International Federation of Library Associations and Institutions (IFLA)

Section on Education and Training

SET BULLETIN

July, 2001

Vol. 2, No. 2
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<thead>
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NEWS

Futurelib – Discussion Group for Library Education
This is a group for future librarians and other students interested in libraries and information to discuss the implications of profound changes in library and information work. Our professional world is affected, and we in turn are going to be helping to shape that world in various ways. Because it's a complicated and evolving situation, it seems some dialogue is in order. A key question to address: What should the priorities of a library education be? (how much specialization, how much technology education, how much project work, how much traditional library science training?). We hope that this dialogue can take place among students at different institutions. We are guessing that we are not alone in trying to find our way through a curriculum and professional world in flux. Subscribe at http://groups.yahoo.com/group/futurelib

IFLA Section on Document Delivery and Interlending “Ask an Expert” Service
The IFLA Section on Document Delivery and Interlending would like to remind you that you can “Ask an Expert” your questions on document delivery and interlending. While the service is intended particularly for questions related to IFLA documents and services, questions related to international document delivery and interlending are also welcome. Check it out at http://www.ifla.org/VII/s15/sidd.htm#8a -- Carol Smale, Information Coordinator, carol.smale@NLC-BNC.ca
PERSPECTIVES ON EDUCATION FOR KNOWLEDGE MANAGEMENT
By Abdus Sattar Chaudhry and Susan Ellen Higgins
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ABSTRACT
This paper looks at the state of education in knowledge management (KM). It reports findings from a study of knowledge management courses included in the curriculum of academic disciplines of business, computing, and information. Based on a review of course descriptions selected from web sites of universities in Australia, Canada, Singapore, UK, and USA, the paper describes levels of courses, curriculum areas and topics, and differences in emphasis in teaching knowledge management courses in different departments and schools.

INTRODUCTION
Several papers have highlighted the need for preparing libraries and information centers and information studies education programs to quickly and appropriately respond to the changes being introduced by the emergence of knowledge-based economy, knowledge management discipline, and e-business. Reardon (1998) suggested that information and library science rightfully resides in the emerging field of knowledge management and that elements useful to knowledge management have been present in syllabi for some long time. Ruth, Theobald, and Frizzell (1999) have commented that knowledge management practices have been elaborated in books, articles, cases, and symposia for almost a decade, with particular acceleration during recent years. However, only a small number of universities offer KM courses today. They highlighted the need for introduction of more courses in the area of knowledge management and recommended modules including knowledge creation, history of KM theory, and knowledge coding, etc. Corrall (1999) noted that there has been a phenomenal growth in interest and activity in knowledge management, as seen in many new publications, conferences, IT products, and job advertisements. She pointed out that KM does not seem to have been had much impact on the higher education sector so far, but there is some evidence of involvement. Davenport and Cronin (2000) suggest that knowledge management is a complex and multidimensional concept that requires diverse insights. They alert information professionals that a partial understanding of KM by different domains may result in an overemphasis on different aspects of knowledge management. We feel that such an imbalanced approach may influence curriculum designing in information studies programs. We would, therefore, like to emphasize on the need for investigation of knowledge management education in different disciplines and the need to deploy appropriate strategies to introduce well-thought out courses on knowledge management in information studies programs.

This paper reports the results of a study on perspectives of knowledge management education in academic disciplines that are currently involved in teaching KM courses. The study was conducted at the Division of Information Studies of the Nanyang Technological University in Singapore during the Second Semester of the 2000-2001 Academic Year. The research aimed at investigating the differences in approaches to KM education by the various education providers focusing on the following questions:

1. Who are the main education providers (in which disciplines are the KM courses offered)?
2. At what level are the KM courses taught (undergraduate or graduate)?
3. What are the major contents of general KM courses?
4. What is the primary emphasis in courses that explicitly address the subject of knowledge management?
5. What are the differences in emphasis in KM courses in different academic disciplines?
Data on curriculum and other related details were collected from a sample of 37 knowledge management courses offered by universities located in five countries: Australia, Canada, Singapore, UK, and USA. These courses were selected from a list yielded by an extensive search on the Internet using the following criteria:

- Courses offered for academic credit at undergraduate or graduate level (short courses, seminars, practical training programs, and activities for professional development or continuing education were excluded).
- General courses designed to provide an overview of important topics related to knowledge management (specialized courses like competitive intelligence, organizational communications, etc. were excluded).
- Courses sponsored by universities and other similar institutions recognized for granting academic or professional qualifications (KM programs offered by consultants, management companies, or professional associations were excluded).

We collected information about coverage of KM topics in courses offered by different disciplines. Our objective was to determine current trends rather than compiling an inventory of current courses. Courses without sufficient description and detailed outline topics had to be dropped from analysis of contents.

In the first phase of our study, we restricted our analysis to course descriptions available on the web. We intend to collect additional information for validation and verification and more detailed analysis in the second phase of the project by conducting an online survey seeking information on course details from the faculty members who taught these courses.

CURRENT STATE OF KNOWLEDGE MANAGEMENT EDUCATION

Education Providers

KM courses are mainly offered at the graduate level. Out of the 37 KM courses included in our study, only seven are at undergraduate level, while 30 courses are at the graduate level, designed as part of a master’s program. These KM courses are from the areas of business, computing, and information. These courses are part of the curriculum in the departments of information systems (either in computing or business schools) and the divisions of information studies (generally in schools of library and information science, with a couple of exceptions). The highest number of KM courses reviewed in this study is part of the master’s degree in information systems or studies (MS, IS) - 40%. The second highest number of KM courses is for the master in business administration (MBA) - 35%. Figure 1 and 2 show the spread of KM courses by schools and academic programs. Specific details about courses are given in Table 1.
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<th>UNIVERSITY</th>
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<td><strong>AUSTRALIA</strong></td>
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<tr>
<td>University of Melbourne</td>
<td>Department of Information Systems</td>
<td>Knowledge Management in Organizations</td>
<td>Undergraduate</td>
<td>BA/BSc</td>
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<td>Monash University</td>
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<td>Knowledge Management</td>
<td>Graduate</td>
<td>MA in Information (with specialty in KM)</td>
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<td><strong>Kent State University</strong></td>
<td>Kellstadt Graduate School of Business</td>
<td>Information Architecture and Knowledge Management</td>
<td>Graduate</td>
<td>MSc</td>
</tr>
<tr>
<td><strong>New York University</strong></td>
<td>Stern School of Business/ Dept of Information Systems</td>
<td>Knowledge Management and Decision Systems</td>
<td>Undergraduate</td>
<td>BS</td>
</tr>
<tr>
<td><strong>Georgia Southern University</strong></td>
<td>College of Business Administration</td>
<td>Knowledge Management</td>
<td>Undergraduate</td>
<td>BS</td>
</tr>
</tbody>
</table>

**Course Contents**
A review of the contents of the knowledge management courses offered by business, computing, and information schools indicated that the following topics are listed in most of the
courses: concepts related to knowledge, tools to exploit the potential of knowledge, strategies employed by organizations to manage knowledge, and support systems needed to sustain the knowledge management initiatives. We grouped frequently listed topics into five main curriculum areas. These areas can be considered fundamental in general KM courses. Table 2 shows topics that are frequently listed under these fundamental areas. These topics were listed under different terms and names and were grouped under different headings in the course descriptions. We have rephrased the topics and rearranged them under the fundamental areas for convenience.

