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IFLA Journal is an international journal publishing peer reviewed articles on library and information services and the social, political and economic issues that impact access to information through libraries. The Journal publishes research, case studies and essays that reflect the broad spectrum of the profession internationally. To submit an article to IFLA Journal please visit: journals.sagepub.com/home/ifl

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Knowledge management and library innovation in a changing world

Leda Bultrini
ARPA Lazio (Regional Agency for Environment Protection, Lazio), Italy

Wilda Newman
Knowledge Associates Resources, LLC, USA

Innovation is recognized as a key factor in the success and even in the survival of organizations in a constantly changing world, where the competition has a global dimension. This statement applies to libraries as well as to other forms of organizations, for profit or not.

But libraries have the particularity that they can and must be seen, from this point of view, as organizations themselves and as part of a wider reality, which can be the parent organization or a whole community. As such, they have a dual responsibility with respect to innovation: innovating themselves and their way of working, and doing so in order to be the bearers of innovation for the organizations they serve.

In a context where knowledge is considered the true strategic asset, it is not surprising that knowledge management (KM) emerges as one, if not "the" key approach to pursue innovation. Defining KM is not an easy task: the articles contained in this special issue provide, in their whole, an idea of how many people undertook this challenge, how many nuances each of the authors cited caught, and how varied the aspects are, that each of them emphasized.

This management tool, widely applied in forward-thinking companies, is beginning to experience significant appreciation and application also in the world of libraries. IFLA recognized the usefulness and the growing presence of KM in libraries by first creating a Special Interest Group (SIG) dedicated to KM. In December 2003, IFLA approved establishment of the Knowledge Management Section, which is now a Unit in IFLA's Division III (Library Services).

The IFLA Section on Knowledge Management has seen 15 years of distinctive activity including two publications of papers in the IFLA Publication Series (108, 2004; 173, 2015, available at https://www.ifla.org/publications/ifla-publications-series), as well as successful IFLA sessions on KM topics, always among the most attended in each IFLA Conference. The opportunity of a special issue on KM allows stimulation for reflection at the international level. Accordingly, collecting together a number of papers that gave an idea of how the awareness and practice of KM are spreading in libraries and showing cases of successful KM application (which, not by chance, often accompany or translate into strong organizational innovations, see here, e.g. Xiao Long), but not hiding the difficulties it comes up against.

The submissions we have received (and therefore the contents of this special issue) show greater attention to KM by academic libraries (see here Xuemao Wang; Xiao Long; Shropshire, Semenza and Koury; N Islam, S Islam and Razzak), but there are likewise interesting and quality experiences in public libraries (see here Garcia Giménez and Solar Alsina).

What emerges clearly from all the works received is that KM is a train that libraries must be able to hop on. Indeed, their function, their history and the skills that characterize them (appropriately enriched and renewed) make libraries organizations for which adopting KM could be simpler and more natural. And good practices prove it. Where it is applied with awareness and intelligence, KM allows libraries to give unpredictable answers to the new demands of the parent organization (Xuemao Wang), to better support their communities, even their vulnerable sectors (Garcia Giménez and Soler Alsina), to successfully

Corresponding authors:
Leda Bultrini, ARPA Lazio, via Bergamo 32, 00198 Roma, Italy.
Email: leda.bultrini@gmail.com

Wilda Newman, Knowledge Associates Resources, LLC, 5964 Rosinante Run, Columbia, MD 21045 USA.
Email: wildanewman@gmail.com

deal with management problems, that are as classic as they are critical: budget cuts, staff reduction, loss of knowledge because of staff turnover, technological innovation (Shropshire et al.).

On the other hand, missing that train can contribute to the marginality of libraries within the institution they serve (Stoddart). Alongside the more common ones (which Stoddart and Acadia sharply analyze), low income countries may experience specific difficulties in developing the practice of KM. Awareness is growing, however, even if there is a great deal of work still to do. The exploration from Nazmul Islam, Shariful Islam and Abdur Razzak on the application of KM in Bangladesh university libraries, provides an analysis of some of these shortcomings and suggestions for improvement .

To demonstrate the central role that the practice of KM can play to give full realization to the mission of libraries in a context that requires continuous innovation (innovation is a recurring keyword in all the articles published here), this special issue opens with the question by Xuemao Wang on what are the critical differences between KM and Library Information Science, coupled with an effective illustration of the innovative capacity of libraries.

That question poses itself as a provocation, but perhaps it is not so provocative if it appears also in the Islam et al. article and if, in 2018, a Satellite Meeting organized by the IFLA's KM Section in Sepang (Malaysia) had as its theme the question: "Is knowledge management the new library science?" (https://sites.google.com/view/ifla2018km/).

In the belief that we all learn from mistakes, and that improvement requires a ruthless analysis of reality, we wanted to close this special issue with two works that highlight the resistance that the application of KM, and innovation in general, encounter in libraries. The article already mentioned by Stoddart, and the analysis made by Acadia who, starting from the cultural criticalities that can be an obstacle to the evolution of libraries in an innovative sense, formulates a proposal of approach, bringing together organizational theories and methods, including KM, that allows an escape from the conservative trap.

It is our hope that this issue will improve the understanding of KM within the community of librarians, making it better known and less elusive. But the conversation about KM, opened here, will continue in the next issues of the *IFLA Journal*. The interesting and stimulating manuscripts received in response to the call for papers are, in fact, more than a single issue could accept. For this reason, in the next general issues, it will be possible to read the paper from Ana Pacios, with an overview of the presence and the role attributed to KM in Spanish universities and academic libraries[1] and Virginia Tucker's presentation of a concrete case of a KM research study integrated into a consulting internship in an MLIS programme.[2]

Thanks go, of course, to all the authors, to the reviewers, who cooperated in the selection and improvement of the papers presented here, and to Mary Augusta Thomas and Jennifer Bartlett, from the Standing Committee of the Knowledge Management Section, who provided their collaboration to the guest editors. We would also like to thank Steve Witt, Editor, *IFLA Journal* for providing not only his expertise and guidance but also the flexibility he showed and engagement with the editors of this special issue. Thanks to him we were able to proceed with a timeframe that took into account our availability and collaboration, often across three very different time zones, coupled with the nuances of our personal situations.

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Notes

1. Pacios A. 'Knowledge management and innovation: Two explicit intentions pursued by Spanish university libraries.'
2. Tucker V. 'Taxonomy design methodologies: Emergent research for knowledge management domains.'

Article

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From information, to data, to knowledge – Digital Scholarship Centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

Zheng (John) Wang
University of Notre Dame, IN, USA

Xuemao Wang
University of Cincinnati, OH, USA

Abstract
In this essay, the authors will discuss the similarities and differences of knowledge management and librarianship. They will propose and articulate the emerging role of academic and research libraries as the integrators of digital knowledge and research methods among academic enterprises, a role which they believe will transform librarians to knowledge professionals. The authors will try to answer or stimulate further discussion of multi-dimensional and provocative questions such as: What are the critical differences between knowledge management and library and information science? Will emerging functions or services, such as digital scholarship centers and research data management practices, allow academic and research libraries to more fully perform the functions of knowledge management? Will libraries' emerging role in the knowledge creation ecosystem help define their new value proposition, from a collection-centric to knowledge-centric service model? How should libraries position library-based digital scholarship centers to be digital integrators for enterprise-wide digital learning, research, and knowledge creation?

Keywords
Academic and research libraries, digital scholarship center, knowledge management, services to user populations

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Introduction

Knowledge management (KM) has been a buzzword in business, as well as a trending topic in academic research. The literature review section of the paper "Knowledge Management Perceptions in Academic Libraries" (Koloniari and Fassoulis, 2017) however, indicated that the adoption of KM by the library and information science (LIS) professionals was very slow, regardless of the potential of KM for the management of libraries and advancement of LIS.

As academic librarians, one could intuitively reason that the profession has been managing knowledge for a very long time, thereby dismissing the need to introduce another term for the same work. Librarians have indeed played a dominant role in collecting and curating knowledge in various forms since the library's inception, from manuscripts, books, journals, and papers, to images and videos, both analog and digital. The discipline has also created and

Corresponding author:
Xuemao Wang, University of Cincinnati, 640 Langsam Library, Cincinnati, OH 45221, USA.
Email: xuemao.wang@gmail.com

leveraged shared standards and processes for their classification and access. However, KM is a field of practice quite different from LIS; KM is the intersection of organizational psychology, economics, operations management, and library and information science (Farrell, 2017).

In this essay, the authors will discuss the similarities and differences of KM and librarianship. They will propose and articulate the emerging role of academic and research libraries as the integrators of digital knowledge and research methods among academic enterprises, a role which they believe will transform librarians to knowledge professionals. The authors will try to answer or stimulate further discussion of multi-dimensional and provocative questions such as: What are the critical differences between KM and LIS? Will emerging functions or services, such as digital scholarship centers and research data management practices, allow academic and research libraries to more fully perform the functions of KM? Will libraries' emerging role in the knowledge creation ecosystem help define their new value proposition, from a collection-centric to knowledge-centric service model? How should libraries position library-based digital scholarship centers to be digital integrators for enterprise-wide digital learning, research, and knowledge creation?

Knowledge management vs. librarianship

The term KM was first coined in the for-profit sector (Koenig, 2018). In essence, it refers to an organization's efforts to share knowledge of its products, processes, and expertise within (Koenig, 2018). The goal of KM is to increase an organization's situational awareness and gain competitive advantages over their peers. KM, as a field, became mainstream because knowledge became the most valuable resource under the current economy (Drucker, 1995).

