and I was made redundant.

> Librarians are aware of KM but often it is a matter of priorities or of claims. They are too busy doing everyday library work.

4.5.6 Pointers to successful knowledge management in libraries

In the event, little emerged from either the questionnaire of the interviews to point the way to the successful operation of knowledge management in a library context. A few comments emerged with regard to the need to: focus on people; have people from different backgrounds in libraries; give library staff freedom to work in areas in which they are they are interested, ensure effective communication within the library, and provide value added library services:

> To focus on the people, on the people who require our services and the people who provide them. Libraries aren't about books. Libraries are about people.

> Having people from different backgrounds: when you bring somebody to a library who is of a completely different background, if they have an opinion on an issue that you are working on, it will be, oh, oh, why didn't I think of that. You just seem to think getting that other perspective was really good.
>
> If you get people with, similar skills, but not the same skills, across an entire group of people, you get some very interesting and creative ideas coming through.
>
> I wasn't going to force the ones that are not as comfortable with the public to be upfront, they could do the indexing and the metadata assistance but the ones that were interested in the public services side and really starting to understand, they got to know their customers a lot better by participating then we encouraged that.
>
> Within libraries better communication hierarchically and cross-wise would immediately launch better KM.
>
> Also not to have a black box library service. It is to be about adding value to client's decision making, the client capability and enhancing their skills and knowledge to do their job better. Two areas which attracted a good deal of support from respondents were those of information technology and best practice.

Libraries and IT

As was discussed earlier in this thesis, IT competencies are perceived as being among the required skills for involvement in KM. Therefore, in order to involve library staff in KM, library managers need to enhance the skills of their staff in IT related areas. Furthermore, because of the close relationships between KM and IT, it is essential that libraries be up-to-date with technology. Relevant comments included one that emerged from the questionnaire, and one from the interviews:

> Keeping up with the technology and not so much technology but the changes in the way publishing is happening. The issues now with e-books, because of the e-learning side of things. I am really interested in how they are developing business models that might see us having access to textbooks or bits of textbooks online. What will that mean for publishers, what will that mean for libraries. We won't be buying necessarily textbooks like we used to, what to do for the digital reading list, what's the role of the catalogue. There are some really fundamental questions happening around resource discovery now. What

> is the right way or is there a right way to be recording and facilitating access to this stuff.
>
> Librarians need to be updated to use all the ICT resources in order to apply in their KM projects to have always the best solution to the customers.

Best practices

Seeking to identify best practices in KM from information providers, particularly from the commercial sector (such as Google and Amazon) could help libraries to enhance their services. Two of the interviewees observed:

> Google and Amazon are not a threat to librarians. I think the Google digitization project is a really positive move towards sort of getting things out on the web and more easily accessible for people. Amazon has influenced the way OPACs are being delivered. The catalog of the twenty-first century is a much more user-friendly and informative source of information than what it used to be and I think we can attribute that to Amazon.com.
>
> Looking outside of the organization to see if there is better practice elsewhere and bringing that best practice in, in their normal jobs, just so they don't lose their professional career development path.

4.5.7 KM in public libraries

Much of the emphasis in this research project has been upon the activities of academic and special libraries. This has happened not through design, but owing to the fact that participants came overwhelmingly from the membership of relevant lists and bulletin boards among whom public libraries were under-representation. Nevertheless it might be argued that, to society at large, the public library is extremely significant and hence, ought to receive at least some consideration. Pubic libraries are *not for profit* organizations. Their parent organizations are councils and their clientele is the diverse local communities they serve. At first glance it might be difficult to see how KM would apply in a public library context. However, when it is borne in mind that knowledge is increasingly the lifeblood of all organizations, it is clear that KM is as relevant in public libraries as it is anywhere else. This said, there was only one questionnaire response relating to the involvement of a pubic library in knowledge management:

> Our public library has staff involved in managing the council's intranet project and participating in the development of the knowledge management strategy.

The researcher sought additional evidence for public library involvement by interviewing LIS professionals, although as it turned out, none of these actually worked in a public library:

> They [public libraries] still are in business and they have still got to compete for resources within the council, and if they want to stay in business they might think they have to look across the entire culture of whatever, the expanse of their environment happens to be. If they are the council at Wodonga, they need to think about what are the cultural assets of the whole of Wodonga. Begin to partner with other people, begin to think about how they are going to collaborate with new things and galleries. Think of how you can join up to get better funding.

Conversely, another interviewee stated that:

> It is hard to think how KM would work in a public library, because your clients are so diverse, and they wander in off the street, they go off and you might not see them for six months. You go in and then you leave and then that's it.

4.5.8 Discussion and conclusion

Analyzing the findings of the questionnaire and interviews, a number of themes have clearly emerged:

The LIS community exhibits a positive attitude towards introducing KM to libraries, and not only because this could bring libraries closer to their parent organization, but also because it might help them to survive in an increasingly challenging environment.

The nature of KM in the context of libraries has been interpreted by LIS professionals as variously: a tool for assisting in the management of libraries themselves; as an opportunity for leadership by libraries within their organizations; and as a series of knowledge-related processes. The last of these three was the most common interpretation among respondents to the survey and interviews conducted in this research project.

Although not universally a major feature of the LIS landscape in this thesis, knowledge management has been found to have gained considerable ground in certain places and sectors within the library community. This was particularly noticeable in the case of four English-speaking countries namely, Australia, the USA, the UK and New Zealand, and in the legal and special library sectors. However, the nature and level of participation in knowledge management varied from country to country.

LIS professionals tended to view knowledge management as a holistic organization-wide phenomenon, and hence take the view that it should not operate in isolation within the library. Indeed, the consensus on this matter would be that for knowledge management to be successful, the objectives and operations of the library ought to be in alignment with the business goals of the parent organization.

Although the LIS professionals who participated in this research project agreed that libraries could be the best place to launch a KM initiative, they did not support the argument that libraries should be the leaders of KM in their organizations. Alternatively, a minority of LIS commentators maintained that KM was a new name for what librarians have been doing for years (Gorman 1997; Gorman 2004). For some in the LIS community, KM is simply a case of new wine in old bottles or as librarianship in new clothes (Koenig 1997; Schwarzwalder 1999; Rowley 2003). Koenig is a particularly prominent supporter of the view that knowledge management is little more than librarianship.

> We would of course recognize 'KM' as librarianship, or at least as an extension of 'librarianship – but unfortunately the business community does not recognize that essential identity (Koenig 1996, p.299).

These views found support in responses to the present research questionnaire, where 59 per cent of respondents agreed with the statement that knowledge management was basically a new term for what information professionals had always done.

Taking Koenig's comments in the context of the present research, at least one obvious question springs to mind. If, as he and others would claim, libraries have been doing KM for years, how is it that the members of the LIS community that participated in this research were unconvinced by the argument that libraries should take the lead in knowledge management? In attempting to answer this question, a number of potential explanations come to mind.

Whereas librarians have performed competently when it comes to the management of library resources, they appear to have done little to use organizational information to create the kinds of knowledge that can be used to improve the functionality of library processes (Townley 2001). Therefore, it is questionable if they have really been involved in KM.