Table 2
Curriculum Areas and Topics in Knowledge Management Courses

<table>
<thead>
<tr>
<th>CURRICULUM AREA</th>
<th>TOPICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Foundations</td>
<td>Definitions and complexity of knowledge</td>
</tr>
<tr>
<td></td>
<td>Forms of knowledge (tacit, explicit)</td>
</tr>
<tr>
<td></td>
<td>Sources of Knowledge (best practices, communities of practice)</td>
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<td></td>
<td>Knowledge workers</td>
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<td></td>
<td>Intellectual capital</td>
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<td></td>
<td>Knowledge-based organizations</td>
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<td></td>
<td>Knowledge management process</td>
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<td></td>
<td>Knowledge management enablers</td>
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<tr>
<td></td>
<td>Knowledge sharing models</td>
</tr>
<tr>
<td>2. Technology</td>
<td>General overview of commonly used technologies</td>
</tr>
<tr>
<td></td>
<td>Selection and design considerations for KM enabling technologies</td>
</tr>
<tr>
<td></td>
<td>KM Architecture</td>
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<tr>
<td></td>
<td>KM Tools and applications</td>
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<tr>
<td></td>
<td>Collaboration (groupware tools)</td>
</tr>
<tr>
<td></td>
<td>Business Intelligence (data analysis tools)</td>
</tr>
<tr>
<td></td>
<td>Document Management Systems</td>
</tr>
<tr>
<td></td>
<td>Intranets/Portals/Web sites</td>
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<tr>
<td>3. Process (Codification)</td>
<td>Knowledge audit</td>
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<tr>
<td></td>
<td>Capturing and acquisition of knowledge</td>
</tr>
<tr>
<td></td>
<td>Knowledge mapping</td>
</tr>
<tr>
<td></td>
<td>Organization and categorization of knowledge resources</td>
</tr>
<tr>
<td></td>
<td>Developing and maintaining knowledge repositories</td>
</tr>
<tr>
<td></td>
<td>Search and retrieval, use, and re-use of knowledge</td>
</tr>
<tr>
<td>4. Applications</td>
<td>Case studies and success stories of KM application in consulting firms and IT companies</td>
</tr>
<tr>
<td></td>
<td>Considerations for knowledge management applications in different sectors and industries</td>
</tr>
<tr>
<td></td>
<td>Implementing a KM project in an organization</td>
</tr>
<tr>
<td>5. Strategies</td>
<td>Integrating knowledge into organizational work to gain leverage from organizational knowledge resources</td>
</tr>
<tr>
<td></td>
<td>Steps for sustaining the KM work</td>
</tr>
<tr>
<td></td>
<td>Institutionalization of KM activities</td>
</tr>
<tr>
<td></td>
<td>Human resources and support (role and responsibilities of knowledge professionals)</td>
</tr>
<tr>
<td></td>
<td>Measurement of knowledge assets</td>
</tr>
</tbody>
</table>

**Differences in Perspectives**

Emphasis in course contents varied from more technology oriented contents in computing departments to management oriented in library and information science and business management departments and schools. KM courses offered in business schools focused more on topics like intellectual capital, measurement, and business cases while information systems and studies departments focused more on knowledge repositories and developing and managing contents.

A review of topics listed under main modules in the course descriptions indicated
a primary emphasis on pro-sharing culture, organizational restructuring, and change management in business schools. Information systems and studies departments tend to focus more on organization of knowledge resources emphasizing on topics like taxonomies, knowledge mapping, and knowledge policies. Topics listed in course descriptions in computing departments demonstrate an emphasis on tools, particularly the technology. Their course outlines include topics related to technology for delivering knowledge resources like search engines, intranets, portals; collaboration technologies like Lotus Notes and Microsoft Exchange; Documents Management Systems, and different types of data and information analysis tools for business intelligence like data mining, data warehousing, etc.

While all disciplines emphasize in their courses the need for understanding of principles of knowledge management, such as creation of conducive environment, and promotion of pro-sharing culture for successful knowledge management work, differences in perspectives about knowledge management seem to have influenced the curriculum design in different departments and schools. In business management schools, the KM curriculum appears to focus more on knowledge based organizations, emphasizing more on strategic planning and change management. On the other hand, contents of KM courses in information schools show a slant towards information organization and management, emphasizing on information needs, resource selection, and information search and retrieval. The contents of KM courses in computing schools show a clear emphasis on information system aspects, focusing more on implementing KM enabling technologies and data analysis tools.

CONCLUSIONS
Our analysis of state of the KM education was an initial foray into an important and expanding area of investigation. This exploratory study has demonstrated the need for inclusion of core topics related to knowledge management either in existing foundation courses or in the form of introducing a basic course on knowledge management. Information studies programs with ambitions of introducing a knowledge management specialty ought to add additional courses on knowledge organization, KM enabling technologies, and knowledge-based organizations, in addition to the introductory course on knowledge management covering basic topics of knowledge concepts, technologies, processes, and strategies.

Further research is required on a larger scale to gather data from more schools and departments and detailed analyses based on comprehensive course information rather than just the outlines on the web.

REFERENCES


The Training Centre "School Rudomino" (SR) has focused its activities on various issues of project management in the last few years. The SR programmes include, among others, training programmes in fundraising for the librarians of Russia and other CIS countries. The programmes realised in the first half-year 2000 allowed to train and consult 500 participants from various regions of Russia in fundraising methods. Our experience in regional training activities and the results of our surveys indicate growing demand for such training and tend to show that the librarians of smaller townships and communities of Russia are still rather poorly acquainted with the basic principles of fundraising management, in spite of their growing involvement in such activities.

The problem is that libraries in the smaller towns of Russia lack relevant information, special skills and up-to-date network and IT equipment to take a more active part in the contests for non-profit-making organizations' (NPO) grants and allowances. Larger libraries (regional and republican) try to improve the situation providing informational and organizational support for them, but the gap between the "smart" larger libraries and the poor smaller ones has not been overcome so far and hinders the development of libraries in the Russian provinces.

The local libraries' staff often lacks information and immediate working skills to introduce new information services and raise necessary funds. We carried out a survey among 98 regional librarians and most of them claimed that they badly needed to acquire new skills and upgrade their professional experience to master up-to-date library and information services, to establish and maintain efficient partnership with local authorities and business, and NPOs. Besides, there is a certain lack of skills and knowledge necessary to create and maintain regional Internet-based network infrastructures, lack of basic knowledge of PC and e-mail.

This survey confirmed that among the regional librarians there still is a considerable demand for special training and consulting in up-to-date library management. That is why SR and its partner-organization Center for Applied Humanities (CAH) initiated a project to train regional librarians in the methods and skills of up-to-date fundraising and grant writing. The project was presented in the course of the program “Open Library 2000”, held within the framework of the OSI project “Smaller Towns”, in May 2000.

The mission of the SR-CAH project was defined as preparation of Russian librarians for the contest “Open Library 2000.” Within this mission a number of smaller tasks were set, most of them concerning the issues of professional up-grade of local libraries’ personnel and training them in fundraising.

A complex short-term training program worked out for this project consists of two major parts:
1. A series of regional two-day workshops (in Nizhny Novgorod, S.-Petersburg, Moscow);
2. Participant-oriented consulting.

The designers of the training curriculum took into consideration the new OSI requirements (corporate projects, etc) to the contestants' applications, and the actual demand of the librarians:

- Content of the OSI program “Smaller Towns”, including the content of the “Open Library 2000” project;
- Project mission;
- Requirements to the participants’ projects and grant writing;
• Project financing;
• Accountability;
• Project budget.

A special consideration was given to the issues of educating librarians in up-to-date methods and principles of fundraising; basic principles and immediate skills of cooperation with various NPOs; SWOT analysis. The specific character of the SR-CAH training activities was that the participants were able within a short-term workshop to get a better knowledge of the principles of fundraising; mutually profitable cooperation and partnership with local authorities, businesses and other organizations (based on library and information services); access to new information sources; and to train the newly-acquired skills. Besides, within the framework of the project, the participants got acquainted with the activities and programs initiated by OSI and its affiliate project “The Pushkin Library.”

In total, 90 representatives of 35 republican and regional libraries, 46 local Public Library Systems (PLS) and other informational and cultural institutions, including regional OSI coordinators, from 40 regions of the Russian Federation took apart in the SR-CAH program.

The Fundraising consulting included a complex e-mail and telephone based consulting session for the would-be participants of the “Open library 2000.” The consulting was monitored by the head of the project and coordinators in June-September 2000. Besides, in the course of the consulting session a number of libraries sent in their project applications by e-mail and got detailed recommendations concerning the projects’ content. In total, more than 100 librarians were consulted by SR from mid-June to early September. The most often asked questions concerned the following issues:

• Project financing
• Project budget
• The resource-center library of the project, running parallel projects with other libraries

• Grant writing
• Project analysis in detail, expense-account drawing
• Distribution of funds between the recourse-center library and partner-libraries

The workshop activities and individual consultations allowed the participants:

• to get access to the sources of updated information about NPOs’ contests and grants
• to acquire and train grant writing skills, methods of correct distribution of project funds
• to get consultations on project realization plans
• to gain project partnership experience (the partnership requirements – finding partners, working out partnership agreements, seeking for compromise - were among the most problematic for the participants)

We can single out the following achievements of the workshop activities:

• Librarians got new opportunities to participate in the programs of OSI and other NPOs
• Librarians got an opportunity to acquire new professional knowledge and skills and to be trained in practice;
• Librarians got access to individual consulting on their own projects.

A high application rate was also found to be among the most noticeable results of the project. 107 projects from 55 regions applied for the participation (5.35 applications for 1 participant seat). 85 % of the libraries which had previously participated in the SR and CAH programs applied for participation in the workshops. Within the framework of the project, 200 librarians representing 53 regions of the Russian Federation (106 local communities) were trained and consulted.