Koenig's paper pointed out that over time KM also evolved to include knowledge external to the organization and expand from the commercial sector to others, such as government and social and civic organizations. Throughout this evolution its goal remained, increasing organizational efficiency by broadening the sharing of policies, practices, and talents among employees and partners.

The core difference between KM and librarianship is one of scope; KM targets the management of institutional knowledge while librarianship focuses on knowledge created elsewhere. One may argue that as archives, university presses, and libraries merge, libraries have begun curating the institutional knowledge of their parent organizations. Furthermore, the majority of academic libraries have established an institutional repository service, hosting faculty and student papers, along with various gray literature that supports teaching and learning. There is no doubt that libraries have been expanding into KM, and perhaps managing a subset of KM content. If the profession considers the rest of the above KM description, however, libraries have yet to play an essential role in promoting and empowering the sharing and knowledge of university products (e.g. research outputs, scholarship, degree programs, and diplomas), teaching and learning and research processes, as well as linking the various disciplinary and technical expertise of their campuses. Academic publications only represent partial institutional knowledge; institutional records, archives, and university intellectual outputs managed by libraries provide them an opportunity to leap into KM. The social aspect and knowledge creation processes of KM, however, are also critical to its completeness, which are not a part of library operations.

Furthermore, KM includes the identification, documentation, and sharing of both "explicit" and "tacit" knowledge. Hajric's (n.d.) article referenced several definitions of explicit and tacit knowledge. "Explicit knowledge" is formalized and codified and is sometimes referred to as know-what, and therefore reasonably easy to identify, store, and retrieve. For higher education it may comprise of research topics and methods, scholarship communications, learning/teaching objectives, degree/discipline programs, funding/budget, and facilities/equipment, for example. Libraries only manage a small piece of the explicit knowledge of an institution (intellectual outputs and research information, for example), but the vast majority of the body of knowledge that libraries curate is from external entities. "Tacit knowledge" is referred to as know-how and regarded as intuitive, hard-to-define knowledge that is mostly experience based. Based on this definition, tacit knowledge is often context dependent and personal; therefore, it is hard to communicate and deeply rooted in action, commitment, and involvement. It is also regarded as being the most valuable source of knowledge, and the most likely to lead to breakthroughs in an organization. One may easily conclude that librarianship encapsulates the organization, dissemination, and preservation of a tiny part of the explicit knowledge of their universities; librarianship has not (though it is not said, libraries should not) covered the management of tacit knowledge.

KM is a concept beyond collection acquisitions, classification, access, and preservation; it is capable of providing the ultimate advantage to its organization,

that is, excellent research outcomes and learning outcomes of their faculty and students. Current librarianship principally focuses on collection management and related services. Some institutions are more organized than others when it comes to sharing library operational knowledge, but few have thought about playing a role, not to mention a leading role, in the promotion of knowledge sharing at their universities. The literature shows that the practices of KM (Koloniari and Fassoulis, 2017) and readiness of KM (Marouf, 2017) are somewhat limited in academic libraries; Zlatos (2017) even stated the KM practices were poorly understood. There is no evidence from the literature that academic libraries play the role of KM on behalf of their home institutions. Farrell's article (2017) pointed out that librarianship is in the middle tier of the Knowledge Pyramid about Information Management (data to information to knowledge); reversely, current trends demonstrate that libraries are actually going in the opposite direction by expanding research data management and hiring more data curation librarians and informationists. So should libraries manage all their university's institutional knowledge? It is difficult to say, and even more challenging to determine whether or not libraries even have the capacity to fulfill such a function at their universities. That said, the authors believe that, at least in the realm of academic knowledge, libraries should begin taking on a more significant, perhaps leadership, role to embrace, interpret, and promote the full scope of KM practices in the academic enterprise.

Knowledge management definitions

So what is KM; its definition and components? KM became popular in the 1990s (Daland, 2016; Fraser-Arnott, 2014; Koenig, 2018). It is part of the field of management studies but also tightly integrated with information and communication technologies (Gao et al., 2017). Multiple versions of the definition have been introduced over time. Perhaps the following three represent KM the best (in chronical order of published time):

> "Knowledge Management is the process of capturing, distributing, and effectively using knowledge." – Tim Davenport definition, 1994 (Koenig, 2018)

> "Knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience in individual workers." – Gartner Group definition, 1998 (Koenig, 2018)

> "KM is the set of processes that create and share knowledge across an organization to optimize the use of judgment in the attainment of mission and goals" – Townley definition, 2001 (Farrell, 2017)

Traditionally librarianship engages in the later phases of the knowledge production cycle (again, when discussing academic knowledge rather than the knowledge of an entire university). Creation of knowledge is often found in the faculty's scope of work, not the librarian's (later authors would argue that libraries and librarians have an emerging role to collaborate with faculty in knowledge generation). Multiple professions may be responsible for capturing knowledge, e.g. publishers. Libraries typically come into the picture after scholarship and research are published, with the traditional focus on the organization, dissemination, and preservation of knowledge; libraries also have the choice to either acquire publications from their university's faculty or not.

Another essential KM characteristic is in actions following acquisitions of knowledge for the advancement of the mission and goals of an institution. Both Farrell and Koloniari and Fassoulis explained that KM requires the active engagement of applying information with human expertise to facilitate decision-making and to educate colleagues as to organizational practices and systems.

KM components

According to Koenig, KM is comprised of four components: content management, expertise location, lessons learned, and communities of practice. He referred to content management as Librarianship 101. The focus of this component, however, is in making an organization's data and information available to the members of the organization through dashboards, portals, and with the use of content management systems, which is not a part of the core services to which librarians apply their skills. The authors believe that librarians may offer valuable skills in the organization, searchability, and discoverability of knowledge if libraries choose to take on this component of KM.

Expertise location is to identify and locate those persons within an organization who have expertise

Table 1. Comparison of library and information science and knowledge management.

	Knowledge Management	Library and Information Science
Scope	Institutional knowledge	Academic knowledge (Also may include institutional records)
Focus	Application of knowledge	Collection of knowledge
Position on the knowledge pyramid	Top layer (knowledge)	Bottom two layer (data and information)
Discipline	Multidisciplinary	Information management
Goal	Situational awareness; competitiveness	Facilitate learning and research
Components	Content management, cultural, and social aspects	Collection management and its services
Phases	IT – culture change – content management	Content management – IT – cultural change

in a particular area. Although libraries might not offer a service to identify all experts in their parent organizations, some have developed services such as ETDs, faculty profiles, research citation analysis, Current Research Information Systems, and e-portfolios for students to find teaching and research expertise.

Lessons learned refers to capturing knowledge embedded in personal expertise and making it explicit, which is KM's original piece. Libraries have created the means to document their policies and also provide social software, such as wikis and blogs, to facilitate sharing knowledge amongst their employees. However, there is little in the literature demonstrating whether such library practices can scale and enable university-wide knowledge sharing.

Communities of Practice (CoPs) are a crucial component of KM. CoPs are groups of individuals who share the same interests that come together to share and discuss problems, opportunities, and practices to learn from the group (Wenger, 1998; Wenger and Snyder, 1999; and Koenig, 2018 defined). Communities of practice emphasize, build upon, and take advantage of the social nature of learning within or across organizations. Some literature has indicated that the significant difference between LIS and KM are the CoPs. Perhaps CoPs are not a concept that is prevalent at universities or libraries. Often talk series, colloquiums, forums, and conferences are the venues that connect people from the same line of work. Those formats might not occur at the same frequency as CoPs and tend to consume more resources to organize than CoPs. Nevertheless, various socialization opportunities are provided within and outside the university and library communities. As libraries often refer to themselves as a service to all campus constituencies, libraries may perhaps further their CoPs to connect with more cross-disciplinary or interdisciplinary research. The forums mentioned above for sharing knowledge in academic institutions are often disciplinary based, and thus librarians are rarely involved except for their own conferences, workshops, and communities. The hurdle is gaining the users' recognition of the libraries' role in helping to accommodate such conversations. Formally established centers on campus are often the places that fulfill this mission.

KM development also distinguishes it from LIS. Generally, KM development can be described in three periods (Koenig, 2018). First, KM was born by IT enablement. Later on, organizations learned that IT was only a foundational piece; for sharing knowledge to be successful and to provide competitive advantages, organizational culture in terms of rewarding systems has to be updated, modified, or enriched. Its third phase was the awareness of the importance of knowledge organization, description, and access. Contrast to LIS, libraries were somewhat backward-staged or reverse-engineered compared to KM, given its more extended existence and establishment as a discipline than KM. There has been a shared recognition of the importance of organizing content. Standards of acquiring, cataloging, and inventorying content has been a common practice for LIS. As IT, an enabling factor for many industries, libraries adapted their practices and introduced online catalogs and other digital services. Perhaps, the HR and culture piece are the latest emerging hot topics of libraries. As libraries have established the hallmark of knowledge systems and held a very stable mission over a long time, the expansion of the above appears to be more difficult compared with other younger industries. Table 1 compares the core differences between KM and Library Sciences.

Case introduction: The journey of building strong academic partnership – University of Notre Dame and University of Cincinnati Digital Scholarship Center

As long as libraries have been in the business of the curation and dissemination of academic knowledge, they may also choose to extend their services to knowledge creation, as well as expand to facilitate the application of such knowledge on campus. The above is a strategic shift from collection-centric services to KM for the academic knowledge of the institution. This new role will start to position libraries to help their universities gain "advantages" or "situational awareness" of new research and learning modalities. Centers for Digital Scholarship in libraries are an excellent way of engaging faculty and students, as well as providing a venue to make new knowledge, mint new practices, test new methodologies and pedagogies, and promote and socialize work throughout the entire campus. Therefore KM may be the catalyst for innovations in library services as well as an agent for cultural change in libraries looking to align themselves with the priorities of the academy better.