Another explanation could be the perceived lack of alignment between the work of libraries and the goals of their parent organizations. Librarians are not as effective in

managing knowledge about their organizations as they are in managing their other resources (Townley 2001). As Butler has remarked:

> Librarians have been actively involved in KM for many years – but in their libraries, not in relation to the organization as a whole. And herein lies the key … KM is holistic. It affects the whole of the organization and most of its elements (2000, p.40).

A further reason could be that KM requires strong people skills, which are often perceived to be lacking in library staff. Ferguson claims that 'knowledge leverage needs to take place in parts of the organization never reached by librarians' (Ferguson 2004, p.4).

The traditional image of libraries could be another explanation. In many cases libraries appear to be undervalued, leading to problems in funding and staffing levels. There was evidence in the thesis of instances where knowledge management initiatives began in a library, but as they developed were moved to another department.

As has been seen above, in those cases where libraries have succeeded in exerting leadership in knowledge management, this has largely involved law and medical and academic libraries. These achievements have been tempered somewhat in that the name *library* has often been replaced both with regard to the entity, and to the titles of the staff who work there.

Allowing for differences in specific roles and in the organizations involved, it is clear that in the main, library involvement in knowledge management has been dominated by traditional information management activities. Drawing on a survey of thirty-one KM projects, Davenport et al. identified four types, each of which focuses on a broad objective:

1. to create knowledge repositories: knowledge organization;
2. to improve knowledge access: improving access to and transfer of organizational knowledge by creating communities of practice, creating knowledge maps, developing intranets;
3. to enhance the knowledge environment; and
4. to manage knowledge as an asset (Davenport et al. 1998).

The results of the present research suggest that libraries have mostly been involved in KM through the first and second type of KM projects. However, there is evidence of involvement in less traditional activities, or at least in more advanced forms of traditional pursuits. The development of intranets and content management, and the development of institutional repositories have been pervasive activities in corporate libraries. In the case of university libraries, notable activities have included involvement in e-learning and the promotion of lifelong learning. In this research project, however, little evidence has emerged for the involvement of libraries in the creation and management of tacit knowledge, either through the development of knowledge directories or the formation or encouragement of communities of practice.

Comparing the principles and practice of knowledge management as reflected in the literature with the findings emerging from this research project, would suggest that libraries have a considerable way to go before they can be considered as serious players in the knowledge management arena. This can be illustrated with reference to two themes continually recurring in the literature, but pointedly missing from the responses of research participants. These are the importance of treating people as knowledge resources, and of seeking to develop a genuine knowledge environment within organizations. Only one interviewee mentioned either of these topics, remarking: ‘Libraries are not about books. Libraries are about people’. Accordingly, for example, no formal procedures for capturing the tacit knowledge of library staff and users were reported in the present research. Consequently no guidance emerged from the present research on how to capture the tacit knowledge of library staff and library users.

LIS professionals tended to view knowledge management as a holistic organization-wide phenomenon, and hence that it should not operate in isolation within the library. Consequently, little light was shed on how KM works in libraries or how the knowledge environment can be enhanced in library and information contexts.

This is not to say, however, that knowledge management has failed to make an impact on the activities of libraries. Acceptance of the holistic view of KM reflects an element of change within libraries, and the adoption of a broader view of their role, and of the need to engage more fully in the activities of their parent organizations. This said, the demonstration of leadership in KM by libraries has been the exception rather than the rule, with in most cases libraries playing a supporting role through an information management function. To some extent this has been a matter of competence and also, of the image of libraries, leading in some cases to name changes and the reorganization of functions.

There are indications in the data gathered for this thesis, that organizational size could also be a factor in the nature of library involvement in knowledge management. As seen above, the relatively small size of certain law firms, permitting close and informal contact between librarians and lawyers, facilitated the emergence of the library in a KM leadership role. In other cases, notably in larger organizations, the library might undergo a name change or for KM purposes be subordinated to the IT department. In such circumstances the library might not be a major player in knowledge management.

In general, libraries have mostly been involved in KM through the implementation of their skills in organizing and retrieving information. As interest in knowledge management has increased, this library involvement has expanded to include the development of intranets and institutional repositories, of content management, and the training of users in the effective use of databases and other resources. The results emerging from the present research project confirm those obtained earlier by Marouf (2004) who in investigating the contribution of library and information centers to KM, found that this went little beyond traditional information management activities.

4.6 Required skills and competencies for KM practice: The viewpoints of LIS professionals

4.6.1 Introduction

The topic of required competencies for KM practice has been discussed extensively in the literature and, consequently, various lists of required competencies have emerged. The most frequently cited skills for KM practice have been:

- communication and networking skills
- team working skills
- leadership skills
- management skills
- decision-making skills
- IT skills

In the LIS literature there has been a tendency to compare the required competencies for KM with those possessed by LIS professionals. This has included content analyses of advertisements for KM positions, comparing the required competencies with those likely to be found among LIS professionals. The most common conclusion has been that there are similarities and that, to some extent at least, the LIS curriculum is

capable of preparing students for a knowledge management career. This argument of course is not new. As Reardon (1998) maintains, some of the 'makings' of knowledge management are and have been present in LIS for a long time. This includes a wide range of competencies, including information skills; information technology skills; multimedia and communications technology skills; publishing and document design skills, both conventional and electronic; and database and information system and service design skills. However, Reardon (1998) admits that whereas these skills can be developed and modified to meet the need for managing knowledge, they do not, of themselves, constitute a basis for practicing knowledge management.

The findings presented here are derived from the questionnaire and interviews to answer the following research question:

- What are the implications for LIS professionals seeking a career in knowledge management?

The topic of required skills/competencies for KM practice was investigated in this thesis in the two following directions:

1) To identify the perceptions of LIS professionals of the required competencies for KM practice. To facilitate this, two different approaches were taken. First, the topic was explicitly addressed in the questionnaire, and second, in the interviews it was pursued indirectly through investigating those factors which had helped LIS professionals to migrate to a senior role in KM.

2) To identify the influencing factors (personal attributes, qualifications, work experience) which had been present in the transition of LIS professionals into senior KM roles. This was explored in the course of in-depth interviews with LIS professionals who had attained leadership roles in knowledge management.

4.6.2 Data from the questionnaire

In the questionnaire survey, the researcher sought to identify the perceptions of LIS professionals, not only on the need for LIS professionals to gain new skills for KM practice but also with regard to the relative importance of different competencies.

Perceptions of LIS professionals on the need to gain new skills for KM practice

To identify the perceptions of LIS professionals on the need for LIS professionals to gain new skills for KM practice, respondents were asked to show their level of

agreement with the following statement using a five-point Likert scale: ‘Knowledge management can encourage library and information professionals to gain new skills’.

The responses have been summarized in table 4.29. A total of 90.1 per cent (the great majority) of respondents agreed that potential opportunities in knowledge management could encourage library and information professionals to gain new skills. It is interesting that no respondent completed the ‘strongly disagree’ category of this question.