The results of the training and consulting activities were analysed and assessed via survey in the course of which the participants of the workshops in N.
Novgorod, S.-Petersburg, and Moscow were interviewed and asked to give their opinions of the activities. The participants (who had had an experience of project activities) of the workshop held in N. Novgorod underlined the necessity of analysis of the mistakes and omissions made while drawing up the application papers for contest programmes held before. The participants in the Moscow workshop marked the participation of the Public Library Systems staff in the capacity of trainees as another achievement of the workshop programme.

Results of individual questionnaires handed out to every participant were also used in the analysis and assessment of the project. The questionnaires included the following questions:

1. What knowledge and skills applicable in your professional activities did you acquire in the course of the workshop?
2. What did you learn about the up-to-date principles and methods of library fundraising? How are you going to apply this knowledge in your everyday professional activities?
3. Was the individual consultation concerning your own project important and necessary? If it was - try to formulate the reasons justifying such consulting activities.
4. Do you think that consulting and training support of this kind for the OSI projects (Soros Foundation, Moscow) will be helpful for Russian libraries in the future?

Besides, after the application admission was closed, we worked out and sent to the participants of the individual project contest (grant writers) the following questionnaire:

1. Describe your previous (i.e. acquired before the "Open Library 2000" project) experience in library fundraising?
2. Which of the points listed below proved the most difficult to you in the course of your work at the application papers? Why?
   - the contest requirements
   - partnership practice

- formulating the project mission based on the situation in the partner library/libraries
- defining the role of the resource-centre library.

3. What ideas (concerning further development of your library, but not directly associated with the contests) have you developed in the course of the project?
4. Were the project information and support-materials on the Internet (e.g. on the SR page at http://www.libfl.ru/win/rudomino/start.html) helpful to you?

The results of the surveys analyzed revealed the following:

The workshop and consulting activities allowed the participants to:
- define the general trends and subject-matter of their individual projects
- define the probable range of partnership for the contest and outline basic partnership principles
- define the target-audience of their projects
- formulate the mission and goals of the projects
- train project planning and realization skills and methods
- draw up and balance the project budgets

The head of the Central Public Library of Kaliningrad, for example, defined the project achievements as follows: the participants acquired the complex information and learned the principles of project activities in the form of algorithms which allow to achieve the planned results under adverse conditions (limited resources and pressing timetable).

The participants of the workshops will be able to use the new skills and methods both to intensify their co-operation with NPOs, local authorities and businesses, and to update their everyday professional activities. The participants said they were going to intensify search for partners and develop partnership activities.
Some of the participants underlined that they had reassessed their positions in partnership and co-operation with local authorities, businesses and other organisations in the course of the project activities. They managed to find new partners and sponsors and involve them in the project activities. Other workshop participants changed trends of the previously defined project activities. Some local authorities changed their attitudes and got interested in library partnership projects due to the changes in libraries’ activities and development of new information services, response to the changing demand of the population. There have appeared new projects to create local and regional information networks, to develop and maintain up-to-date Internet technologies in smaller towns libraries, to train local librarians to implement Internet in library services.

All the participants confirmed consulting and training activities of this kind aimed to support OSI library projects in Russia are helpful and there is a growing demand for such. The participants underlined as the most helpful the following:

- assistance in drawing up application papers
- detailed additional information about project requirements and individual consulting for applicants who have had some experience in this sphere
- exchange of ideas and experience between the participants
- adjustment of libraries priorities to the requirements of the contest programmes
- the process of talks and search for compromise between partners
- development of library partnership in the course of the workshops
- development of confidence in librarians and library managers

Analysis of our project also indicated that:

Libraries are actively engaged in fundraising activities. There are the following fundraising sources available to local and regional libraries: fees charged for certain library services, local business sponsorship and donations, grants and sponsorship of various NPOs. The money raised from these sources are usually used to acquire new books and other information bearers, to enhance library services, modernize and update library equipment, organize special activities for certain segments of the reading public, to buy access to Internet.

Libraries continue to develop cooperation and partnership with local authorities, state and public institutions. Most of the libraries taking part in the project mentioned their partnership with various Russian and foreign NPOs (about 20 institutions were named). Many of them regularly take part in local and regional social activities. Some of the libraries have initiated Library Trustee Committees. A set of Trustee Committee Statute and Rules is being developed at present.

Some of the participants have developed, in the course of the project, new ideas concerning development of libraries (but not directly associated with the contest program):

- development of unified Public Library Systems’ catalogues, data bases, information exchange (Regional Scientific Library of Chelyabinsk)
- development of a regional 5-year (2001-2005) environmental program "Library - Centre of Environmental Information and Culture" (Regional Library of Kirovsk)
- development of access to the regional integrated data bases for non-participant libraries of the region (Central Library of the Scientific Centre of Irkutsk, Children and Adolescents Library of Sverdlovsk, Scientific Library of Novosibirsk)
- development of interdepartmental corporate data bases (State Public Library System of Mineralniye Vody)

The participants indicated in their questionnaires that they had actively used all he information available and that it had helped them to systematize their work at the
project. Practice sessions helped them to formulate mission and goals, work out methods and structures of the projects. 64% of the participants resorted to the information available on the Internet. The participants indicated that information support of this kind would be very helpful in the future.

In the project activities were involved librarians from regional and university libraries, libraries of smaller townships and communities, library associations representing 67 regions of the Russian Federation. The forecasts that regional librarians would gain more experience from the training and consulting activities have been confirmed.

We would like to underline that the workshops helped to realize the concepts of the OSI project "Open library 2000." The OSI financial support and RS-CAH activities helped to realize the pilot project aimed at intensification of library activities and the libraries' further development as information, education and cultural centers.

It is worth mentioning that the workshops allowed training both heads of large libraries and public library Systems' directors. Larger libraries got an opportunity to analyze their own status as recourse centers for librarians of small towns libraries whereas Public library Systems defined the most promising trends in their partnership with network libraries.

We hope that the new knowledge and skills acquired by the Russian librarians will help them to develop their project activities and intensify library activities in Russia and abroad.

THE LIBRARY AS THE CAPSTONE OF KNOWLEDGE EDIFICE

A Synergistic Approach to Intellectual Resources Management

By S. Venugopal Bharathidasan University Library, Tiruchirapalli, Tamil Nadu, India, 620 024
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The old order changeth, yielding place to new,
And God fulfils himself in many ways,
Lest one good custom should corrupt the world. ___Lord Tennyson

Futuristic Librarianship

The Library has always essentially served as the treasure house of knowledge ever since the inception of the Great Library at Alexandria (now revived as Bibliotheca Alexandrina) in the third century BC—the greatest single collection of human knowledge until well into the nineteenth century (Lipscomb 2000). The strength of any learning organization is its intangible asset of core competencies without any scope for ‘reinventing the wheel’. “The knowledge within a typical organization is an untapped resource,” says Neal Moster. “Organizations that overlook knowledge management risk the operational and financial inefficiencies that come with duplication of effort. Knowledge management has been broadly defined as “... the acquisition, sharing and use of knowledge within organizations, including learning processes and management information system... It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organization and appropriately applied” (David Skyrme Associate, 1997). If we accept the concept that classification, organization and dissemination are the real foundation of knowledge edifice, then knowledge management is but an extension of librarianship (or just a new name for librarianship) that engages in information-mapping process (Koenig, 1996, p. 300). Librarians who are intellectually involved in professional information activities...
characterized by information content, the acquisition, creating, packaging or application and reuse of knowledge—can proudly call themselves ‘knowledge workers’—a term coined by Peter Drucker in 1960s. Information Resources Management (IRM) has ever been the core of library management.

Knowledge demands collaboration: Capturing explicit knowledge is much easier than doing tacit knowledge—the former requires repositories (libraries) while the latter does collaboration (professional expertise). A library of books has always been of principal interest to scholars, but access to digital information today is now the key component of nation’s ability to compete in the global world economy. Information technology enables management of knowledge processes. The same technologies that have upped the knowledge ante and spawned incomprehensible amounts of content also offer the means to get that content under control and share knowledge more effectively across continents, time zones and language barriers. The library professionals should associate themselves with the faculty in the four aspects of scholarship (Boyer 1990)—the scholarship of discovery, involving original research and the advancement of knowledge; the scholarship of integration, connecting ideas and synthesizing across discipline boundaries; the scholarship of application, assembling knowledge through an interaction between intellectual and ‘real world’ problems of practice; and the scholarship of teaching, transformation knowledge through bridging the gap between the teacher and the taught. E-dimension should be added to the library to act comprehensively as a learning resources center. The library is bound to provide a tour de force for e-books/e-journals. In the arena of curriculum development, and evaluation and implementation of individual and/or institutional projects, the library professionals could play a crucial role in creating classified databases. The librarian could initiate a cross-functional teamwork. Nothing would work out without the involvement and commitment of the university’s top management. The futuristic librarianship lies in taking proactive initiative measures to evolve a dynamic sustainable knowledge base as the principal provider of solutions to ever cropping academic issues.