As collections and access continue to provide value to faculty and students, it is also increasingly evident that LIS as a field is challenged by emerging research interests (e.g. multidisciplinary studies), as well as by the proliferation of digital publications. As library theories and practices in information management were primarily found on discrete disciplines and paper-based publications (books, for example), innovation in information access is a tall order for libraries and library schools to fulfill their missions in support of research and learning. To this end, libraries have been adopting information technology such as search tools, digital storages, indexing software, and web standards and protocols to provide instant discovery to their collections. The profession has witnessed the utilities of full-text indexing and search, semantic and Linked Open Data, concept extraction, and text mining, as well as image recognition and classification in information access. Expanding or adopting KM practices may help libraries to be more innovative since it provides the framework and means to access the insights of faculty knowledge creation and student learning. Such insights are tacit knowledge rather than explicit knowledge. Because tacit knowledge of the academy is often informal, internalized within people's experiences, emotions, and intuitions, it would be impossible to access without it being a part of the research, teaching, and learning processes. What libraries learned from their users would ultimately inform their practices, and contribute to the evolution of Librarianship. As many libraries have recognized the above necessity, creating positions to manage research and scholarly data (the underpinning unit for any knowledge or understand knowledge), it is both sensible and strategic for libraries also to embrace the analysis, extraction, documentation, and management practices of knowledge. Therefore, expertise in the latitude of the Knowledge Pyramid (data-information-knowledge) would increase the value propositions of libraries to their parent institutions. The following use cases will provide some reflections on how KM has assisted the University of Notre Dame (ND) and the University of Cincinnati (UC) in aligning services with the demands of universities, as well as innovating by obtaining tacit knowledge.

Notre Dame

The Navari Family Center for Digital Scholarship Center (CDS), located in the Hesburgh Library, was launched in Fall 2013 and endowed by the Navari family in 2016. CDS leverages state-of-the-art technologies to transform how teaching, research, and scholarship are performed. The Center focuses on transformative uses of content that result in innovative research or new tools to engage with intellectual materials rather than with passive uses of electronic content, such as emailing or word processing. The followings are goals:

- Create a "hub" for research and scholarship;
- Make a transformational leap into the future of knowledge generation;
- Enable students and faculty to consult on emerging methodologies, analyze data and share results in ways previously not thought possible;
- Empower the Libraries to preserve new forms of scholarly information in perpetuity;
- Create profound partnerships campus-wide and enhance the teaching, learning, and research process in every academic discipline;
- Empower the next generation of scientists and scholars to be adequately equipped to create new knowledge in a digital environment – and to seek new solutions for a better future;
- Enable Notre Dame students to leave the Academy with the tools they need to make an impact in today's world.

One of the first projects back in 2013 that CDS worked on was Quantifying the State Trials, which was a collaborative project initiated by a professor of both English and Law across two Colleges (Arts and Letters and Law). The project was the first in which CDS utilized quantitative digital humanities

methods to recognize their potentials, and it offered the first-hand experience to the libraries to the world of the creation of knowledge – the work later would support the professor's research for his forthcoming book.

The learning was both intense and impactful for one type of future work of CDS since the project had a very tight deadline for an upcoming talk at a symposium eight to nine weeks out. The most critical aspect of the learning was the research questions and methodologies that the professor brought into the project. Specifically, he was interested in finding the relationship between religious tolerance and political economy in the period 1649–1700 in England. He decided to test how computational methodologies may assist in providing new findings otherwise done traditionally.

Considered the learning of the research topics and methodology was the "know-what" part of KM, the part described below was the "know-how" part of KM. First, the research topic and non-traditional approach presented new challenges to the libraries, in the norms of collection services. Typically libraries provide access to collections either on shelves or vendor databases via the Internet. This project required us to prepare and process collections into a different state or manifest with which computational tools could interact. The team needed to work on the 36 volumes of the State Trials document, a series of essential English court cases, covering topics of religion, treason, witchcraft, bigamy, and homicide. One of the ND Library's database subscriptions, HeinOnline, provided digital surrogates for Volumes 4–14 of the State Trials. Since the original volumes were printed in the early 1800s, its feature characters and fonts in a mixed columnar layout with notes are problematic for processing them for text analysis tasks. However, because of the above obstacles, the team realized the gap between current collection services with emerging research; therefore, the group explored outside of the standard toolsets identifying newer technologies to meet their demands. A new suite of toolsets emerged that helped to lower OCR errors, parsing each case from the online text, text mining, visualizing concepts identified from the corpus, and conducting fundamental sentiment analysis. The work mentioned above allowed the libraries to learn what was required to facilitate such research beyond collection access. By the end of the project, the team created a new "edition" of those cases alongside its original text and its online edition for computational purposes. The participation of the above research conceptualized and substantiated our understanding of research demands, as well as expanding our capabilities in LIS to advance those agendas. The authors have seen the transformation of collections for text-mining and analysis on the rise as the type of research which gains ground in faculty circles. One example in this area is the Collection as Data project (see Recommended Reading).

Second, another critical piece of know-how that the libraries learned was the organization and management of such projects. Besides the professor and project primary investigator, the team brought in a research assistant who held a PhD degree in Digital Humanities, librarians who understood how libraries work and could also code, and a programmer who could code and also held a PhD in Mathematics. Furthermore, a librarian who worked with data and could manage projects provided a structured way to approach the work in order to complete it on time. All team members actively met frequently to test the most suitable computational methodologies for addressing the research questions. Given the exploratory nature of the work, the group engaged in constant dialogues to ensure that the digital methods being employed and the data generated by the use thereof were useful to the humanities research question being addressed. All team members responded well to the iterative nature of the project.

ND Libraries learned the importance of bringing in the necessary and right types of expertise. The work also introduced us to the combined workflow of digital scholarship, that the creation of new knowledge has increasingly become a multidisciplinary endeavor which requires multiple domain experts, whether disciplinary or professional, working closely together to achieve a common goal. This trend pushes the envelope of the question of ownership – more specifically, digital scholarship moves humanists' solo quests for knowledge into the realm of collaborative teamwork. From this project, CDS acquired the knowledge and built the necessary infrastructure to support such work. CDS was able to provide consultations for similar work or variations of such scholarship to patrons and develop a series of workshops/instructions to the campus.

In summation, the involvement of knowledge creation or engagement in the early stages of the knowledge life cycle offered the libraries a retrospective on the emerging methodology, technologies and tools, and team makeups and dynamics as examples to demonstrate possible factors contributing to the success of digital humanity work. By assessing this project, the ND Libraries were able to produce a more systematic and user-friendly support model, which could be re-used and scaled in similar digital humanities projects. Without this expansion into the world

of KM, it would have been impossible for the libraries to learn the "know-what" and "know-how" of the knowledge they sought, and they would not have been able to develop a community to document and share the implicate knowledge and practices with various user communities. Because of the establishment of CDS, the ND Libraries started to play a more essential role in the academy.

Cincinnati

The University of Cincinnati's Digital Scholarship Center (DSC), located in the Walter C Langsam Library, is a joint venture between the College of Arts and Sciences and the University Libraries. On campus and in the community the DSC serves as a catalyst for hybrid forms of research and teaching, bringing together humanistic methods with technical innovations to test paradigms and to create new knowledge at the boundary between disciplines as they are conventionally imagined in humanities and beyond.

The DSC focuses on enterprise-wide digital knowledge and research method integration across multidisciplines. The DSC strives to enable scholars to not only seek for KM "know-how" and "know-what", but also wants to stimulate scholars to answer "so-what" questions from new and unique research angles, which they might not be able to do without DSC's assistance in creating a campus-wide multidisciplinary professional networking, computational research methods, tools and platforms. The DSC uses methods such as data visualization, computational text analysis, digitization/imaging/3D modeling, and geographic information systems (GIS), among many other approaches, to discover new dimensions of complexity and nuance in humanistic and cultural datasets that conventionally have not been studied by these digital techniques. The multidisciplinary team of DSC includes a combination of domain knowledge experts and scholars from humanities, social sciences, arts and design, and biomedical sciences, as well as technical experts from software development, project management, and librarianship. The center is led by a digital humanist who has cross-training and experience in research computing, basic science, and medieval literature studies.

The DSC was awarded in 2018 a $900,000 grant from the Andrew W Mellon Foundation to advance the "catalyst" model for digital scholarship (DS) across multiple disciplines. The Mellon Foundation grant supports the transdisciplinary teams in creating and disseminating computational tools and human-interpretable research products that will allow a wide range of scholars, librarians, administrators, students, and interested members of the public to engage with and use this experimental blend of research methods and insights. In partnership with faculty and motivated by their research questions, the DSC teams serve as a catalyst, to use the chemical metaphor, by synthesizing a reaction of different components into a cohesive product and by reducing the barrier to entry for such a reaction to commence. The DSC has assembled research groups that genuinely span multiple disciplines, drawing from the "team science" model used in mostly biomedical research, with people trained to think in interdisciplinary ways about every step in the research process: formulating research questions, gathering relevant data, analyzing information, and presenting conclusions. The DSC strives to develop the potential for new transdisciplinary strategies and practices for digital scholarship centers to overcome challenges in the transition from a service-oriented model to a more active model of intellectual partnership in the research enterprise within the knowledge creation ecosystem. To enhance the modern ways of new knowledge dissemination, the center plans to work with newly created University of Cincinnati Press, which is also a division of university libraries, to actively pursue the new modes of open access-based digital scholarship publishing with a broad goal of influencing more diverse format scholarly records output, 21st-century faculty promotion and tenure, scholarly productivity credential, and modernity and open access readership.