Table 4.29 KM can encourage library and information professionals to gain new skills

strongly disagree	disagree	don't know	agree	strongly agree	overall[15] (mean)
-	4.1%	5.8%	64.9%	25.2%	agree

KM is a multi-dimensional discipline and requires a demanding mix of skills and competencies. It seems unlikely that any single profession or discipline would be able to take on the new roles demanded for participation in KM without some further development of their skill base (Abell & Wingar 2005). LIS professionals relate to KM mainly through their potential abilities in organizing and classifying information. These abilities can provide LIS professionals with a platform for involvement in KM. However, mainstream knowledge management operates in a largely different context from that of the familiar LIS operational environment. Therefore, to maximize the application of their skills in the commercial world and to take advantage of new opportunities, LIS professionals need to be familiar with the new context. This means that LIS professionals not only need to be more creative and imaginative in the application of their traditional skills and be able to make critical decisions, but also that they must be capable of shifting to what is frequently a strategic mindset. This requires the ability to appreciate the wider environment in which organizations operate, including the role of the organization and its clients and the role of information and knowledge in achieving corporate success.

[15] The researcher has designed the following scoring for the purpose of providing an overall selection for the statements in sections 2: Mean: 1 to 1.44= strongly disagree; Mean: 1.45 to 2.44= disagree; Mean: 2.45 to 3.44= don’t know; Mean 3.45 to 4.44= agree; Mean 4.55 to 5= strongly agree.

Perceptions on the relative importance of proposed competencies

To identify the perceptions of LIS professionals on the importance of different competencies for knowledge management, a list of these potential skills was compiled through the literature review. Participants were asked to nominate the level of importance of each proposed KM competency for KM practice. The level of importance of each competency for KM practice was measured using a seven-point Likert scale. The survey results indicated that respondents recognized *communication and networking* skills as the most important competency, while acknowledging the importance of all the other skills on the list. As shown in both table 4.30 and in figure 4.1, communication and networking were perceived as the most important skills, with a rating of *essential* and a mean score of 6.36 on a scale of 7. Seven other competencies, including, for example, *team-working* skills, were identified as being extremely important, while, perhaps somewhat surprisingly, *leadership* skills, although ranked as very important, came last. Comparing this with the results of a Canadian research project revealed that in that country, LIS professionals also ranked communication skills as being most important. However, in the Canadian study, leadership skills emerged as being second in importance.

It is hardly surprising that among the different technical, professional and interpersonal skills emerging in the findings of the present research project were various types of management skills including those of change management, project management and decision-making for knowledge management. Figure 4.1 shows the responses with regard to the importance of each potential knowledge management skill.

Table 4.30 Relative importance of proposed competencies to KM practice

	Unimportant (%)	Little importance (%)	Somewhat important (%)	Important (%)	Very important (%)	Extremely important (%)	Essential (%)	Overall (mean)
Communication and networking skills	0	0.3	0.7	1.7	8.4	37.5	51.4	Essential
Information and document management skills	0.5	0	1.9	7.1	23.2	33.8	33.5	Extremely important
Ability to use information technologies	0	0.3	3.4	11.1	22.2	37.7	25.3	Extremely important
Change management skills	0.3	1.7	3.4	8.2	23.2	34.5	28.7	Extremely important
Project management skills	0.3	0.3	4.8	9.6	24.2	36.9	23.9	Extremely important
Creative thinking	0	0	1.7	5.1	23.3	32.4	37.5	Extremely important
Team-working skills	0	0.3	1.1	5.5	19.1	38.0	36.1	Extremely important
Decision-making skills	0	0	1.4	6.5	23.2	38.7	30.2	Extremely important
Leadership	1.4	3.4	3.7	13.2	22.0	33.2	23.1	Very important

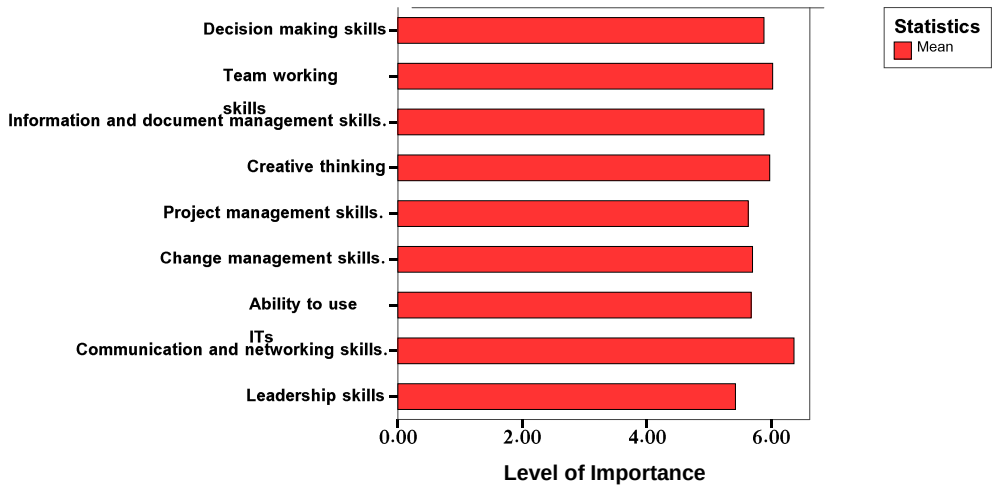

Figure 4.1 Level of importance of proposed competencies to KM practice

4.6.3 Qualitative data on required competencies for KM practice

One of the aims of the present research was to identify the means by which LIS professionals could migrate from traditional to KM roles. To this end, respondents to the survey who described their position as that of knowledge manager were identified, and those who expressed their willingness to do so were interviewed. One of the interview questions explicitly asked LIS professionals how they were able to move from being a librarian to being someone who could bridge the cultures and act as a knowledge manager. Were there particular qualifications or levels of education or skills involved and what were the barriers like to impede the migration of LIS professionals to KM? The findings reported in the following are mostly drawn from interviews. However, relevant comments to the open-ended questions of the questionnaire have also been reported where appropriate.

Communication skills

An analysis of the interviews produced similar results to those emerging from responses to the questionnaire. Knowledge managers considered communication skills as being highly important for KM practice, a view once again supported in the literature. For example, the results of Lai's study of KM job advertisements showed that excellent oral and written communication skills was the most important skill required by employers (Lai 2005). KM is a people-centered phenomenon, and requires interacting with different people with different level of knowledge and different backgrounds. It is not surprising, therefore, that people skills such as communication

and networking are regarded as being essential for KM practice. As two of the interviewees observed:

> I think you need to be an outgoing, friendly person, because you need to sell KM. If you don't sell it, it would never get off the ground. You need to really get the support, and you need to have the ability to talk to people, and at their level, so if you didn't, like, if you were very introverted, and shy, I think you'd be fighting an uphill battle.

> I think that really what matters is the more personal skills, you need to be able to understand what one person wants, that one user wants what another user has, and to be able to communicate with those people, and bridge gaps, and bring people together, and do what people are- you're going to find yourself in situations where you've got two different people who use a completely different term to mean exactly the same thing, and you need to be able to make those connections, and get those people together.

The importance of promoting communication skills in the LIS curricula was also emphasized by respondents to the questionnaire (see chapter 4.3).

In a comment to an open-ended question one of respondents observed:

> A KM project in an organization means you have to get up from your desk and actually interact with people in their environment. You have to be willing to argue and stand your ground.