Sustainable Knowledge Base

The present-day university ought to be, or should transform itself, sooner than later, to be a knowledge-based organization par excellence. Hardly could we brush aside the wisdom of hindsight that knowledge base built upon the library bedrock is like a house built on the rock. Not strangely enough, some academic libraries and research institutes promote themselves as "knowledge centres". Information Resources Management has already been elevated to ‘Intellectual Resources Management’ in the context of the Internet being rightly regarded as the network of best brains. The role of information, knowledge, skills and expertise, and customers' needs in one's own organization, assessment of competitors' "knowledge assets", and evaluation of one's organization's "knowledge portfolio and assets" constitute information-mapping concepts already familiar to the library professionals. First and foremost, the Library should identify the university's "knowledge portfolio and assets", which has to be initiated in a top-down fashion. It need not be overemphasized that a comprehensive transparent information policy should be evolved with directive principles for consolidating, integrating and organizing the information resources for free sharing. Undoubtedly, librarians have reached a watershed in their role as providers of information to the academic user community. The Library has been well poised to play a pivotal role in creating a sustainable knowledge base, precisely because of its unbiased interaction with key academic units--Faculty and Students, Administrative / Examination Division, Distance Learning Center, User Community, Freelance Knowledge Workforce (external), Projects/Curriculum Development (see Fig. 1). It is high time that every academic
library established a **Virtual Reference Desk** so that scholars are not limited to the resources of their own libraries but can connect, seamlessly and instantaneously, to the catalogs of other libraries around the globe. The VR Desk should be designed in such a way that

- it develops an integrated reference service using both printed and electronic resources by classifying the selected Internet sites by DDC;
- it introduces a FAQ service by providing access to the selected Internet resources through a subject query list; and
- it encourages and facilitates the use of gateways, directories and catalogs of the Internet by mapping subject classes.

Knowledge is a common heritage that grows to the extent to which it has been shared among the intended community. The unshared heritage is but a **stagnant pool** while the shared one is like running water. The Library should move from the simple provider of **bibliographic sources** to the powerful one of **business solutions**. If it has to act as the learning resources center, avenues of its activities should target the students. For instance, students could self-assess their competency in their subjects before taking up their terminal exams, if on-line **Brain-Benches** are designed and developed with the content experts and system administrators based upon such interactive models available on the Internet. Of course, for computer science students, many a brain-bench is available at a nominal rate. Similarly, on-line **Question Banks with Keys** for all courses offered may be prepared at the elementary to the advanced level with indication of syllabus-scope. Whether it is a curriculum development, or course design, it should be truly **internationally collaborative**, which precisely means that induction of subject experts from outside the organization can neither be avoided nor advisable. Students may be encouraged to take some on-line courses, along with their regular courses. On-line course material (not repeating the regular) should be designed for self-study with the Interactive Session for FAQ. Even tests and evaluation should be on-line without the involvement of the regular faculty. The on-line education has given rise for the universities to assume the responsibility of **courseware publishing houses** that have know-how and the ability to prepare instructional material. Teaching will be delivered via a range of electronic media. This vision will require several stages to implement. In the early phases, the system would consist of an extensive network, within a central hub surrounded by access points throughout the campus. Ultimately, this hub could be extended beyond the campus into the community through I-way. In the near future, the universities start to look for new sources of income such as course franchising (Kalakota and Whinston, 2000, p. 562). It is imperative that Information Content Specialists should be identified for assigning the specific tasks, and the Library could offer all facilities for preparing the material electronically both in HTML and PDF formats for distribution. The role of author is changing in the world of electronic publishing. We should first recognize the several types of authors: educators who create courseware, writers who write electronic books, creators of CD-ROMs, and third-party value-added businesses. Issues like how to compensate the content writers, and how to protect the copyright of the materials have to be thrashed out and agreements should be drawn. Before all this, a lot of spadework has to be done for evolving a cohesive picture of the common-wheel project, enlisting the whole-hearted support of the faculty (both on-campus and off-campus) and commitment from the funding agencies to offset the initial and operational expenditure.

Library and information professionals should develop navigational skills for exploiting and exploring the Internet resources towards building sustainable knowledge base. The need for skilled information navigators to guide, train, and mediate for users, remains significant. They will develop in-house specific subject gateways, adapt external gateways for
best local use, seek out and advise on appropriate information resources (both print and URLs). Managing knowledge requires the appropriate tools—navigational aids (Allee, 2000):

♦ **A north star.** A north star represents the purpose, sense of identity, and core principles that guide an organization. Knowledge self-organizes around organizational purpose.

♦ **A Compass.** An organizational compass consists of guiding principles and strategy. Best-practice companies in knowledge provide a way to expand knowledge by taking an integrated, multi-modal systems approach.

♦ **The Crew.** Knowledge is embodied in people. It is impossible to talk about knowledge without addressing the way people work together, learn together, and grow in knowledge individually and collectively.

♦ **Maps and guides.** Knowledge-based organizations seek guides, maps, and pathways for building knowledge across multiple performance levels.

♦ **Sound vessels.** There must be vessels or vehicles to support knowledge exploration: technology support, equipment, tools and physical structures.

♦ **Feedback and measurement.** Measurements help gauge and manage knowledge assets, and support continuous improvement.

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**Fig. 1** A Library Gateway Model for Building/Mapping University Knowledge Base

**Mirror or Mirage of Knowledge**

The Internet, more precisely Web, is an inexhaustible and unparalleled, though not all-inclusive and all-relevant, source of information for all-conceivable subjects upon the earth. But our experience with the Web browsing is ambivalent: **exciting and exacerbating.** Exciting in the sense that we seem to get unexpectedly a goldmine of information. And
exacerbating in the sense that it’s a time-consuming arduous task to get the relevant information like the proverbial searching for a needle in a haystack. To put it in other words, the Internet is a speed-of-light network that often moves at a crawl; and although nearly every kind of information is available on-line, it can be maddeningly difficult to find the one piece you need. Computers, of course, are not that smart; they need to be told exactly what things are, how they are related and how to deal with them. Extensible Markup Language (XML for short) is a new language designed to do just that, to make information self-describing. Librarians figured out a long time ago that the way to find information in a hurry is to look not at the information itself but rather at much smaller, more focused sets of data that guide you to the useful sources: hence the library card catalogue. Such information about information is called metadata.

From the outset, part of the XML project has been to create a sister standard for metadata. The Resource Description Framework (RDF) should do for Web data what catalogue cards do for library books. Deployed across the Web, RDF metadata will make retrieval far faster and more accurate than it is now. Because the Web has no librarians and every Webmaster wants, above all else, to be found, we expect that RDF will achieve a typically astonishing Internet growth rate once its power becomes apparent. It’s abundantly clear that traditional library techniques and practices have not lost their relevance, but they have to be adapted and honed to meet squarely the on-line networked information resources. An objective analysis of the sample search results would prove that a host of search engines devoid of intelligent filtering mechanism have brought forth ‘impressive’ hits or matches that have no respect for contextual and semantic sense of the search terms. If we take a close look at the tabulated search results, we could find that a subtle variation of the search term brings about marked difference in the web-page matches.