Upon receiving an Andrew W Mellon Foundation grant award, the DSC created a sub-grant named a Catalyst Award for multidiscipline participants across campus. All projects sponsored by the sub-grant aim to increase university-wide digital knowledge integration capacities by introducing novel digital knowledge and research methods in a trans-disciplinary manner. Summarized below are several sample projects to illustrate how the DSC functions as a digital knowledge and research methods integrator that bridges, enhances, and accelerates trans-disciplinary research.

Research Project Example: How the Past is Written: Analyzing Archaeological Publications to Understand Archaeologists' Perceptions of Artifacts.

PI: Sarah Jackson. Scholar domain subject: Anthropology, College of Arts and Sciences.

Background and knowledge outcome aims:

Recent work on Classic Maya materiality has examined culturally specific frameworks about objects and materiality. The project team is now asking questions about analogous topics with regard to modern

archaeologists. What are scholars' explicit or implicit beliefs about the artifacts we work with, and how might scholars' specific perceptions of these objects impact the research we carry out? As a starting place in this undertaking, the team examines published articles on Maya archaeology, using large-scale text mining approaches, such as topic modeling, word2vec, and metadata visualization. To perform this analysis, the team uses datasets of raw texts from the journals *Ancient Mesoamerica* and *Latin American Antiquity*. The team uses batch data sets of all transcribed full-text articles from the complete journal runs in a machine-readable format. The team used these data for aggregated text-mining analysis. This project has produced successful knowledge outcomes including an article MS submitted to *Latin American Antiquity* (peer-reviewed journal), and a conference presentation at Society for American Archaeology and/or a digital humanities scholarship venue. The project also created reuse-able digital integration process and research methods that can apply to other disciplines.

Research Project Example: Balancing Antitrust and Regulation: A Big Data Study.

PI: Felix Chang. Scholar domain subject: Antitrust Law Studies, College of Law

Background and knowledge outcome aims:

The project examines the question of how courts and regulatory agencies balance competition and sector regulation concerns. Through the DSC machine learning platforms, the scholar proposes to analyze approximately 55,000 federal cases and 300,000 entries in the Federal Register tracking rulemaking activities. The platform can answer broad questions, such as the words and guiding principles that courts and agencies look to in striking that balance, as well as narrow questions, such as the effect of major decisions or trends upon the evolution of the legal doctrine. This project tries to apply digital research methods with a focus on large data sets mining to enrich findings of research questions such as: How has the legal doctrine on this balance evolved over time? How do courts balance antitrust and regulation? More specifically, does this balance vary depending on the industry or harm alleged? This project intends to produce a set of academic articles from this research. Articles for publication will be in a variety of outlets, from traditional law reviews to digital humanities journals to specialty publications in law and economics. The project also created reuse-able digital integration process and research methods that can apply to other disciplines.

Research Project Example: History Moves: A Data Visualization Interface for Social Justice Narratives.

PI: Matt Wizinsky. Scholar domain subject: Design, College of Design, Architecture, Arts, and Planning.

Background and knowledge outcome aims:

Since 2015, the History Moves team has partnered with Chicago participants in the Women's Interagency HIV Study (WIHS). Established in 1993, WIHS is the world's longest running clinical research study on women living with HIV. As one of six original sites across the US, the Chicago program includes women who have been participating in the study for over 20 years.

The DSC assists scholars to create a digital platform for these women to curate, organize, and narrativize their own histories for a website and also a mobile exhibition to be presented at community centers, schools, and museums around the nation. The technical challenge lies in the fact that many of these women only have access to mobile devices, and some have no experience working with computers. The DSC's technical team, therefore, develops a data visualization interface in Android or iOS to allow the women to arrange their oral history sound files and other media content into a personal digital narrative.

Research Project Example: Summarizing Challenges Faced by People with Alzheimer's and Related Dementia through Online Health Forums.

PI: Danny Wu and Brett Harnett. Scholar domain discipline: Information Science, Literature Studies, College of Arts and Sciences and College of Medicine.

Background and knowledge outcome aims:

As the sixth leading cause of death in the US, Alzheimer's disease afflicts over 5.6 million Americans. The DSC uses digital technology and research methods to address the unique challenges and meet the communication needs of an aging society which are broad. Continued communication is essential for older adults and to delay cognitive decline. Older adults have reported using technology to stay in touch and communicate with their families, friends, neighbors, and even with lawyers and physicians. This project aims to understand the challenges faced by people with Alzheimer's and further design an informatics solution in the form of a communication tool to address these challenges. Specifically, the project plans to collect posts from online health forums (e.g. eHealthForum) related to AD/ADRD and apply text mining and network analysis to draw topics from these posts. The topic network and the corresponding posts will be carefully reviewed by domain experts to

summarize the challenges, which will inspire the design of an informatics solution with dedicated features to meet the user needs. Scholarly outcomes include a manuscript describing a computerized approach to summarize the challenges of a patient group, e.g. people with Alzheimer's or related dementia, based on posts in online health forums. Prototyping for a patient tool or "translator" to align the medical vocabulary related to Alzheimer's used by care providers, with the non-technical language of patients and their families as represented in the health forum analysis. The project team aims for this tool to help care providers communicate in a more compassionate and effective manner to patients and their families.

Research Project Example: Identifying Linguistic Risk Markers in Foster Care Clinical Notes.

PI: Sarah Beal. Scholar domain subject: Children's Foster Care Center, College of Medicine, and Cincinnati Children's Hospital Medical Center.

Background and knowledge outcome aims:

Over 415,000 children live in foster care in the US; 58% are from racial and ethnic minorities, disproportionately compared to the general population. Foster children have higher rates of health problems than their peers and frequently change healthcare providers. In collaboration with Hamilton County Job and Family Services, we provide healthcare to youth at the time of a placement change through a two-visit model to the Comprehensive Health Evaluations for Cincinnati's Kids (CHECK) Center at Cincinnati Children's Hospital Medical Center. Under the DSC's guidance, using five years of existing structured and unstructured data gathered at the point of care delivery in the CHECK Center for 2787 youth ages 10–20, this project seeks to identify linguistic patterns extracted from clinical notes that could identify which young people seen in clinic are at risk for a placement disruption. These data have been linked to child welfare records from Hamilton County Job and Family Services in order to establish when placement disruptions have occurred. Using clinical notes from providers in the CHECK Center, the team of experts in child welfare, pediatrics, informatics, and data science, is well positioned to accomplish the scholarly outcomes include to identify shared characteristics of clinical notes unique to encounters occurring up to three months prior to a placement change, and to determine factors from the clinical note and structured fields that are most strongly associated with a placement change.

In summary, the DSC provides faculty across the university with support for digital knowledge creation, and integration from project conception, design and implementation. In the DSC's catalyst role, the center stimulates new opportunities for digital scholarship in a cohesive academic center based in the university's intellectual hub – the library – by assembling the multidisciplinary team technical capacity and expertise, space and computational equipment, access to datasets, and student and staff support.

In addition to the faculty's participation and support, the DSC's catalyst model has been gaining traction with the university's senior leadership. Recently, the university announced a new strategic direction, with a platform with new building space specifically dedicated to accelerating innovation. Through this platform, the University decided to create a cohort of several transdisciplinary teams to be housed in a specially designed new facility dubbed the Digital Futures building. University senior leadership launched a competitive selection process to choose research teams that are truly interdisciplinary in nature, and with the vision and potential ability to work on grand challenges that our society faces today. The DSC was selected as one of the six anchor teams, the only humanity-centric team to be represented in Digital Futures building. The DSC's catalyst model, its projects and the significant recognition it has received at the university and beyond, is an excellent example of what a library-based digital scholarship center can contribute in the fuller knowledge management scope from "explicit" knowledge to "tacit" knowledge, from knowledge creation to knowledge integration, and from "know-how" to "know-what", and to the ultimate goals of seeking the "so-what" solutions for the 21st century's grand challenges across the global communities.

Conclusion

This era of higher education calls for broad inter- and transdisciplinary learning and research. Universities strive to launch innovative initiatives from cutting edge teaching and research facilities, interdisciplinary academic institutes, and radical private and public partnerships to position organizations to take strategic positions in the increasingly competitive global higher education market. Libraries, created as a neutral knowledge hub on the campus since the inception of higher education, have also advanced themselves over the transformational changes in the 21st-century scholarly communication landscape. Libraries must seize the opportunity to re-position themselves as an emerging digital knowledge integrator across all disciplines. This new role aligns well with the full scope of KM. Today libraries continue playing an essential role in managing the "explicit" knowledge – the long-standing collection-centric services. Libraries also may play an emerging role in managing "tacit"

knowledge, moving towards knowledge-centric services, such as the new roles illustrated in the two cases of the University of Notre Dame and University of Cincinnati Digital Humanities and Digital Scholarship Center. We hope that this essay, as well as those case examples, may offer some ideas and stimulate discussions for academic and research libraries around the world.

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ORCID iD

Xuemao Wang https://orcid.org/0000-0003-1496-8912

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Author biographies

Zheng(John) Wang is the Associate University Librarian at University of Notre Dame. He oversees three programs: Information Technology and Discovery Services, Resource Acquisitions and Delivery Services, and Digital Initiatives and Scholarship. He provides leadership and vision for the development and optimization of library digital, technical, and delivery services. He has published and lectured in the areas of web services and analytics, digital library development, project management, collection supply chain management, and digital scholarship. John currently serves as member of standing committee of the Knowledge Management Section of IFLA, and has been selected to give presentations on knowledge management and digital scholarship in past IFLA conferences.