Networking skills

Respondents to the questionnaire identified networking skills as essential for KM practice. Later, interviews with LIS professionals who were knowledge managers in their organizations revealed that their networking skills had proved to be key to their transition into a senior KM role. One interviewee reported that her migration to KM had started with a meeting with a KM professional and continued through her efforts to meet and get advice from other KM professionals:

> I went to X and what happened in that was, he actually sort of confirmed what I had been thinking for a little while, which was that libraries were very much under threat, and that they should not be about collections, they should be about the people connections that occur. So he actually articulated what I had been thinking for some time, and I went back and looked at the combination of the tools and processes, and the people skills and then the relationships we have with our clients, and started to put some things in place, from that, around

> the way that we would work, which is very much built on relationship building with the client, and understanding what they know in order to enhance what they know, and also increase our knowledge about their business, and the products and services around us. So that's where it all came from. And then I ended up hearing Y as well, which was very much around knowledge services, and relationships as well.

Another interviewee explained her success in terms of international connections and other networking activities:

> I take time out to visit other libraries, see what other people are doing, take away some good practices, or better practice than we're working on. I keep up my international connections, and I'd definitely say to anyone opportunities to have international connections is really, really good. I'm on the advisory council of the Stanford Library, for example, I regularly visit the British Library, and I'm on their advisory council, they're all ways in which I keep my knowledge up-to-date, and I find that for communities of practice, you look around for people who you admire, think are doing well, and you make sure that you keep in touch And one of the things I'm doing at the moment is bringing in the managers of Waitrose which you may not know, it's a supermarket chain, very upmarket supermarket chain in the UK, and I'm bringing them to talk to my staff about how they've changed their image from being a really dull and boring, downmarket supermarket, to a really high-class supermarket, where they offer this absolutely magnificent.

However, as another interviewee observed, the networking skills of LIS professionals need to be expanded:

> LIS professionals are very good in networking inside the profession but networking with other professionals and the management of the organization should be expanded.

Mindset

Apart from the specific skills mentioned before, interviewees mentioned other attributes as requirements for LIS professionals who want to engage in KM roles. Most of the participants in the research project believed that the decision to move from librarianship to KM was mostly a matter of personality and mindset. This view is also well-supported in the literature, with some commentators arguing that one of the main barriers to the engagement of LIS professionals at a high level in knowledge management is their personal attributes, which are based in a specific educational

culture. Hence, Myburgh believes that the most dangerous threat to the profession is the 'librarian mindset' (2003, p.2). To see the big picture of KM, LIS professionals need to take the broader view and look beyond traditional librarianship and see their skills in a new context. Likewise, the LIS profession should continue to broaden its view of its role in the world, and engage in lateral thinking. There were frequent points both from interviewees and comments to the open ended questions in the survey on the importance of this attribute.

> If you want to be able to create people who are going to be good knowledge managers, it's all about changing their focus from being only focused on this part of the business, to looking more broadly to the entire business, and thinking, okay, there's a (database) that we don't own that we might be able to go and work with this department, this museum, offer them something in exchange and bring it in, and we'll be able to improve our own business. So it's sort of about getting people to think a bit more laterally about your job.

> What we have to do is get librarians out of thinking about just watching the library is what they are responsible for and actually be more proactive in working with places like google to develop services that are going to improve access to information for everybody.

> The KM way of thinking is necessary for all LIS workers in the future. We have to realize that knowledge resides in many more forms than the traditional thinking within the library.

> Getting LIS students to break down their own self-limitations about working in for-profit/non-profit environments.

> I think what most people should do is to get librarians to think broadly, and think how can I really help just change the system? And not think, what's the next journal that I can afford to buy? coz sometimes, it's better, if you do things, it's sometimes better not to purchase a new journal, it's better to just get it on interlibrary loan, and better to just think, actually, that money, I could use to bring an absolutely terrific service that will be much more value adding than just getting another journal. We've got to be beyond the easy to the more difficult.

One interviewee emphasized the importance of mindset:

> When I interview someone, I don't ask any technical questions at all, as far as I'm concerned, if you have a degree in librarianship, you do know what you're talking about, otherwise you wouldn't have got through the university system,

> although that can't always be guaranteed, but in theory, that's the case, but also looking for attitude. People who are willing to change their mindset about the way librarians should work, which is about going out to the client, and working with the client, not sitting on your bottom in the library waiting for the client to come to you.

Hence one of the barriers perceived by some LIS professionals is that of a tendency to focus too much on details:

> I found one of the other things is going with the classification which was really not my forte in my library courses, was classification numbers, I found it very small-pictured and detailed. In law libraries, it was almost – when I started, we tended to put things by author, arrange things by author, because everyone knew who wrote what, so to give them a classification was a slight change, but to get fussy about it, you just – and when I got this librarian came in, and she was very conscientious in the library course, and she said things like, the library would be good if we had no users and it would stay so tidy! And all these awful things, and I said, stop. We're a professional service, and they are lawyers. They want to find the book, they don't want to fuss about all those little details, we want to make every time we do something, put a system in, is it going to make life easier for them? And is it just making the whole thing work better? And if it is, that's fine.

Ambition

According to Davenport and Cano (1996), knowledge work is about the acquisition, creation, packaging, application or reuse of knowledge. They point to the need to take a process approach to knowledge work, maintaining, moreover, that people involved in KM initiatives typically show attributes of ambition and risk taking. These they point out, are not, by general consensus, the characteristics of many people currently in the LIS profession (Davenport & Cano 1996). The results of the present research lend support to such views, with respondents pointing out the need for librarians to display ambition and to move out of their traditional comfort zones.

> Librarians have to be willing to give up more traditional roles – we have the skills but aren't used to the type of promotion/outreach that's necessary for KM.

> We have to reprioritize our current workloads and give up some of our comfort areas.

> A librarian has to have the initiative to get involved in things outside the library, and to take their role wider.

> Being extremely supportive. Being very prepared to give up. If people see that you are able to say yes, that is more important than something I am doing. Then they will trust you and you have got to gain the trust of an organization.

It is clear from the interviews that those knowledge managers who had transited from LIS into new roles were ambitious by nature. They had not been afraid to leave their comfort zone. The story of one such example of transition to a leadership role in KM based on the attributes of ambition and risk taking follows:

> When I started, they asked me to capture the letters of advice, and I'd never heard of knowledge management then and I – because they were interviewing me for the job, I said yes, I could do that, you know, you can do anything at the interview! I went to an elaborative conference, and someone spoke about knowledge management, and I thought, oh, so that's what they were talking about, and that was like a month after I'd started, and I thought, oh, and I went back and said to them, I (put a paper through) the equity department, and said, look, this is what I would like to do, and one of them came back to me and said, oh, that's a really good paper K, can you come down and talk about it at one of our equity department meetings, so I did, and from that day on, they've embraced knowledge management and pushed it, and from there we've automated the library and put it – because it was all cards in pockets before then, and we started um, marketing we – we set up a knowledge management committee, and we had people in from every practice are on that committee, but it's got to the stage where it's so much a part of our culture now that we don't even have meetings anymore.