**Table 1** Sample Search Results on the Networked Information Resources ([http://www.yahoo.com](http://www.yahoo.com))

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Search Terms</th>
<th>Variation</th>
<th>Web Page Matches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intellectual Leadership</td>
<td>Intellectual</td>
<td>229,000</td>
</tr>
<tr>
<td>2</td>
<td>Intelligent Leadership</td>
<td>Intelligent</td>
<td>102,000</td>
</tr>
<tr>
<td>3</td>
<td>Emotional Intelligence</td>
<td>Intelligence</td>
<td>113,000</td>
</tr>
<tr>
<td>4</td>
<td>EI</td>
<td>EI</td>
<td>773,000</td>
</tr>
<tr>
<td>5</td>
<td>Emotional Quotient</td>
<td>Emotional Quotient</td>
<td>496</td>
</tr>
<tr>
<td>6</td>
<td>EQ</td>
<td>EQ</td>
<td>837,000</td>
</tr>
<tr>
<td>7</td>
<td>Emotional Intelligence Quotient</td>
<td>Emotional Intelligence Quotient</td>
<td>1,600</td>
</tr>
<tr>
<td>8</td>
<td>Fifth Generation Management</td>
<td>Fifth</td>
<td>550</td>
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<tr>
<td>9</td>
<td>5th Generation Management</td>
<td>5th</td>
<td>365</td>
</tr>
<tr>
<td>10</td>
<td>Leadership in the 21st Century</td>
<td>21st</td>
<td>220,000</td>
</tr>
<tr>
<td>11</td>
<td>Leadership in the Twenty-first Century</td>
<td>Twenty-first</td>
<td>41,900</td>
</tr>
<tr>
<td>12</td>
<td>Leadership in the Knowledge Era</td>
<td>Era</td>
<td>1,200</td>
</tr>
<tr>
<td>13</td>
<td>Librarianship in the Knowledge Society</td>
<td>Society</td>
<td>5,070</td>
</tr>
<tr>
<td>14</td>
<td>Librarianship in the Knowledge Management</td>
<td>in</td>
<td>7,450</td>
</tr>
<tr>
<td>15</td>
<td>Librarianship for the Knowledge Management</td>
<td>for</td>
<td>7,450</td>
</tr>
<tr>
<td>16</td>
<td>Information about KM</td>
<td>Information</td>
<td>940,000</td>
</tr>
<tr>
<td>17</td>
<td>Skills for Knowledge Management</td>
<td>Knowledge Management</td>
<td>651,000</td>
</tr>
<tr>
<td>18</td>
<td>Skills for KM</td>
<td>KM</td>
<td>83,900</td>
</tr>
<tr>
<td>19</td>
<td>Synergistic Approach to Management</td>
<td>Synergistic</td>
<td>21,300</td>
</tr>
<tr>
<td>20</td>
<td>Systems Approach to Management</td>
<td>System</td>
<td>712,000</td>
</tr>
</tbody>
</table>
The search terms—Librarianship ‘in’ the knowledge management and librarianship ‘for’ the knowledge management—are not one and the same semantically, but the search engine has brought forth the same number of hits, ignoring the prepositions ‘in’ and ‘for’. EQ = Emotional Quotient is generally taken for granted. But if we use EQ for Emotional Quotient as a search term, we are virtually flooded with approximately 837,000 web matches. Many times, EI is used for Emotional Intelligence. But what happens when we use it as an equivalent search term? We get seven folds of increase in the matches. If we scan the matches, we get documents far beyond our need, like documents bearing phrases like ‘Eq. (5)’, ‘Electronic Imaging (EI)’, ‘Engineering Information (EI), ‘Educational Investment (EI)’. Knowledge Management is freely abbreviated KM and widely used in the documents. Not very surprisingly, the search term, ‘Skills for KM’ brings out totally irrelevant documents containing ‘within 50 km’, ‘KM Cook’, ‘winds of 35 km/pr’. One thing is patently clear that the search results very often do not reflect the real picture of knowledge. The inherent defect in the search engine or mechanism that needs to be corrected can be done only by the library community. To recall the apt remark of Nancy Kranich (President, ALA), “Librarians are human search engines…. Librarians are selective. They are critical and choosy in ways that computers will never be.”

The Internet community owes so much to OCLC for bringing about ‘Chaord’ (an order within chaos) in an otherwise ‘jungle’ state of affairs. The OCLC Office of Research has taken up leadership role as technological innovator and standards creator in shaping the digital future of libraries. Among several pioneering independent/ collaborative projects, the following are worth evaluating and implementing. Operating under the auspices of the World Wide Web Consortium (W3C), the OCLS is a leading player in the development of Resource Description Framework (RDF) Model and Syntax specification. The model is an emerging global standard designed to facilitate improved interoperability between applications that exchange machine-understandable information on the Web. It has made remarkable progress in defining Dublin Core (DC), a set of elements for electronic resource description. Scorpion explores the indexing and cataloging of electronic resources. The project is developing a sophisticated group of tools that will support automatic assignment of subject headings based on well-known classification schemes, such as the Dewey Decimal Classification System. The second generation of Web (integrating JAVA and XML based upon dbms-oriented library search-techniques) would solve the hitherto encountered problems to a great extent.

**Old Structure and New Culture**

If electronic information resources are to be seamlessly integrated into library by way of complementing and supplementing its traditional collection, mostly print media, the organizational structure of the library needs to be redefined/redesigned. Library administrators need to reevaluate all aspects of library operations related to the acquisition and provision of information, including bibliography in a digital environment, collection development, resource sharing and document delivery, and courseware development. To begin something new, to keep it in existence, and to alter the course of what is occurring, we must be able to bring into being the physical structures, practices, and language patterns appropriate to the new theories upon which the alteration is based. **If we don’t succeed in bringing the essential elements into existence and interrelating them, the new structures will not remain in existence and the old structures will reassert themselves.** Such is the power of structure. Without structure, we would be living in a chaotic world.

We must design structures that allow energy and/or information to be converted into something intended and not into something else. These structures will guide us and allow us to do many things effectively without demanding that attention be placed on the influencing structure. We are then free to create, innovate and access what is otherwise not possible. This is one of the areas in which complexity theory offers us a wealth of information. Structures that are a match for our intentions and understanding allow us to expend our energy and attention where it will have the most effect. The difference, between a productive and a nonproductive culture, can be found in the culture's ability to use structure without having to place awareness on it and the ability to keep structure in existence without great energy. When we are ignoring structure, or it is inhibiting or continually disintegrating, then the situation is “remedial” rather than productive.
As observed by Greenleaf, “The old organizational pyramids of the nineteenth century are crumbling, being replaced by upside-down pyramids and circles and connections” (Greenleaf Center, 1997). The challenge to library leadership is to provide staff with a learning environment. Staff of the library will reap maximum benefits of the new technologies if they feel that the library leadership is genuinely committed to new ways of working, to breaking down barriers between sections.

Synergistic Approach

The term ‘synergistic’ is derived from the Greek word ‘synergy’ that means ‘working together’. An organization is a “common-purpose synergy”. To organize is, then, the act or process of coordinating and co-adapting a set of beings in order to achieve a common purpose (Sommer, 1996). In the information age, the primary challenge will be to encourage the new, better-educated work force to be committed, self-managing and life-long learners. Against the backdrop of fast emerging networked community, a shared, collaborative form of leadership will be the most successful approach in the twenty-first century. A basic premise of collaborative leadership is recognition that no one person has the solutions to the multifaceted problems. Leadership in this context requires a set of principles that empower all members to act, and employ a process that allows the collective wisdom to surface. This systems perspective requires nonlinear, holistic and multifaceted approaches to leadership that stress interactive participation, open communication, continuous learning and attention to relationships. A step in the critical passage to the new paradigm of shared leadership requires the members of the group to practice the freedom of choice that comes with being responsible and accountable to themselves and each other.

Creating an environment where collective leadership is practiced starts with a shared vision supported by a set of specific values or beliefs which are integrated into each person’s behavior.

The interdependent structures and relationships help to ensure an understanding of the distribution of different talents among group members. All this shifts the role of leaders to that of facilitators, supporters, consultants and sometimes teachers.

This authenticity and the ability to actually “live” the principles of collaborative leadership is evident in Wheatley’s observation, “We must be what we want to become, we must in every step of the way, embody the future toward which we are aiming” (Wheatley, 1992). This resonates with the words of Mahatma Gandhi who recognized that personal transformation was the heartbeat of leadership: “We must be the change we wish to see in the world.” With the proper understanding, education, and training, every individual can begin to use the leadership gifts that he or she possesses.

The professional leaders are expected to engage in both leadership and management. Leadership and management are two distinctive and complementary systems of action. Management is about coping with complexity and brings a degree of order, rationality and consistency to key dimensions like the quality and profitability of products. Leadership, by contrast, is about coping with change. Leaders produce constructive and adaptive change to help universities and departments to survive and grow. To quote Peter Drucker, “It is better to do the right thing than to do things rightly.” Transformational leadership sees the leader as an agent for change. It involves building commitment, having a vision, taking people along in implementing that vision, inspiring them, showing personal consideration for them, and intellectually stimulating them (Kouzes and Posner 1987). 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).

‘The Quest for the Holy Grail’

Human resources, knowledge resources, infrastructure and good will are as much a part of inventory today as stocks of raw materials, equipment and finished goods. The Library has
to bring itself to the center stage for playing the big role. “When preparation meets opportunity, the Gods are ready to obey,” goes an old saying. “Are we prepared?” is the big question looming before the library world. Let the library professionals take up the challenging task of building knowledge base that will serve as a perennial source of inspiring/insightful information for all those who knock at its door. The librarians’ profile and portfolio should reflect the current trends of Information Technology. All that they need is courage of conviction in their quest for Holy Grail, taking cue from King Arthur’s singular determination:

To dream the impossible dream
To fight the unbeatable foe
To bear with unbearable sorrow
To run where the brave dare not go.