Xuemao Wang is the Dean and University Librarian and Vice Provost of Digital Scholarship of University of Cincinnati. He sets strategic visions and directions for university libraries, as well as university wide digital scholarship practices. He advocates on behalf of libraries, positioning libraries as an integral partner of a university's academic core functions and ensuring libraries' continued leadership in advancing learning, research, and local and global community engagement. He has been frequently invited for conference presentations and keynote addresses in a range of topics from strategic planning, organizational change management, digital scholarship, global librarianship and library leadership development. Xuemao has been a longtime participant of IFLA. He served two terms as Chair of the Knowledge Management Section, and currently serves as convener of Digital Humanities/Digital Scholarship SIG.

Article

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Innovative application of knowledge management in organizational restructuring of academic libraries: A case study of Peking University Library

Long Xiao
Peking University Library, Beijing, China; Shanxi University Library, Taiyuan, China

Abstract

A traditional library's functions are centered on library collection and information resources and their utilization. A library management system comprises resource acquisition, cataloguing, circulation, reading, and reference in respect of "literature streams." Functionally, libraries have currently evolved into knowledge service centers, which are oriented toward knowledge, committed to knowledge innovation, and centered on the knowledge demands of users. Meanwhile, library management has also gradually shifted to focus on knowledge management. However, the applications of knowledge management are mainly limited to library services. It lacks innovative applications in internal management such as business flow and institutional settings. This article takes Peking University Library, one of the top-notch academic libraries in China, as a case study to explore this issue. Through restructuring its organization and re-setting its staff positions based on the "knowledge stream" as the core, the academic library intends to satisfy the knowledge demands of different types of users and create an environment in favor of knowledge flow and innovation. All of these efforts further support the development of the university.

Keywords

Academic libraries, knowledge management, organizational restructuring, Peking University Library, research support service, university development

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Introduction

The functions of traditional libraries focus on the services related to library collection and information resources and their use. Therefore, management of traditional libraries is based on the "literature stream" or "information stream" system. "Literature stream" or "information stream" refers to library business flow or operational management system basing on the collection that mainly comprises the two components: technical services and user services. Technical services include resource acquisition, cataloguing, and preservation; user services include book circulation, reading, reference, and retrieval; and a library automation system integrates the literature streams.

Libraries and library resources are no longer the only channels for users to obtain information in a highly developed information-based society. The users' focus is no longer on how they can obtain information from library resources. Instead, their focus is on how they can mine the desired knowledge accurately and quickly from the massive amounts of information. They also focus on how to use the mined or obtained knowledge to build their knowledge systems for their learning and research. In this context, libraries have functionally evolved into knowledge service centers, which provide knowledge as contents, commit to knowledge innovation, and are centered on the knowledge demands of users. Library management has gradually transformed into a knowledge

Corresponding author:
Long Xiao, Peking University Library, 5 Yiheyuan Rd, Haidian, 100871, Beijing, China.
Email: lxiao@pku.edu.cn

management system which is based on the "knowledge stream" system, rather than "literature stream." The "knowledge stream" refers to library business flow or operational management system that consists of knowledge acquisition, knowledge mining and organization, knowledge applications, and innovation services. The system reintegrates human resources and optimizes business processes.

Knowledge services and knowledge management have been deeply recognized in the academic library environment. In terms of application, knowledge management is mainly limited to service areas (Koloniari and Fassoulis, 2017) such as information services, technical services, administrative services, decision-making services, etc. However, this kind of limited application of the knowledge management is lacking in business flows and institutions. This contributes to a bottleneck period of library developments.

Peking University Library is one of China's top-notch academic libraries. In recent years, the Library has redefined its role as a service center for learning, teaching, knowledge, and culture. The Library focused its management around the knowledge stream system. Accordingly, Peking University Library has also restructured its organization and re-set its staff positions. Taking the Library as a case study, this paper discusses the innovative applications of knowledge management in the organizational restructuring of libraries.

Library knowledge management oriented toward knowledge services

In simple terms, knowledge management consists of passing the right knowledge to the right people at the right time. Furthermore, knowledge management has the functions of making tacit knowledge explicit by systemizing the massive amounts of knowledge and collectivizing personal knowledge. The goal is to create value-added knowledge, satisfy users' knowledge demands, achieve knowledge innovations, and improve the core competitiveness of an organization (Chiu, 2006).

From an information and data perspective, knowledge management is also a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an institution's information assets. These assets may include databases, communities and user information, policies, procedures, expertise and experiences (Koening, 2018).

Based on the above definitions, in regard to libraries as service institutions, its knowledge management covers two aspects: (1) knowledge management for external users, and (2) internal knowledge management by libraries.

User knowledge management

User knowledge management refers to the process of acquiring, integrating, organizing, sharing, and using the knowledge desired by users, available from users, and about users (Yuan, 2014). "Knowledge desired by users" refers to the users' knowledge demand and is the service content provided by a library. "Knowledge available from users" is the users' feedback about the library services. "Knowledge about users" includes the users' personal information, history about their use of library services, users' behavior records, types of smart terminals they use, user locations, time, and real-time scenarios (for example, current active tasks).

User knowledge forms the basis for analysis of user demand and provision of knowledge services. User knowledge is mainly available in the following stages:

Knowledge acquisition stage: Users search, locate, and acquire knowledge from the massive amounts of information and data. The sources users search include various statistical data, dynamic information, exposition and analysis information, and internal knowledge structures. The user knowledge sought at this stage is mainly users' information needs.

Knowledge organization stage: After users have identified and analyzed the acquired knowledge, they summarize and organize it by topic. Thus, they generate preliminary knowledge products such as theme reports, dynamic tracking services, special-topic databases, and discipline databases. The user knowledge acquired at this stage includes not only the users' knowledge demand, but also the users' ability to organize knowledge.

Knowledge innovation stage: User's professional knowledge is integrated into the knowledge organization services. The integration results in value-added and innovative products. New knowledge is generated during this stage. The value-added and innovative knowledge products include thematic analysis, project results, industry forecasts, evaluation reports, and strengths-weaknesses-opportunities-threats (SWOT) analysis reports. The user knowledge acquired at this stage mainly includes the user's knowledge demand, innovation ability, and knowledge product level.

In summary, user knowledge management refers to the process of acquiring, integrating, sharing, and using the user knowledge generated at the stages of knowledge acquisition, knowledge organization, and knowledge innovation. The intention is to turn tacit user knowledge into explicit knowledge, which is an integral part of the library knowledge system. Libraries will accurately understand the users and their demands through user knowledge management. As a result, this will increase novelty, accuracy, and convenience of user services. It will also improve the efficiency of users' knowledge innovation.

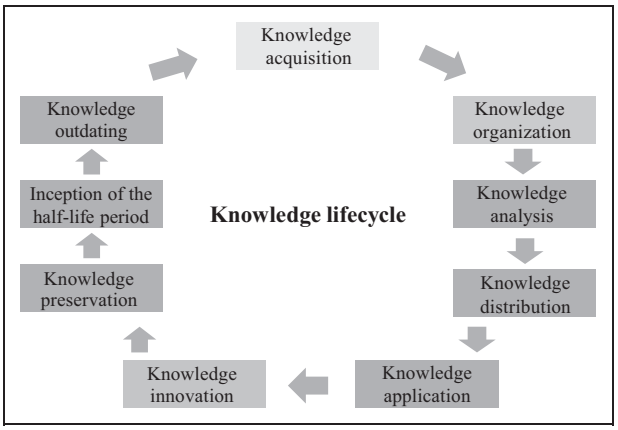

Figure 1. Knowledge lifecycle.

Internal knowledge management by libraries

Internal knowledge management by libraries focuses on changes and adjustments to business processes. In the past few years, it mainly involved the acquisition and cataloguing, management of books and periodicals, circulation service, information service and library integrated system in the traditional sense (Roknuzzaman and Umemoto, 2009). Nowadays, it emphasizes the development of a mechanism for knowledge base, specifically developing a work process for creating, acquiring, processing, preserving, spreading, and applying knowledge. Such knowledge management involves carrying out all-around and whole-process management of knowledge organization, knowledge facilities, knowledge assets, knowledge activities, and knowledge librarians in respect of knowledge streams. Moreover, it turns tacit knowledge into explicit knowledge. It also allocates and uses library resources reasonably and allows librarians and library staff to play to their optimal efficiency to attain the purpose of service innovation (Wang et al., 2016).

Library knowledge management oriented toward knowledge services

The two common features below are shared by user knowledge management and libraries' internal knowledge management:

1. Human orientation: This feature emphasizes user demand, scientific management of human resources, value mining of librarians (knowledge-based staff), implementation of abilities, and team and culture building.
2. The knowledge stream system is centered on knowledge and based on a knowledge lifecycle. The knowledge lifecycle comprises the steps of knowledge acquisition, knowledge organization, knowledge analysis, knowledge distribution, knowledge application, knowledge innovation, knowledge preservation, inception of the half-life period, and knowledge outdating as shown in Figure 1.

Libraries are essentially service organizations. Therefore, the aim of library knowledge management is oriented toward knowledge services. Knowledge services are fundamental for enhancing the core competitiveness of libraries. Specifically, knowledge services are the acquisition, rearrangement, organization, and analysis of knowledge in a problem-focused way according to the discipline requirements of students and scholars. New knowledge services are created during the service process. Knowledge services differ from the traditional information services, which provide massive amounts of library collection and information resources to be selected or processed by users as needed. Knowledge services are a type of in-depth services and are personalized, professionalized, knowledge based, interactive, and content oriented. The fruits of knowledge services are mostly embodied in the form of knowledge products, including consultation and creation of analysis reports, evaluation reports, dynamic monitoring reports, development forecast reports, topic databases, and discipline portals.