Leadership skills

The practice of KM must extend to the entire organization and hence the knowledge manager needs to influence a wide spectrum of all people in the organization. This is where leadership skills are very important. However, respondents to the questionnaire ranked leadership skills as last in the list of competencies. This may be seen to lend support to the view reported in the LIS literature, that there is a lack of ambition among LIS professionals which acts as a barrier to their engagement in KM. The importance of leadership skills is clear from the following statement from one of interviewees:

> The two reasons that come to mind, why it [KM] is hard, if not impossible, is that you need someone very senior to be in charge of knowledge management, because you have to influence what people all round the university are doing, and so you're not actually in control of what they do, if you're trying to manage IT people and academic people, and all of these people who don't come under

> your own area, then some people would say that's quite a difficult task, but knowledge management absolutely requires that you influence right across the university, or right across the business, and not just within that small sphere, otherwise, you're only taking that one small part of knowledge management.

In a similar view, one of respondents to the questionnaire commented:

> Encouraging librarians to be the prime movers in these projects not wait for directions from others.

IT skills

In additional comments to the questionnaire, the importance of IT skills was stressed by two respondents:

> LIS professionals need to have greater technical skills in order to add value to the services they offer.

> LIS professionals are the 'I' in 'IT'. It seems to me that most librarians are not involved in the creation of systems (IT) that are used for retrieval of information or searching. Perhaps that will change at some point. It would be great if a librarian was on the IT teams that create the systems rather than wait for someone else to do it and then complain about the outcomes. Most searching algorithms have to do with such things other than probability ... which is what we generally use for searching.

4.6.4 Discussion and conclusion

In participating in the research for this thesis, LIS professionals acknowledged the need to gain new skills in order to be involved in KM practice. When asked to rank the importance of a range of proposed competencies for KM, they identified communication and networking skills as being the most important competency with a rating of *essential*. Information and document management skills; Ability to use information technologies; change management skills; project management skills; creative thinking; team working skills and decision making skills were all identified as being *extremely important*. Surprisingly, leadership skills came last in importance. This latter finding may be seen to lend support to the view reported in the LIS literature, that there is a lack of ambition among LIS professionals which acts as a barrier to their engagement in KM (see chapter 2.7).

Comparing the results of the present research with the results of a Canadian research project (Ajiferuke 2003) revealed that in that country, LIS professionals also ranked

communication skills as being most important. However, in the Canadian study, leadership skills emerged as being second in importance.

As was discussed before in the literature review, the importance of traditional LIS skills for KM practice has been highlighted in the LIS literature. In fact, the library and information science (LIS) profession, within and outside the higher education sector, has put forward a strong case for the relevance of its skills to KM activities. However, the results of the present research suggest that the involvement of LIS professionals in senior KM positions may well prove to be an exception rather than the rule. Reviewing the literature revealed that for many commentators the principal barriers for LIS professionals' engagement in KM leadership are their:

- concern with external information resources rather than internal organizational knowledge assets
- lack of business knowledge
- content ignorance
- image problem
- name problem
- lack of visibility
- personality issues
- lack of the required management skills

Participants in the present research project identified a lack of specific personal attributes such as ambition and a narrow kind of mindset and also a lack of business knowledge[16], as the most important barriers to the involvement of LIS professionals in KM.

To apply their skills to the new context of KM, LIS professionals need to extend their focus from one on information objects to one on people aspects; to take a holistic view of the organization and to increase their levels of business knowledge[17]. Knowledge management is a people-centered phenomenon. People skills such as communication, networking and leadership skills should be promoted among LIS professionals.

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[16] Lack of business knowledge as a barrier for LIS professionals' engagement has been discussed in other findings of this thesis including chapters 4.3 and 4.4.

[17] Enhancing business knowledge through LIS education has been discussed in the findings of chapter 4.3.

Focusing on transferring LIS skills to managing tacit knowledge would be helpful to the prospects of the LIS professions along with increasing LIS professionals' awareness or management and organizational needs. Clearly, there is a role for LIS education in enhancing the level of business knowledge and people skills among its graduates if they are to become more relevant to knowledge management. However, whereas such attributes can be acquired through education, what is more difficult to nurture are those personal attributes such as a propensity for lateral thinking, and risk-taking without which there can be no guarantee for the effective application of people skills:

> One of the critical issues here is that often a skill can be learned but cannot be applied effectively without the requisite personal attributes. For example, communication is a skill, and the processes can be learned. To be effective communicators we must have the confidence, motivation, and self-assurance to apply the learning. Consequently, 'communication' is listed as a skill, whereas 'effective communication' can be listed as a personal attribute. A further example is the skill of negotiation. Once again, we can learn the processes, but without the necessary personal attributes such as effective communication, motivation, open-mindedness, and flexibility we are unlikely to negotiate well (Henczel 2004b).

Therefore, LIS schools need not only to think in terms of skills, but also of the personality traits of graduates. This view has been supported by the results of research conducted by Breen and her colleagues (Breen et al. 2002). However, arguably many of the perceived undesirable characteristics of LIS professionals could exist in LIS educators as well. Perhaps a change is needed there too.

Interviewing knowledge managers from an LIS background revealed that some personal attributes like networking, lifelong learning, ambition and risk-taking and also having a non-LIS qualification along with their LIS qualification were influencing factors helping them to move beyond LIS profession and take a senior role in knowledge management.

On one thing most of the KM literature is agreed – knowledge management is a multi-faceted discipline or area of practice, which requires a wide range of capabilities. It is, therefore, unavoidable that LIS professionals would demonstrate deficiencies as well as proficiencies were they to attempt to take full advantage of emerging KM opportunities. Of course, the same might be said to apply to any of the other professional groups with a stake in KM. However, if LIS professionals are to engage successfully in KM, they not only need to reinforce their KM-enabling competencies,

but also they must take a holistic view, cross boundaries and go beyond the perceived narrow scope of their profession. As Abell and Oxbrow (2001) say, moving out of a specific information role for a while does not necessarily mean leaving the profession. It could be the opportunity to acquire experience that enables professional expertise to be applied with more obvious benefit.

Chapter 5
Conclusion and implications

5.1 Introduction

The present research was principally descriptive and exploratory in nature, seeking to identify key aspects of relationships between KM and LIS and their implications for practice. To this end, the following themes were investigated: the perceptions of LIS professionals in KM; the role of libraries/LIS professionals in KM; the contribution of LIS curricula to KM education, and the required skills for LIS professionals involved in KM. In this chapter, the key findings are presented and their implications for the LIS professions are considered. Finally, the limitations of the research are acknowledged and suggestions for future research are made. The findings that have emerged as a result of the research are discussed in the following sections.

5.2 Perceptions of KM among LIS professionals

There was very positive feedback as regards attitudes towards knowledge management among the LIS community. Not only did they consider KM to be a viable option, but also they saw positive implications for both individuals and the LIS professions in terms of opportunities for new career options in KM. Also, there was a level of commonality among LIS professionals as to the nature and meaning of KM. Their view of KM was broader than what would be encompassed by either librarianship or information management. This was clear from the breadth of their perspectives, which extended to the consideration of such aspects as intangibles and human capital.