To right the unrightable wrong
To be better far than you are
To try when your arms are too weary
To reach the unreachable star

This is my quest, to follow that star,
No matter how hopeless, no matter how far…

References


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Knowledge management: opportunities for IS graduates
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Abstract
Market research has been undertaken in preparation for a new postgraduate programme in Information and Knowledge Management to be taught by the staff at the Department of Information Science at Loughborough University. The research was needed to shape the curriculum and to define programme parameters. Presented at the conference will be the findings of a study that investigated the availability and types of jobs in this field, the skills and types of personnel sought by employers and whether demand is currently being met in the UK. The study involved identifying and analysing national advertisements for Knowledge Managers over a six-month period and undertaking follow-up surveys involving the agencies and employers who placed the advertisements. Just how these results influenced the design and parameters of the programme will also presented. There is no doubt that new programmes, such as this, will open up considerable new employment opportunities for IS graduates.

1. Introduction
Management information strategies and techniques for identifying, integrating and assimilating relevant information from both internal and external sources have been used for decades by successful businesses - so what is different now and why is the emphasis being placed on Knowledge Management (KM)?

The question 'what is different now' is easy to answer. Computers that were first introduced into businesses in the 1970s now bear little resemblance either in looks or in technological power to those being used today. A huge amount of information can now be assessed in seconds 'making more information more available to more people than at any other time in human history' (Feather, 1998). Managers face the paradox of having a greatly increased volume of both internal and external business information potentially available to them from which to make decisions but far less time to make them. Coupled with this is drive of the internet economy, the move towards the global economy and global competitiveness and the need to be constantly up-to-date with product and competitor information. Thus the use of suitable techniques to manage this information is ever more important. Without them employees will undoubtedly suffer information overload with inevitable consequences for the success and profitability of an organisation (Edmunds and Morris, 2000).

Why has Knowledge Management suddenly become a buzz word? Until recently the fascination with the capacity of the memory and processing power of the computer has over shadowed the enormous potential offered by the memory capacity and processing power of the human brain. Only in the last few years have companies begun to realise the value of what is often referred to as 'intellectual capital'. It is now becoming increasingly common for large organisations to have a KM strategy as well as an information management strategy. But what exactly is Knowledge Management and how does it differ from Information Management?

The main objective of KM is to create an integrated environment in which people are enabled to apply, develop, share, combine and consolidate knowledge about customers, products, markets, competitors, services, procedures and practices in order to maximise organisational success. Information Management, on the other hand, is defined as 'The application of management principles to the acquisition, organisation, control, dissemination and use of information relevant to the effective operation of organizations of all kinds' (Feather and Sturges, 1997).

Research by TFPL (1999) identified skills needed for creating and sustaining a knowledge culture within international organisations. In-depth case studies in organisations that were already implementing knowledge management initiatives and analysis of UK job advertisements produced the following key findings:

- Organisations that promoted the information literacy skills of creating, finding, sharing and using information and knowledge amongst employees added 'value to innovation, problem solving, strategic planning and the business processes of the organisation' (TPFL, 1999).
- New combinations of skills and new roles and responsibilities are required when creating a knowledge environment.
• Core competencies required by employers are made up of educational, professional and technical background and experience.

• The KM competency framework changes from an initial focus on change management to an emphasis on improving the knowledge process itself as the knowledge culture within an organisation matures.

• There is a need for courses to develop the technical skills required to embed knowledge processes within organisations, to promote business understanding among information professionals, and to facilitate other key skills needed in KM environments.

Since Information and Knowledge Management are inextricably linked it is not surprising that schools of Library and Information Science (LIS) are taking an active interest in meeting the demand for suitable courses. The Department of Information Science at Loughborough University is no exception. October 2002, for example, will see the start of new Masters Programme in Information and Knowledge Management (subject to approval). The TPFL research formed a basis for the early preparation for the programme. However, since the research was some 18 months old in a fast moving area a small-scale supplementary study was undertaken. The main objective of this, besides up-dating the TPFL research, was to assess market demand and to identify the skills required by employers in the KM field. This paper describes this research and its findings and discusses how it influenced the design of the Masters programme in Information and Knowledge Management in the UK.

2. Methodology
The research involved three stages.

2.1 Identification and analysis of job advertisements
A large number of UK newspapers (all non-tabloid daily and Sunday newspapers), journals and websites were scanned for job advertisements in the KM field between October 2000 and March 2001 inclusive. A job was considered to be in the KM field if the word 'knowledge' was included in the job title or if the job description showed the job to be concerned principally with the identification, capture and networking of internal sources of expertise, knowledge and information. Where possible the following information from each advertisement was extracted and recorded in Excel: Job title, role and job description; Skill and experience required including: Personality traits sought; KM skills demanded; LIS skills required; IT skills required; Sector of organisation; Salaries offered; and Geographical location.

2.2 A follow-up survey of employers
Employers who advertised directly, and not through an agency, were interviewed by telephone or sent a questionnaire via email. The intention was to collect information about the number of people who had applied for the post and were interviewed; the approximate number of candidates who had the appropriate skills and experience; whether they appointed anyone and, if they did, whether the successful candidate possessed the right skill mix; and if they used tactics other than advertising to procure personnel.

2.3 A follow-up survey of agencies
All the recruitment agencies who sought KM personnel in the six-month period were sent a questionnaire via e-mail. The information requested included: the number of KM staff they were asked to recruit over a period of one year; whether they had sufficient candidates on file to fill posts; whether the response to their first advertisement generally yielded sufficient candidates; how often they resorted to head hunting; what skills were required and what were missing from candidates; and whether they saw the market growing.

The vacant posts
3.1 The number of posts available
Some 134 job advertisements were placed in newspapers or journals or offered by agencies on their websites in the time period. This represented a minimum of 113 posts; some advertisements occurred more than once in different sources, but several advertisements were trawling for an unspecified number of 'Knowledge Managers'. This was particularly true in the case of agency advertisements, which comprised some 77% of the total. If the questionnaire survey or telephone contact did not yield any more specific data these types of advertisements were regarded as representing one post. Consequently, the number of posts actually advertised could be higher than 113. As expected, the job market in the KM field has expanded since TFPL undertook their survey 18 months ago, when 80 job advertisements were found over a similar time period.

Some of the questions directed to the recruitment agencies were also designed to elicit information about market demand. Agencies were asked, for example, how many KM posts they were asked to recruit in a year and if they generally had sufficient candidates
on file to fill posts. Of the eight agencies that responded one said they were asked to recruit ‘hundreds’ but most of the others said between 10 - 30 a year. Although most of the agencies said that they didn't always have sufficient candidates on file nearly all of them said they managed to find enough suitable candidates from the first advertisement or else used the practice of ‘headhunting’. Generally an appointment was made from the candidates put forward by the agencies to their clients. Almost of the agencies said that they thought the market was growing; one said substantially.

Further evidence of market demand was sought from employers who placed job advertisements. Of the seven employers interviewed, two did not receive any applications for their posts, one received 14 and the remaining had between three and eight applications. Because of the lack of suitable applicants only four of the seven posts were filled. It is difficult to say exactly why the advertisements produced so few applicants but all of the posts offered salaries at the lower end of the spectrum, £18,450 - £31,000, suggesting they were more junior posts. It would appear, therefore, that the UK market for KM roles is still relatively small, but is growing.

3.2 Job title, role and job description
Roles in the KM sector are wide ranging with many different job titles being identified. To enable comparisons to be made, the generic classification of roles used by TPFL (1999) was adopted. Job descriptions were used to classify the roles rather than job title.

**Chief Knowledge Officer.** A person in this role would be the Senior Executive of the initial strategy team who assess the potential of KM within their organisation, act as champions and is responsible for strategy, leadership and coordination. Job titles found in the advertisements that fell into this category were 'Chief Information Officer', Director of Knowledge Management' and 'Director of Strategic Intelligence'.

**Chief Knowledge Team Manager.** This type of person would be regarded as Senior Management with responsibility for KM development and training, strategy, IT infrastructure, business processes, change management and so on. Job titles alluding to this role in the advertisements included 'Knowledge Manager', ‘Knowledge Leader’, 'European Knowledge Manager' and 'Head of Knowledge and Information Management'.