To build a library knowledge management system oriented toward knowledge services, it is necessary to combine external user knowledge management and internal knowledge management by libraries, and to find integrating points between users and knowledge streams. The intention is to provide library services to meet users' needs and improve the knowledge services provided by libraries.

For academic libraries, business and organizational restructuring in libraries is an effective means to attain this purpose.

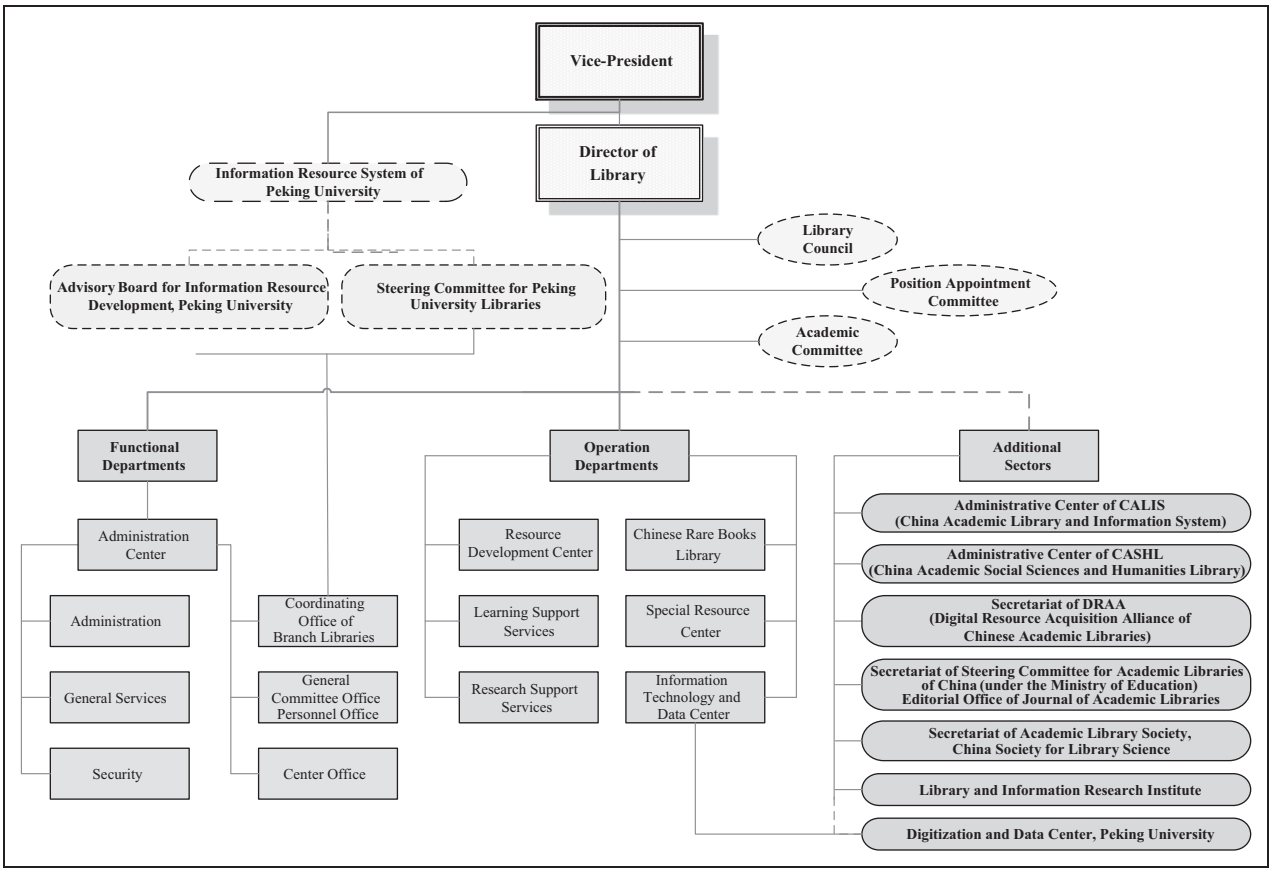

Figure 2.. Peking University Library organizational charts after restructuring.

A case study: Innovative application of knowledge management in organizational restructuring

Business restructuring based on knowledge streams in Peking University Library

Over many years, China's academic libraries have actively provided knowledge services and tried to transform themselves into knowledge service centers, but the effect of their efforts is not obvious. Although the direction of their efforts is very clear, they have not made appropriate adjustments in organizational structure, human resources, and infrastructure. In other words, they pay attention to user knowledge management, but ignore the internal knowledge management of the library. When these two are not effectively integrated, a bottleneck will be created to prevent library services from effectively transforming into knowledge services. Therefore they cannot successfully turn libraries' tacit knowledge into explicit knowledge.

To overcome this bottleneck and make a breakthrough, Peking University Library launched organizational and business restructuring in June 2015. In comparison with the previous organizational structure and business operations based on literature streams (for example, the Acquisition, Cataloguing, Circulation, Information Service, Rare Book, Special Collection, System, and Administrative departments), this organizational restructuring was based on knowledge streams and centered on user services. As a result, it gave birth to seven Centers: the Resource Development Center, Learning Support Center, Research Support Center, Information Technology and Data Center, Special Resource Center, Chinese Rare Book Library, and Administration Center (Zhu and Bie, 2016), as shown in Figure 2.

This organizational restructuring focuses on humans, i.e. users, and the knowledge lifecycle. The Library tries to find the common ground between users and the Library in the knowledge streams, to position the library services to meet users' increasing demand. Table 1 describes the organizational structure, staff teams, target users and business scope in respect to user services.

Taking the above user service Centers as an example, the business restructuring of Peking University Library shows the innovative application of library knowledge management towards knowledge services and its two features (see Section 'Library knowledge management oriented toward knowledge services'):

Table 1. User service departments and teams in Peking University Library.

Department	Target user and business scope	Leading team
Learning Support Center	Target users: mainly undergraduate students and junior graduate students Business Scope: providing all-around learning services for the users, including: • Circulation of books, periodicals, terminals and devices; • Reserved-books and e-reserves; • Innovation and creator services; • Thesis and paper writing guide; • Multimedia services; • Interlibrary loan and document delivery services; • Learning-oriented information literacy education, such as new-orientation, and School Open Day; • Electronic resource services; • General reference services; etc.	(1) Interlibrary loan and document delivery service team; (2) User service publicity and promotion team (including social media operation and maintenance).
Research Support Center	Target users: faculty and senior graduate students Business Scope: Providing all-around research services for the users, including: • Subject services; • Research project consultation; • Sci-tech novelty search; • Citation retrieval for research evaluation; • Patent and intellectual property services; • Competitive intelligence services; • Analyses of scientific research trends; • Applications of scientific research tools; • Decision-making support; • Research data support services; • Information literacy education; • Virtual reference services; etc.	(1) Subject librarian team; (2) Research data service team; (3) Information literacy team.

1. Human orientation. From a human perspective, i.e. focusing on users, this organizational restructuring is in line with the philosophy of human orientation. The Learning Support Center is dedicated to provide learning services for undergraduate and junior graduate students, and the Research Support Center is dedicated to provide research services for faculty and senior graduate students. As a result, the users' requirements and user information can be concentrated due to the common features they share. Moreover, the librarians' services are focused and efficient. The user knowledge management and internal library knowledge management are closely integrated in this way. All of these changes have enhanced the quality level and benefits of user services.
2. The knowledge stream system is centered on knowledge and based on a knowledge lifecycle. From a perspective of the knowledge lifecycle (see Figure 1), the learning support services are mainly concentrated on the stages of knowledge acquisition, knowledge distribution, and knowledge application. The research support services are mainly concentrated on the stages of knowledge organization, knowledge analysis, and knowledge innovation. Along with the services provided by other Centers, the Library just constitutes a complete knowledge stream system.

From the perspective of knowledge management application, the business restructuring of the Peking University Library has successfully retired the old organizational structure and work procedures (Zhu and Bie, 2016). Moreover, the restructuring has given birth to a new mechanism that integrates user knowledge management with the Library internal knowledge management. The Library has committed to turning tacit knowledge into explicit knowledge. In

sum, the library has made a great breakthrough in its business scope, work procedures, human resource development, and team building. The innovative development will be illustrated in the cases discussed in the next section.

Innovative development of knowledge services after organizational restructuring

Over the four years since the business restructuring, librarians and library staff have fully played their roles, user services have been gradually adjusted and transformed, and multiple innovative developments have been achieved. These are exemplified by the research support services.

Based on the lifecycles of scientific researches, research support services are the supporting knowledge services provided for the scientific researches of universities, enterprises, and other social institutions through various research infrastructures and related measures, with a view to satisfying knowledge and information needs in different research stages (Xiao and Zhang, 2016). Research support services are mainly intended for faculty, graduate students, scientific researchers, and scientific research managers of universities and colleges, as well as for the related personnel of enterprises. Peking University Library mainly provides the following research support services: scientific research support services, decision-making support services, research data support services, scholarly publishing services, intellectual property rights and patent information services, information literacy services, reference services, and others.

Most importantly, since Peking University Library launched organizational restructuring, a supporting platform for research support services (Figure 3) has gradually formed, and knowledge services have been able to develop sustainably.

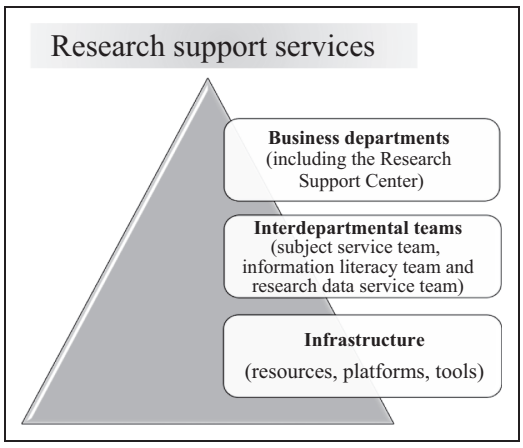

Figure 3. Research support service supporting system.