What is clear from the results of present research is that in those countries from which respondents to the questionnaires and follow-up interviews were drawn, there is a developing interest in knowledge management among LIS professionals. This conclusion emerges on the basis of three major sets of perceptions tested in the thesis. First, that LIS professionals can and should enter into knowledge management roles through the application of their information management skills. Second, that there are potential benefits for LIS professionals from involvement in knowledge management, including personal career development and enhancement of the position and status of LIS professionals within their parent organizations. Finally, that knowledge management offers potential benefits for the development of libraries and the LIS

profession itself. Although a majority of the LIS professionals participating in this research considered KM as being distinct from IM, there was some level of uncertainty as regards any distinctions to be drawn between KM and information management. Some level of ownership of KM was demonstrated by LIS professionals participating in the research – particularly among those from the USA – with also more than half of the respondents believing that KM was something that information professionals had always done. Although such a level of response was not unexpected, given that the respondents were members of the LIS community, it contrasted oddly with the tenor of responses to another question where, when asked to choose a location for the knowledge management operation in organizations, only 28 per cent of respondents voted for the library and information unit.

Comparing the results of the present research project with those obtained in an earlier and similar project (Southon & Todd 2001) suggests that the level of awareness of KM among LIS professionals has increased. However, there is still some uncertainty about the relationship between KM and information management and the distinctions to be drawn between the two. The LIS professions need to clarify these ambiguities in order to position itself effectively in the KM arena. Ironically, the level of ownership claims for LIS among LIS professionals could be cause for concern lest they assume that their existing portfolio of skills is sufficient basis for a full transition to KM.

5.3 Roles of LIS professionals in KM

According to the findings of the present thesis, LIS professionals see their skills as being relevant to KM practice. Although they believe that KM is essentially a management phenomenon, they also believe that it is a field in which LIS professionals should seek to extend their involvement. Evidence of such involvement revealed that LIS professionals in general have been largely engaged in the information management side of KM. LIS professionals were more likely to advance their roles in the organization while staying within the information management framework. However, the emergence of KM has identified different contexts in which the skills of LIS professionals can be applied and extended.

Although these results cannot be generalized, it can be asserted that in the context of the present research, LIS professionals are already making their contribution to KM.

However, the results also lend support to a view reflected in the literature as regards the under representation of LIS professionals in senior KM positions. Although LIS professionals surveyed or interviewed for the present research project were making a

contribution to the general level of KM, their involvement in more senior positions tended to be a matter of exception rather than of rule. Only thirteen respondents to the questionnaire (3.5 per cent of all participants) were operating as leaders of KM in their organizations. This contribution aligns well with their previously identified involvement in such information management-type activities as data and information capture and analysis in a KM context.

Participants in the present research project identified a lack of specific personal attributes such as ambition and typically a narrow kind of mindset among LIS professionals, and also a lack of business knowledge as the most important barriers to their involvement in KM. Interviewing knowledge managers from a LIS background revealed that some personal attributes like networking, lifelong learning, ambition and risk taking, and also having a non-LIS qualification along with their LIS qualification, were influencing factors helping them to move beyond the traditional confines of the LIS profession and take a senior role in knowledge management. Although an education that includes knowledge management can help facilitate access by LIS graduates to the KM job market, this is not to say that some form of KM education is essential for entry to the KM job market. In the course of this research project, two of the knowledge managers who were interviewed revealed that they held only BA degrees in librarianship. However, they possessed attributes to do with recognition of the value of lifelong learning and networking which they believed contributed to their success.

5.4 KM and libraries

The LIS community exhibits a positive attitude towards introducing KM to libraries, and not only because this could bring libraries closer to their parent organization, but also because it might help them to survive in an increasingly challenging environment. The nature of KM in the context of libraries has been interpreted by LIS professionals as variously: a tool for assisting in the management of libraries themselves; as an opportunity for leadership by libraries within their organizations; and as a series of knowledge-related processes. The last of these three was the most common interpretation among respondents to the survey and interviews conducted in this research project.

LIS professionals tended to view knowledge management as a holistic organization-wide phenomenon, and hence that it should not operate in isolation within the library.

However, little light was shed on how KM works in libraries, or on how knowledge environment can be enhanced in library and information environments.

Although the LIS professionals who participated in this research project agreed that libraries could be the best place in which to launch a KM initiative, they did not support the argument that libraries should be the leaders of KM in their organizations. The results suggest that the demonstration of leadership in KM by libraries has been the exception rather than the rule, with, in most cases, libraries playing a supporting role through an information management function. To some extent this has been a matter of competence, and to another of the image of libraries, leading in some cases to name changes and the reorganization of functions. The results of the present research suggest that libraries have mostly been involved in KM through organizing knowledge and improving knowledge access. The development of intranets and content management, and the development of institutional repositories have been pervasive activities in corporate libraries. In the case of university libraries, notable activities have included involvement in e-learning and the promotion of lifelong learning. The results emerging from the present research project confirm those obtained earlier by Marouf (2004) who in investigating the contribution of library and information centers to KM, found that this went little beyond traditional information management activities.

5.5 KM and LIS education

This research project has identified a strong level of interest among LIS professionals in the inclusion of KM in their educational programs. Obvious explanations for this interest include a desire to improve the job prospects of LIS graduates and the nurturing of knowledge-aware professionals. However, KM is a multidisciplinary and complex concept with at least the potential to extend far beyond what used to be regarded as the realm of LIS, and there are clear differences between the LIS approach to knowledge management and the mainstream management approach. Not only does the multidisciplinary nature of KM present difficulties with regard to the nature and content of programs, but also this makes it difficult for LIS schools to design programs on their own. Although most LIS professionals participating in this study believed that a multidisciplinary approach to a KM educational program that included core elements of LIS, of management, and information systems would best meet the needs of LIS professionals, it seems unlikely that all three of these areas could be treated comprehensively within a single KM program. Therefore, some LIS professionals have suggested the importance of there being a central role for LIS in any KM educational program intended for the LIS community.

5.6 Implications of the research

The implications for the LIS professions emerging from the present research findings include:

The LIS professions need to clarify what KM means to the profession in order to position itself effectively in the KM arena. Ironically, the level of ownership claims for LIS among LIS professionals could be some cause for concern lest they denote an assumption that the existing portfolio of skills is sufficient basis for a full transition to KM.

A multidisciplinary and complex concept like KM will inevitably pose challenges to people educated and trained to operate in the somewhat more focused domain of LIS, with clear implications for a difference in approach to KM than that likely to be found in mainstream KM circles with a background in business schools. KM requires a wide range of personal and organizational capabilities. It is therefore only to be expected that LIS professionals might be lacking in some respects while otherwise possessing the necessary proficiencies to enable them to take full advantage of emerging opportunities in KM. Of course, the same might be said to apply to any of the other professional groups with a stake in KM, but if LIS professionals are to engage successfully in KM, they not only need to reinforce their KM-enabling competencies, but also they must take a holistic view, cross boundaries and go beyond the perceived narrow scope of their profession. Among the implications of this for LIS professionals would be the need to extend their focus from one on information objects to one on people aspects; to adopt a holistic view of their organizations, and to increase their levels of business knowledge. Furthermore, the point cannot be made too strongly that knowledge management is a people-centered phenomenon. People skills such as communication, networking and leadership skills should be promoted much more widely among LIS professionals. A focus on the transfer of traditional LIS skills, for example, in reference and in information organization, to the management of tacit knowledge could greatly enhance the influence of LIS professionals in the KM field and contribute to their overall understanding of the need for knowledge both at organizational and personal levels.