**Implementation Manager.** This type of person would be regarded as Senior/Middle Management and be part of a team required to take responsibility for KM implementation and monitoring and overseeing the development of processes, infrastructure and information resources. The most common job title found in the advertisements for this role was ‘Knowledge Manager’. However, a variety of other titles were also used: 'Change Knowledge Manager', 'Knowledge/Intranet Manager', 'Knowledge Portal Co-ordinator', 'Global Exploitation Manager', 'Knowledge Interrogator' and 'Head of Delivery - KM'.

**Knowledge Centre - Based Employee.** Staff with this role would primarily work in centralised knowledge centres within the organisations and act as a focal point for knowledge initiatives. They would be responsible for facilitating acquisition, dissemination and access to internal and external information and knowledge sources. Typical job titles found for this type of role were: 'Knowledge Manager or Co-ordinator', 'Knowledge Assistant or Officer', 'E-librarian', 'Information Specialist', 'Intranet Content Manager', and 'Knowledge Analyst'.

**Knowledge Networker.** A person with this role would be responsible for facilitating KM activities within a specific network and community and may be required to abstract, synthesise current or new industry, subject or client knowledge. Again the term 'Knowledge Manager' was frequently used for this type of role. Other job titles found were: 'Knowledge Analyst', 'Knowledge Engineer', ‘Competitive Intelligence Officer’ and ‘Network Co-ordinator’.

**Business Unit - Based Employee.** A person with this type of role would work in self-contained units with specific functions such as marketing and would be responsible for facilitating the development and implementation of KM activities with the help of the implementation team in their unit. ‘Knowledge Manager or Officer’ was a common job title found in the advertisements. Other terms used included: 'Business Intelligence Manager', ‘Primary Care Knowledge Manager’, 'Knowledge Interrogator', and 'PMKS Practice Manager'.

Over three-quarters of the posts, 89, had sufficient details in the advertisement to categorise them into the generic roles as detailed above (see Table 1). The results showed that almost half of the jobs advertised could be regarded as more ‘junior’ posts and may be suitable for new graduates or people with one or two years experience.
Table 1  Number of jobs for different types of roles

<table>
<thead>
<tr>
<th>Generic role</th>
<th>No of jobs</th>
<th>% of jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Knowledge Officer</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Chief Knowledge Team Manager</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Implementation Manager</td>
<td>28</td>
<td>31</td>
</tr>
<tr>
<td>Knowledge Centre - Based Employee</td>
<td>33</td>
<td>37</td>
</tr>
<tr>
<td>Employee</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Knowledge Networker</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Business Unit - Based Employee</td>
<td>89</td>
<td>100</td>
</tr>
</tbody>
</table>

3.3 Skills, competence and experience required
What key skills, competence and experience are considered important by prospective employers in the knowledge management field? The short answer to this is that they vary between post to post.

In broad terms, however, they can be divided into six main groups: Experience and general skills, Educational requirements, Personal attributes, Knowledge management skills, LIS/IM skills, IT skills.

3.3.1 Experience and general skills
A large number of the advertisements, particularly in the commercial sector, specified that some experience, or extensive experience in the case of top senior management posts, was desirable (see list below). In 27 of the 113 posts the employer wanted relevant industry experience while others specified the need for marketing experience and/or strategic planning experience. Not surprisingly the need for interpersonal and good communication skills, such as presentation and report writing skills were mentioned in many advertisements. Other common required skills included those associated with project management, being a team player, and the ability to facilitate change management. These findings were similar to those obtained by TFPL, and echoed by the agencies and employers interviewed.

Ranked list of experience and general skills (more than five occurrences):

1. Relevant industrial experience
2. Interpersonal skills
3. Highly developed oral/written communication skills
4. Project management skills
5. Team player
6. Change management

"organisations may not realise that a KM person is likely to be drawn from an LIS background".

3.3.2 Educational requirements
Approximately a quarter of the advertisements specifically stated that a first degree was required, although several mentioned such phrases as 'sound educational background' or 'highly educated'. Interestingly, the degrees of primary interest to employers were those in an information or library related subject, which did not appear to be the case in the TFPL study. Does this mean that employers are at last waking up to the fact that the LIS profession has much to offer in the KM field? Comments from agencies seem to bear this out. It is generally thought that the easiest new graduates to place are those from a course with an electronic content (databases, intranet, online skills) and those including modern management skills - which are included in most LIS programmes today. One agency said that 'for an SME or even some of the blue chips, a KM appointment is often the first information professional that is brought into the business, so skills in managing information as well as knowledge are often thought as revolutionary'. Another said that

3.3.3 Personal attributes
Many personality attributes were mentioned in the job adverts as being desirable. However, the most common ones in order of frequency of occurrence were: Proactive self starter; Enthusiastic; Highly motivated; Innovative; Leadership ability; and Dynamic.

The trait 'proactive self starter' was top of TFPL personal attributes list too, but the other attributes mentioned were slightly different. For example, they found employers were looking for people who were flexible/co-operative, persuasive, tactful and creative. The agencies stressed that they were looking for flexible and adaptable candidates.

3.3.4 Knowledge management skills
Like the TFPL findings many of the job advertisements expressed the need for candidates to have practical experience in knowledge management or awareness of the importance of knowledge to the development of an organisation. Experience of using KM development tools was also considered to be important.
3.3.5 LIS/IM skills/experience
Many of the skills listed in the advertisements were LIS related. The most demanded in rank order were: Ability to develop the knowledge transfer/capture process; Information Management experience; Research skills; Ability to access/source external information resources; Content management skills; Classification, cataloguing, codification, taxonomy skills; Online searching skills (Dialog.CDRoms/Profound/RBB/FTProfile/Investext); and x-years experience in a research or information role.

The findings show that a broad range of LIS/IM skills are sought by employers. This is in contrast with the TFPL study which identified online searching as the skill most commonly sought.

3.3.6 IT skills
The most demanded IT skills specified in job advertisements and by agencies were those needed for intranet development, internet use, use of Lotus Notes and for database management. A few advertisements merely specified the need for a solid technical background in IT, and/or experience of Microsoft Office, Word or Powerpoint. The most interesting finding here in comparison to the TFPL study is the rise of importance of intranet development skills.

3.4 Sector of organisation
In total, 97 of the 113 posts could be identified with a particular industrial sector. As Table 2 shows almost a half of these (49%) were being sought by either consultancy companies or the finance sector. The only other sectors to advertise more than three posts in the six-month period were IT/Communications, the NHS and the Government. In the TPFL survey, the majority of the job vacancies were from Management/Business Consultancy companies; two thirds of the posts were being offered by this particular sector. The only other sectors in the TPFL survey to have more than three posts were the legal and finance sectors.

<table>
<thead>
<tr>
<th>Sector</th>
<th>No of posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultancy</td>
<td>29</td>
</tr>
<tr>
<td>Finance and Legal</td>
<td>19</td>
</tr>
<tr>
<td>IT/Communications</td>
<td>10</td>
</tr>
<tr>
<td>Health Services</td>
<td>8</td>
</tr>
<tr>
<td>Government</td>
<td>6</td>
</tr>
<tr>
<td>Professional Body/Services</td>
<td>5</td>
</tr>
<tr>
<td>E-commerce</td>
<td>3</td>
</tr>
<tr>
<td>Energy</td>
<td>2</td>
</tr>
<tr>
<td>Distribution</td>
<td>2</td>
</tr>
<tr>
<td>Media</td>
<td>2</td>
</tr>
<tr>
<td>Recruitment</td>
<td>2</td>
</tr>
<tr>
<td>University</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
<tr>
<td>NK</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

3.5 Salaries offered
Graduates are often attracted to particular fields in the first instance by the salaries that are offered. Table 3 shows the range and frequency of salaries on offer as given in the job advertisements. Only four posts were advertised below £20,000, the lowest salary on offer being £17,000. Three of these mentioned the need for professional qualification in librarianship or information science. At the top end two posts were advertised as offering £100,000. These were for very high level appointments, one to provide leadership and vision in the field of information services to take advantage of e-commerce, the other to have overall responsibility for KM, strategic management and knowledge delivery in the finance sector. Almost a third of the advertisements did not state a salary; just said 'excellent salary offered' or 'very competitive salary offered' or that it was negotiable. Where salaries were stated, the most common salaries on offer were between £20,000 - £45,000. KM salaries therefore appear to be higher that equivalent library posts.

Distribution of salary on offer was fairly even across sectors, although the Health Service jobs were among the lowest, with 7 of the 8 posts being offered with salaries of £20,000 - £30,000.