Functionally, the Research Support Center further comprises groups as described in Table 2.

In addition to organizational restructuring, a reorganization of infrastructure is also underway. The infrastructure includes the diversified library resources, subject librarian service platforms (for example, Libguides and the VIP subject service platform), discipline portal platforms (for example, the Marine Information Portal, http://sip-ocean.lib.pku.edu.cn/), and the commonly used data resources and related data processing and analysis tools (for example, Incites, ESI, SciVal, Innography, TI, SPSS, and CiteSpace).

Benefits: Providing a variety of support services based on knowledge lifecycle for the university developments

In November 2015, the construction of China's higher education "Double First-class" of developing world first-class universities and first-class disciplines was launched. The major missions of Double First-class construction are: building a first-class faculty, cultivating top-notch innovative talents, improving research levels, inheriting innovation culture, and promoting the transformation of scientific research results. The common foundation of these five major construction tasks is the discipline, which is the cell of the university and the primary factor contributing to a university's success. Only by improving the level of discipline, developing the characteristics of disciplines, and making breakthroughs in discipline construction, Double First-class can make historical progress in teaching and educating people, scientific research, building talent teams, and serving the public society.

In this circumstance, Peking University focuses on discipline construction from three levels: university, school, and department. For example, the University is adjusting and improving the discipline structure, striving to promote interdisciplinary research, developing future-oriented disciplines—such as area studies and clinical medicine+X, laying out major frontier disciplines, solving major problems in national and local development, and laying a theoretical foundation for cultivating talents.

Based on the new disciplinary development demands mentioned above, Peking University Library has adjusted its institutions and related services through the implementation of knowledge management in order to provide multiple supports for Peking University's disciplinary development.

Table 2. Job description for Research Support Center of Peking University Library.

Business group	Job description	Post setting
Subject service group	Assigning subject librarian teams to the four academic divisions of Peking University (Science, Information and Engineering, Humanities, and Social Science), appointing subject service leaders and subject librarians, recruiting librarians with appropriate discipline background and reference experience, thus forming the subject service team, and providing all-around innovative subject services (including the integration of discipline resources, improvement of disciplinary information literacy, and support of disciplinary scientific research), to create a new format of discipline services.	Four subject service leaders; Subject librarians; an interdepartmental discipline service team.
Information literacy group	Expanding the existing information literacy system to incorporate information literacy education into the teaching appraisal systems of Peking University, and thus developing a complete information literacy education system that covers a wide range and a whole process: for example, from entrance to graduation, from students to faculty, and from the general area to specific disciplines and even specific courses. In conjunction with subject services, deepen the embedded information literacy services and incorporate digital literacy, media literacy, and data literacy into the information literacy system.	One information literacy leader; an interdepartmental information literacy team.
Scientific research support group	Providing fundamental scientific research support services (including citation retrieval for research evaluation, project consultation, and sci-tech novelty retrieval) constantly and efficiently; providing patent novelty retrieval and intellectual property services, and supporting the transformation of Peking University's scientific research achievements. Tracking discipline forefront information and analyzing discipline trends, thus providing decision-making support for disciplinary development. Providing information services regarding disciplinary competitiveness and strategic analysis. Providing all-around support for discipline evaluation. Developing a library-oriented general method and index system for scientific research and decision-making support.	One leader; a few librarians
Research data service group	In conjunction with related departments (for example, the Information Technology and Data Center), acquiring, preserving, and processing data of different disciplines, and providing data services; mining and analyzing discipline user data, thoroughly understanding the information and knowledge demands of different discipline users, and tracking their dynamic change, so as to provide decision-making support for various services (including discipline services), resource development, and development of the library. Developing whole-process research data support services; Assisting and leading the users to acquire, analyze, manage, and share scientific data (especially the use and management of open data); Strengthening the work in data literacy, data analysis, data normalization, and quality control.	One leader; a few librarians; an interdepartmental research data service team.

Building a digital scholarship ecological environment for knowledge exchange

It is worth mentioning that the ecosystem of Peking University's academic achievements developed by the Peking University Library formally went live in December 2015 (Peking University Library, 2015). This ecosystem, based on the knowledge lifecycle, comprises four platforms: the Peking University Institutional Repository (PKU IR) (http://ir.pku.edu.cn/), Peking University journal net (PKU OAJ) (http://www.oaj.pku.edu.cn/OAJ/CN/OAJ/home.shtml), Peking University Open Research Data platform (http://opendata.pku.edu.cn/), and Peking University Scholar homepage, (Scholars@Peking University)

(http://scholar.pku.edu.cn/). The services provided by the four platforms cover the whole academic production process (from intermediate products to final results) and diversified key nodes (from authors to publications). These services are independent but are also closely linked with each other. Thus, they constitute a relatively complete ecosystem for academic achievements. The four platforms provide a sustainable ecological environment for users' academic exchange activities and the library's research support services.

Innovating knowledge service products

One year after the organizational restructuring, the research support services of the Peking University Library have experienced great development and innovated a series of knowledge service products. Nowadays, the research support services have become increasingly influential in Peking University and among academic libraries in China. The main knowledge service products are described as follows:

- Weiming Academic Express: Edited and released independently by Peking University Library, Weiming Academic Express is an information product that provides supporting services for scientific research and academic activities. It is committed to acquiring objective data, showcasing the academic achievements of Peking University, corroborating experts' academic judgments, supporting experts' academic research, and helping Peking University become a world first-rate university. It was initially released in January 2016 and is issued four to six times every year. The print edition and electronic edition are issued at the same time. In June 2016, the Microblog of Weiming Academic Express formally went live (Peking University Library, 2016b). Ever since its release, it has drawn wide attention among faculty and students of Peking University and campus administrative departments. It has gradually developed into a well-branded information product through which Peking University Library provides research support services and releases Peking University's academic information dynamically.
- Analysis Report on the Publication of Mainland China's Research Articles, and Analysis Report on the Publication of Mainland China's Articles in Humanities and Social Science: Commissioned by the Ministry of Education and Peking University, these two reports are problem-focused advisory reports on scientific research decision making. The reports analyze the publication of Mainland China's research articles in the following aspects: (1) overall trends in the quantity and quality of published research articles, and comparison with that of the United States; (2) trends in the quantity and quality of published research articles in different disciplines, and comparison with that of the United States; (3) trends in the quantity and quality of research articles published by different universities, and comparison with universities across the globe. The reports argue that China should develop a reasonable evaluation system to evaluate scientists' personal achievements and scientific research institutions' research performance, and should also provide guidance to the investment direction of scientific research resources.
- Research on Hotspots of Scientific Research Strategy Oriented toward Basic and Cross Disciplines: Relying upon key research projects sponsored by the Ministry of Education, Peking University Library actively studies and taps the research hotspots in different disciplines of China's universities and Peking University in conjunction with the Scientific Research Division of Peking University. In response to the needs of research projects, the Research Support Center of the Library has completed the analysis of the hotspots in 20 areas of specialization, including: aeroengine test, automobile engine test, superconductivity, photosynthesis, carbon materials, high-temperature materials, laser devices, terahertz, combustible ice, visible light communication, laser accelerators, carbon-based integrated circuits, vehicle-mounted batteries, memristors, high-strength carbon fibers, high performance membrane, robot (artificial intelligent), nitrogen fixation, spin-electronics, and dark matter. Because of this successful effort, Peking University Library has actively responded to national strategic needs, tracked the international cutting-edge disciplines, used the bibliometrical method, and made the best of its diversified digital resources and analysis tools. This research project has received wide acclaim in library circles and related fields because it focused on the strategic planning of hotspot disciplines.
- Analysis Report on the Discipline Competitiveness of Peking University (published annually): This report compares the competitiveness

among 18 top universities and 48 discipline-specific schools, both in China and abroad. Based on multidimensional bibliometrics and intelligence analysis, it analyzes the competitiveness of the first-level disciplines in the 44 doctoral stations of Peking University. This report is intended to provide supporting services for the discipline construction and development of Peking University. Up to now, 2016, 2017, 2018 editions of the reports have been completed (see Peking University Library, 2017).

- Discipline information portals: For specific disciplines or interdisciplinary areas, Peking University Library develops academic information portals, which integrate the library collection and information resources (including periodicals, books, data, and proceedings), research hotspots, dynamic information, research institutions and proprietary academic achievements. The portals provide one-stop academic content services such as analysis reports on disciplinary trends, academic resource recommendations, and academic evaluation of scientific research. The academic information portals in process currently include: the Marine Academic Information portal, custom made for the Marine Strategic Research Center of Peking University, and Mathematics, Education, Archaeology and Museology, Information Management, Economics and Management Science.