The contribution of LIS professionals to KM can be potentially enhanced through developments in education for LIS. The results from the present research suggest that library schools and the professions at large, need to seize the opportunities offered by KM in terms both of individual career development and the overall advancement of LIS.

Extending the LIS curriculum to include business and management subjects and also the promotion of personal attributes, could not only equip LIS professionals with the necessary capabilities, but also could give them the confidence to apply these capabilities in the marketplace. However, any such response to the perceived opportunities and threats presented by KM needs to be more reasoned, thorough, and effective than has been the case to date. Specifically there is a need to clarify the roles that LIS professionals can play within the spectrum of KM activities, and to amend or expand educational curricula to prepare students for these roles.

For libraries to participate effectively in KM, their objectives and operations have to be in alignment with the business goals of the parent organization. Recognition of the need for this alignment in all likelihood would require not just the acceptance of change and the adoption of a broader role for libraries but, also, adoption of a more holistic, organizational-wide perspective on knowledge management.

5.7 Limitations of the present research project

It is acknowledged that this research project in some sense represents a snapshot in time, capturing one image of a rapidly changing and dynamic environment, from the perspective of a sample of library and information professionals. Like all studies, this study has a number of limitations that must be acknowledged. First, there are limits to the extent that the results of the research can be generalized to other places and circumstances. Although intended to gain an international perspective on LIS and KM, the survey succeeded mainly in obtaining responses from Australia and New Zealand, the USA, the UK, South Africa and Canada. Thus, the perceptions reported in this study can not be said to be representative of the LIS profession as a whole and, therefore, the results might not reflect an accurate picture of the ‘state-of-the-art’ of KM in LIS. The results obtained are, therefore, best perceived in terms of relative levels of library development, and of the extent to which the concept of knowledge management has travelled around the world. Accordingly, any claims for the representativeness of the findings should be placed in the essentially Western context from which the great majority of respondents emerged.

Second, the topic chosen was very broad. As was discussed earlier, the research touched upon many issues involved or potentially involved in the relationship between KM and LIS including: the perceptions of LIS professionals of KM, the role of libraries/LIS professionals in KM, the educational needs of LIS professionals and the required competencies for KM practice. Each of these topics could well support a

separate dissertation in its own right. Accordingly it was not possible to engage in an in-depth treatment of all the issues involved.

5.8 Suggestions for further research

A weakness of exploratory studies is that they often go unpublished, because they can rarely provide satisfactory answers to research questions. Rather, their results are usually incorporated into subsequent studies. Accordingly the following topics have been suggested for further research:

- Study of the practice of KM in libraries: case studies.
- Use of Web 2 technologies in facilitating knowledge sharing in libraries.
- Study of the factors enhancing the knowledge environment in library and information centres.

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Appendices

Appendix 1: Plain language statement for the survey questionnaire's participants

Dear list owner,

I am contacting you on behalf of one of my students (a member of the IFLA library education group) who is studying for a PhD under my supervision. We are located at RMIT University in Melbourne, Australia and the student, Maryam Sarrafzadeh is from Iran. Maryam is investigating the implications of knowledge management for libraries and librarians and she is keen to obtain feedback from the IFLA community on the topic. I believe that the results of her study would be of genuine value to the library profession and she is strongly committed to completing the research. In order to do so she would like to send an email–based questionnaire to members of your list and before attempting to do so, we felt that we should first seek the permission of the list owner. We are all too aware of the problem of spam and indeed of the nuisance value of unsolicited surveys, hence our request for your assistance. Do you think you can help by letting Maryam have access to your list? If so both she and myself would be very grateful and I believe it really is in a good library cause.

Sincerely

Bill Martin

Appendix 2: Plain language statement for interview's participants

RMIT University

Business Portfolio

School of Business Information Technology

Plain Language Statement for the second part of the project

Dear participant,

I am a PhD student in RMIT University, Melbourne, Australia. I am investigating 'the implications of knowledge management for the library and information professionals' as my PhD research project. You kindly responded to my survey questionnaire which was released during May to July 2005.

I am writing to you again to see if you are willing to participate in a follow up interview based on an analysis of the data emerging from the original survey. This time I particularly want to investigate instances of library involvement in and/or experience of knowledge management projects. I am contacting you because from your response to the questionnaire and your professional position you are clearly in a strong position to contribute to the second stage of the research. The interviews will last for a maximum on one hour and in some cases may be much shorter.

Your participation in this study is of course voluntary and as before you are free to withdraw at any time. The interviews will be subject to the rigorous privacy and ethics policies of RMIT University and neither you nor your organization will be identified by name in any follow-up reports or papers. Information collected will be coded and kept in password-protected computer at RMIT University for academic research purposes only. After completion of the project the information will be stored in the office of my supervisor on RMIT premises for the period of 5 years and then will be destroyed. The results of the study may be reported in certain academic publications in a form that prevents the identification of any individual.

The interview will revolve around the following broad themes:

The role of libraries in knowledge management including relationships between the two and where libraries fit in.

The organizational implications of knowledge management for libraries and for the parent organization.

The processes and practices implicit in the library involvement in knowledge management.

The resource implications of library involvement in knowledge management.

Does knowledge management have a future and will it involve libraries

KM initiatives led by LIS professionals in the libraries at organizations

Should you require further information or clarification on anything to do with these interviews, my research supervisor is Professor Bill Martin (Phone: +613-99255783, email address: ***bill.martin@rmit.edu.au***) who can be contacted for any enquiries related to the project or its adherence to the formal privacy and ethics policies of RMIT University. Alternatively you may contact the Secretary of the RMIT Business Portfolio Human Research Ethics Sub-committee, GPO Box 2476v, Melbourne, 3001. phone number (+613) 9925 5594, fax (03) 9925 5595 or email address: ***rdu@rmit.edu.au***

Appendix 3: The survey questionnaire

The implications of Knowledge Management (KM) for the library and information professions

My name is Maryam Sarrafzadeh and I am a PhD student at RMIT University in Melbourne, Australia. My thesis topic is "The implications of knowledge management for the library and information professions'. In this thesis I will be investigating perceptions of and attitudes towards knowledge management within the library and information professions using a number of international mailing lists with the kind permission of the list owners. The data gathered in the survey will contribute to the design of protocols for a number of Australian-based case studies.

I realise that you must receive many requests for participation in such surveys but I would be extremely grateful for your help in an exercise that I believe will be of real value to the library and information professions. Your participation should take around 15 minutes of your time and would make a major contribution to the outcome of my research project. A summary of results will eventually be available to all who participate.

My research supervisor is *Professor Bill Martin* who can be contacted for any enquiries related to the project or its adherence to the formal privacy and ethical policies of RMIT University. Alternatively you may contact *Professor Arun Kumar*, Chair of RMIT Business Ethics Committee.

Maryam Sarrafzadeh
maryam.sarrafzadeh@rmit.edu.au

……

1.Which of the following definitions of knowledge management do you find most acceptable?

a) The acquisition, sharing and use of knowledge within organizations, including learning processes and management information systems.