<table>
<thead>
<tr>
<th>Salary</th>
<th>Number of posts</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20,000</td>
<td>3</td>
</tr>
<tr>
<td>£20,001 - £30,000</td>
<td>34</td>
</tr>
<tr>
<td>£30,001 - £45,000</td>
<td>27</td>
</tr>
<tr>
<td>£45,001 - £65,00</td>
<td>13</td>
</tr>
<tr>
<td>&gt;£65,000</td>
<td>2</td>
</tr>
<tr>
<td>Negotiable/Not known</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

3.6 Geographical location
Graduates are also interested in the location of jobs. In the UK almost all of the KM jobs...
advertised (81%) were based in London with a further 13% being based in outer London or Southern England. Only 5% of jobs were based elsewhere: one in consultancy, one in the leisure sector, two in health and one in distribution. No KM jobs were on offer in Scotland or Wales.

4. Information and Knowledge Management Masters
The results from the survey and the earlier TFPL research provided the framework for the design of the new Information and Knowledge Management Masters Programme at Loughborough University. Commencing in October 2002, subject to approval, students will be able to take a series of modules aimed at providing them with the necessary skills for a career in KM. The structure is based on a semester system with six modules worth 10 credits being taken in each Semester. Students will also be required to write a dissertation, worth 60 credits during the summer months. The core modules are as follows:

- Design and Authoring for the WWW
- Information Retrieval
- Informatics and Knowledge Management systems
- Principles of Knowledge Management
- Organisation of Information
- Database Structure & Design
- Competitor Intelligence & Business Information
- Legal and Professional Issues
- Management of Innovation & Entrepreneurship
- Management Techniques & People Skills

In addition to the core modules students will be required to select options worth 20 credits and undertake a Research Methodology course in preparation for their dissertation. Further details about the programme will be available from October 2001 at http://www.lboro.ac.uk/departments/ls/.

5. Conclusions
Knowledge Management 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. Focusing more on utilising intellectual capital within organisations, KM is nevertheless, a distinct discipline and one that is growing, substantially according to one agency. Information professionals already have the essential theoretical and practical skills to provide the IM element of KM. However, there are also opportunities for information professionals to use their skills in creative and imaginative ways to influence information strategies at boardroom level and corporate decision making. Up until now, employers have been slow to recognise that information professionals could have the potential to move into senior management positions. Abell and Oxbrow (2001) blame lack of expectations on the part of the both the information professional and the employer for this. They point out that employers tend to perceive information professionals as backroom office workers who provide services to real managers. Although employers recognise that information professionals have valuable skills, employers, according to Abell and Oxbrow, perceive them to have a lack of business acumen, and poor management/leadership/team skills. There are signs that employers' perceptions are changing, judging from the increasing number of advertisements for KM posts stipulating the desirability of an LIS/Information Science degree, but expectations on both sides still need to improve. Graduates also need to be provided with the right skill mix of management, business, ICT and information skills, to enable them to take advantage of the emerging roles in the knowledge economy. The new Masters degree in Information and Knowledge Management at Loughborough University aims to do just that. The future is exciting; it has never looked so promising for information professionals. The opportunities are there and are expanding; these must be taken, if not, they will go to other disciplines.

References

Acknowledgements
My grateful thanks are due to Margaret Hawkins for her help in the survey work and also to TFPL for providing us with the codes they used for the classification of their advertisements.
SECOND ANNOUNCEMENT AND CALL FOR PAPERS

Highlights

• This unique professional event celebrates its fifth occasion.
• Speakers with valuable perspectives on issues, ideas, solutions, and trends in this vital topic.
• Participants with international experience to share.
• A volume of proceedings to take away, reflect on, and disseminate amongst your colleagues.
• A network of contacts to help develop your CPE activities.

Theme: Continuing professional education for the ‘Information Society’.

Sub-themes

➢ CPE for information management skills and techniques
➢ Local or global delivery mechanisms
➢ Making global CPE relevant in a local context
➢ Quality control and assurance by providers
➢ Qualifications and rewards for participants
➢ Assessment of learning and evaluation of teaching
➢ CPE in information literacy for other professions.

Location
The Conference will take place in the new Faculty of Management building of The Robert Gordon University, Scotland’s premier vocational university.

Abstracts
Abstracts should be no more than 250-300 words, and should be informative, i.e. they should do more than indicate the general theme of the paper. They should inform the editorial panel about its purpose, its likely contents, and its conclusions.

Abstracts and Papers for presentation will be assessed against the following criteria:

• relevance of the paper to the Conference theme
• originality
• intellectual rigour
• level of authority and/or scholarship demonstrated
• validity of the results of any empirical research

Papers should normally be 5,000-7,000 words maximum (excluding abstract and references). Papers significantly larger than this will be returned to the author for editing to a more appropriate length.

Conference Language: English.
Deadlines

Abstracts - 15th July 2001
Decisions to proposers - 15th September 2001
Draft papers from invited contributors - 1st December 2001
Final confirmation of acceptance - 1st February 2002

(The papers will be published by K G Saur in the IFLA publication series)

Editors of the Conference Proceedings
Ian M Johnson, Head, School of Information and Media, The Robert Gordon University, Aberdeen, Scotland
Diann Rusch-Feja, Library and Research Documentation, Max Planck Institute for Human Development, Berlin, Germany

Abstracts and papers will be considered by a panel of experts, who will decide which proposers should be invited to develop and submit draft papers. Invitations to present papers at the Conference will be subject to the receipt and approval of the full paper by the Editorial Advisory Panel, who may require some revisions. The early submission of draft papers for comment is encouraged.

Presentation
Invited contributors will be allowed 20 minutes to make a presentation of their paper during the conference. Further guidelines will be provided for this.

All Sessions will be held in plenary in one of the University’s large modern lecture theatres, which are equipped with a full range of the latest audio visual and computer technology. The IT environment is based on Microsoft Office 97 and Windows NT. Speakers seeking to use alternative systems or to develop participative sessions should discuss these in advance with the conference organisers.

Submission of abstracts and papers
Abstracts and papers must be submitted in electronic format, by email, or on 3.5 inch diskette using a generally available word-processing software (such as Microsoft Word, Lotus, Ami Pro) or in MS-DOS text (ASCII).

Papers consisting solely of photocopies of slides for Powerpoint or similar projection systems will not be accepted.

Address for submission
By email: i.m.johnson@rgu.ac.uk
Hard copy: I.M. Johnson, Head of School
School of Information and Media
The Robert Gordon University
Garthdee Road
Aberdeen AB10 7QE
Scotland, UK.
Fax: International +44 1224 263939 or 263553
Registration Fee
All participants, including the invited speakers, must pay the registration fee expected to be about £140. The registration fee covers a set of conference papers, lunch, mid-morning and mid-afternoon refreshments, and the conference dinner.

Registration fees should be paid by 31 July 2002. Late applicants and day visitors must pay on arrival. Advance payments may be made by bank transfers or cheque. Participants registering on arrival must pay in cash.

Free student registration
One free registration and accommodation is to be awarded as a prize for the best paper offered by a current student at a School of LIS. The student may be at any level (Bachelors, Masters or PhD) but must be not more than 30 years old. The accommodation will be on a room only basis in a University student residence. The student will be responsible for transport to the UK and all other expenses.

Accommodation
A wide range of accommodation is available in Aberdeen. Within 10 minutes walking distance is the Norwood Hall Hotel (approximately £70 per night room and breakfast). Charges for other guesthouses and hotels in Aberdeen range from £30 to £110 per night.

Local organisational support
The Conference will be organised by Mr. Ian Johnson, Head of the School, with support from other academic staff, in consultation with the CPERT Executive Committee.

Administrative staff support will be provided by the School of Information and Media. There will be a number of audio-visual and computer technicians based in the building.

For further information about the School, the University and Aberdeen, point your Web browser at: URL: http://www.rgu.ac.uk/~sim/sim.htm

Website
The conference web site will soon be found at URL - http://www.ifla.org
It will contain details of the programme, abstracts of papers, and links to other important information, all updated regularly.

The IFLA Conference in Glasgow
The Conference has been organised taking the participants’ constraints into account. In particular, it is arranged to enable participants to travel on to Glasgow to take part in the IFLA Conference. IFLA was founded in Scotland in 1927, and celebrates its 75th anniversary in Glasgow, August 2002.

Delegates wishing to participate in the IFLA Conference in Glasgow and seeking further information should visit the Web site at URL - http://www.ifla.org

or write to: IFLA 2000 Conference Secretariat
The Library Association
7 Ridgmount Street
London WC1E 7AE
UK
Abstract submission Form

PLEASE TYPE OR COMPLETE IN BLOCK LETTERS

Family name: .................................................................

First name(s) .................................................................

Position .................................................................

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I wish to offer a paper Yes / No

An abstract of my paper is attached Yes / No

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