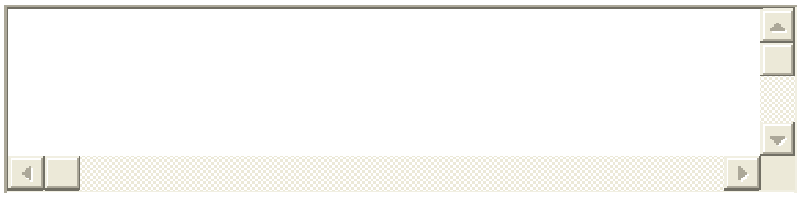
b) The creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organized for the benefit of the organization and its customers.

c) The process of capturing value, knowledge and understanding of corporate information using IT systems in order to maintain, re-use and re-deploy that knowledge.

d) The capability of an organization to create new knowledge, disseminate it and embody it in products, services and systems.

e) The use of individual and external knowledge to produce outputs characterised by information content and by the acquisition, creation, packaging or application and reuse of knowledge.

f) Other (Please explain if you have a preferred definition)



2. Read each of the statements below and then tick the option in each question which best shows how you feel.

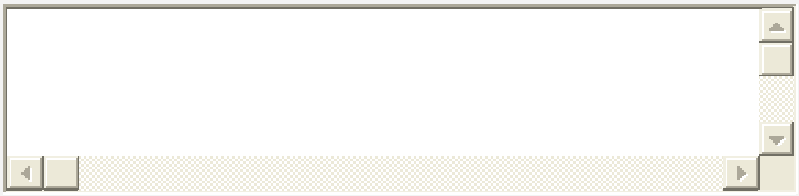
	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
a) KM is just another management fad.					
b) KM is a new term for what information professionals have always done.					
c) KM promises much but is slow to deliver.					

d) It is hard to tell the difference between information management and KM.					
e) KM can help make libraries more relevant to their parent organizations and their users.					
f) KM can provide new career options for library and information professionals.					
g) KM can contribute to an improvement in the future prospects of libraries.					
h) KM is a threat to the status and future of the library and information professions.					
i) KM has increased job opportunities for library and information professionals.					
j) KM can encourage library and information professionals to gain new skills.					
k) KM can help library and information professionals move from being service-oriented to being value-oriented.					
l) The major contribution that library and information professionals can make to KM is through their information management skills.					
m) Library and information professionals should focus on their own competencies and ignore KM.					
n) KM is essentially a management phenomenon.					
o) KM should be left to managers.					
p) LIS professional bodies should make the					

promotion of KM a priority.

3. In organizations in general where is responsibility for KM most likely to reside?

- a) Information technology department
- b) Human resources department
- c) Corporate affairs department
- d) Library and Information unit
- e) Other (Please specify)



4. How important is each of the following competencies to knowledge management practice?

Please indicate your answer to each part of the question by clicking one number on each scale of 1 to 7. If you cannot answer a question, please move to the next one.

	Low importance …… High importance						
a) Leadership skills	1	2	3	4	5	6	7
b) Communication and networking skills	1	2	3	4	5	6	7
c) Ability to use information technologies	1	2	3	4	5	6	7
d) Change management skills	1	2	3	4	5	6	7
e) Project management skills	1	2	3	4	5	6	7

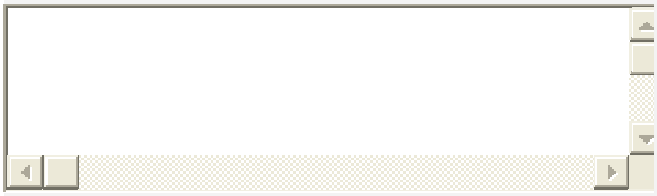
f) Creative thinking	1	2	3	4	5	6	7
g) Information and document management skills	1	2	3	4	5	6	7
h) Team working skills	1	2	3	4	5	6	7
i) Decision making skills	1	2	3	4	5	6	7

5. Do you agree that education for LIS must change to accommodate developments in knowledge management?

- Yes – please go to *Question 6*
- No – please go to *Question 8*

6. Why do you believe that changes to LIS education are necessary?

Indicate your level of agreement with the statements listed below.	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
a) Mainstream LIS curricula are outdated.					
b) A more business-oriented curriculum is needed.					
c) Without curriculum change LIS graduates will lose out in job markets.					
d) Mainstream LIS curricula do not equip people with the competencies demanded by knowledge management.					
e) Prospective students will demand change.					
f) Employers will demand such changes.					
g) Other (Please specify)					



7. Which of the following broad approaches to knowledge management curricula in your opinion would best meet the needs of LIS professionals?

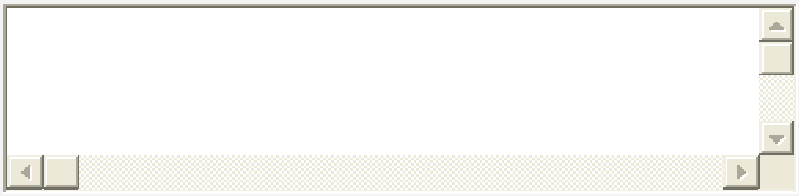
a) A curriculum based largely in LIS (information dissemination, retrieval, etc) and supplemented with modules on organizational behaviour, knowledge and the knowledge-based economy.

b) A curriculum based largely in the management domain (human resources, strategy, marketing, etc) supplemented with modules on information and knowledge and the knowledge-based economy.

c) A curriculum largely based on the information systems domain (databases, advanced and web-based systems) supplemented with elements of natural language processing, artificial intelligence and the design and use of web technologies.

d) A curriculum that embodies core elements of all three examples.

e) Other (Please specify)

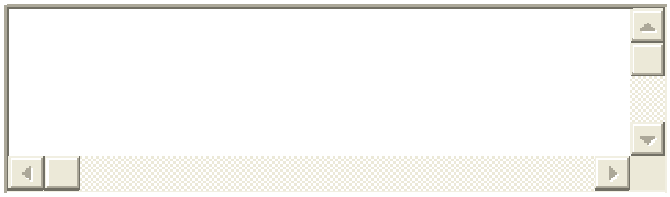


8. Are you aware of either of the following?

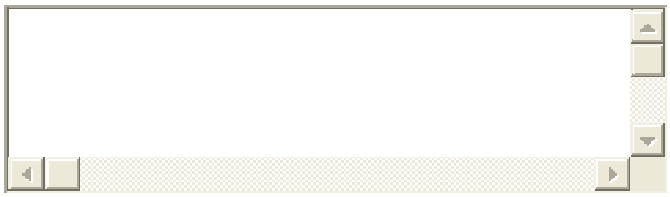
a) The successful implementation of knowledge management in a library.

b) A knowledge management project in which a library is a participant.

If so, could you please provide basic information about that library or project



9. Do you have alternative ideas for improving the relationship between KM and library and information professions?



10. General questions

a) In which country do you live?

b) What is your age group?

Under 25

c) What is your gender?

- Female
- Male

d) What is your current occupation?

e) What is your highest level of qualification?

f) Your email address (to send summary of results)

Submit Query

Thank you for your participation.