Increasing intellectual property information services to help transform scientific research results

With the emphasis on intellectual property work in the country, Peking University established the Peking University Intellectual Property Information Service Center in the library. Its responsibilities include but are not limited to:

- Collecting, organizing and analyzing the intellectual property information and related data documents of Peking University;
- Construction and maintenance of Peking University Intellectual Property Information Resource Platform;
- Carrying out intellectual property information literacy education of Peking University, popularizing related knowledge and skills for faculty and students;
- Supporting Peking University discipline construction and scientific research innovation, providing full life cycle intellectual property information consultation services for major scientific research projects;
- Participating in the collaborative innovation of production, studies and researches in Peking University, and providing assistance for the transfer of intellectual property rights

Peking University Intellectual Property Information Service Center has published the 2016 edition and 2018 edition of *Analysis Report on the Patent Competitiveness of Peking University* (Peking University Library, 2016a). The report summarizes and analyzes the patent status of Peking University in different aspects, such as the number of patents granted, number of high-strength patents, patent hotspots, and patent transformation. The report compares the patent status of Peking University with those of other universities of its type and grade, analyzes its patent competitiveness among China's universities, and points out the University's dominant direction. Finally, the report analyzes the existing problems of Peking University in terms of patent output. The report plays an important role in promoting the sustainable self-dependent innovation of Peking University. It has won unanimous acclaim among not only the University's related administrative departments, but also the University's librarians and research personnel in the related disciplines. The related schools and faculty of Peking University subscribe to the full text of this report, and a number of academic libraries also come to communicate thoroughly about this report or want to learn something from it.

Conclusion

Library knowledge management is rooted in, but different from, business management. Library knowledge management includes user knowledge management and internal knowledge management by libraries. In addition, library knowledge management should also be knowledge centered and human/user oriented. As exemplified by Peking University Library, the restructuring of library organization and business operations based on knowledge management enables a library to revamp the old business system; establish a new mechanism; tap the potentials in the work procedure, human resources, and team building; and achieve innovative development. This innovative application of knowledge management helped the library truly realize its service transformation, and strongly support the development of Peking University. This process is just as the saying goes, an egg

broken from the outside means only food and destruction; but if broken from the inside, it means rebirth.

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ORCID iD

Long Xiao https://orcid.org/0000-0003-1923-0626

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Author biography

Long Xiao is a Professor at Peking University, Library Director of Shanxi University in China, a Standing Committee member of IFLA Knowledge Management Section. She was a Fulbright senior research scholar in 1997–1998. She has published 16 books and more than 90 papers in Chinese and English, which involve: digital collection development and cooperative acquisition; resource sharing; digital library standards and criteria, metadata; user services; knowledge management.

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Knowledge management in practice in academic libraries

Sandra Shropshire
Idaho State University, USA

Jenny Lynne Semenza
Idaho State University, USA

Regina Koury
Rutgers University–Camden, USA

Abstract
Developments in higher education present disruptions in the normal operations of an academic library. Shrinking budgets, technological innovations, and changes in staffing each cause organizations to question traditional mores and can motivate managers to utilize new ways of thinking to manage workflow and to address evolving institutional initiatives. Knowledge management has emerged as one such way of thinking about management challenges. The authors present basic knowledge management principles, and identify and analyse knowledge management practices at two academic libraries.

Keywords
Academic libraries, knowledge management, organizational change

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Knowledge management defined

Knowledge management (KM) is a practice lauded as a 21st-century management strategy for business organizations. KM, according to Rao (2005), can help business deal with the loss of an estimated 4.5% of corporate knowledge due to employee turnover, information mismanagement, and knowledge hoarding. KM is cited as an essential strategy for those seeking to strengthen their value, to improve operations and services, and to inform decisions about investment in resources. When well executed, it can also create conditions for creativity and innovation. And KM according to Liebowitz and Beckman (1998) covers identifying what knowledge assets an organization possesses, analysing how the knowledge can add value, specifying what actions are necessary to achieve better usability and added value, and reviewing the use of the knowledge to ensure added value.

In studying KM within a library context, others reinforce these ideas and suggest additional ways for considering KM. Tripathy et al. (2007: 66) describe the concept in terms of action: KM processes are "the activities put into place to enable and facilitate the creation, sharing and use of knowledge for the benefit of the organisation." In forming their own definition of KM, Ferguson et al. (2008: 52–53) focus on results. KM, they note, is the " . . . planning, development and implementation of strategies, processes and systems to support the securing of, and value-adding to, an organisation's knowledge assets."

In describing similar ideas, Iivonen and Huotari (2007: 85) use the term, "intellectual capital." Managing this asset properly, they assert, will provide results similar to what others describe as proper knowledge management. They further assert that

Corresponding author:
Regina Koury, Director, Paul Robeson Library, Rutgers University–Camden, 300 N 4th St, Camden, NJ 08102, USA.
Email: regina.koury@rutgers.edu

managing intellectual capital "adds to existing outcomes by producing something more, a competitive advantage or additional value" (p. 89). Some examples of the "capital" they characterize include the educational level, skills and experiences of staff, staff's personal networks, organizational routines, procedures, practices, relationships with administrative body, and relationships with publishers.

A workable definition of the management of intellectual capital, or knowledge management that derives from the work of each of these writers can be described as follows: knowledge management is the effective utilization of knowledge-based practices upon knowledge resources and with the goal of improving the organization.

Skills necessary for KM

Thus defined, KM, which includes strategies and systems, which addresses human beings and technology within the context of a particular organization, and which is subject to probable change would be a complex, exacting task that would necessarily have to draw on a number of skills. Tripathy et al. (2007: 70) identify critical skills that managers need to develop in order to utilize knowledge management. These skills include:

- interpersonal communication skills: listening reiterating, recording;
- general management skills: human resources management skills, change management skills;
- information management skills: consolidation, repackaging;
- information technology skills: webpage development, database design, networks;
- strategic thinking;
- writing skills;
- learning skills;
- presentation skills;
- ability to be open and responsive to criticism.

KM principles

From the above definitions, and considering, as well, the skills that others have asserted need to be cultivated and deployed for its use, the principles that underlie KM can be articulated. The following characteristics can be viewed as being central to an understanding of KM. KM activities can reflect one or more of these characteristics:

- organizational improvement;
- alignment with institutional mission;
- recorded and shared knowledge;
- communication reflecting multi-level dialogue;
- continual planning and assessment.

Guided by these principles, managers are well positioned to begin the work of understanding and solving problems, choosing appropriate practices for action, and making decisions in ways that will serve well their organizations.

Judging effectiveness of KM

Ongoing evaluation is intrinsic to the practice of KM, so effective knowledge managers must be open to reviewing their own decisions once they have been made and executed. They must be able to learn from their work and to adjust future actions accordingly. The literature provides some guidance in this effort. Holsapple et al. (2016) suggest that at an organizational level, success occurs when the results of an organization's actions meet the criteria for effectiveness, while simultaneously maintaining an alignment with its mission, vision, and values. Failure occurs when the results of an organization's actions do not meet the criteria for effectiveness, or when they fall out of alignment with the organization's mission, vision, or values. Wang and Yang (2016: 3) suggest that "KM success can be defined as capturing the right knowledge, getting the right knowledge to the right user, and using this knowledge to improve individual performance."

For knowledge to transfer successfully, Coakes et al. (2013: 55) recommend:

> requiring encouraging and rewarding the sharing of information through organizational policies, since we find that people do not share information because they do not want to part with their knowledge, or they do not feel that it is one of their tasks or job role.

Similarly, Liebowitz (2016) argues that KM must be not siloed and must continue to be an integrative mechanism that bridges across the functional silos in an organization.

Additionally, Schmidl et al. (2011) write about KM success in a framework of persons, organization, and technology and their interconnectivity. Liebowitz (2016) suggests that KM should really be part of the human capital strategy of organizations and urges linkage with big data, artificial intelligence/machine learning.

Examples from two academic libraries

What follows are descriptions of situations faced by two academic libraries in which KM practices were utilized. Although the libraries are similar in the size

of the student population that they each serve, they differ in the degree of self-governance that each holds within their respective larger university contexts. Idaho State University Eli M. Oboler Library could be described as a "stand alone" unit within the university structure, while Rutgers University–Camden, Paul Robeson Library is one of two sub branches of the larger Rutgers University Library and is in ways both self-governed and centrally governed.

Both libraries have recently undergone fundamental change, and the authors believe that examining how both have utilized KM practices in their own environments will demonstrate the utility of KM practices and their value in multiple situations.

These brief case descriptions are intended to serve as examples that can be used for study and for criticism. This is useful since KM can be used in reaction to change and/or unforeseen events and as a preventive. Each identifies the KM practices deployed, using those articulated in Shropshire et al. (2016). When considered in total, these KM practices tend to fall naturally into three categories: communication, education, and knowledge retention, which should not be surprising, since they are consistent with the concept of a service organization such as a library.

Idaho State University. Eli M. Oboler Library. Pocatello, Idaho

The Eli M. Oboler Library has employed KM strategies in its operations. Located at a medium-sized public institution, the staff of 35 at three sites administers a full-service academic library for an institution that enrolls 9000+ full-time equivalent (FTE) students, many of whom are graduate students. The Library includes a Health Sciences Library, the county law library, and has extension sites that are 50 and 230 miles from the main campus.

Rutgers University–Camden. Paul Robeson Library. Camden, New Jersey

Paul Robeson Library with a staff of 20 and annual budget of $1.2m is a part of the Rutgers University Libraries with staff of 300 and a budget of $34m. With exception of the School of Law, the Paul Robeson Library supports all the undergraduate and graduate programs of Rutgers University–Camden, with enrolment of 7171 FTE. In addition, through a contractual agreement, Paul Robeson Library provides library services for almost 2500 students at the Camden campus of Camden County College/Rowan University. Rutgers University–Camden is one of two branch campuses of the main campus of Rutgers University, which is in New Brunswick.

KM used in response to an internal catalyst

Integrated library system at Eli M. Oboler Library. In 2017 the Eli M. Oboler Library wrote a proposal for a new integrated library system (ILS) and shepherded it through the approval process to a successful contract award. It then managed the year-long transition from one system to another and began the process of automating electronic resource management for the first time. This effort was achieved by one committee whose leadership, membership, and primary task evolved over a two-year period.

Writing the request for proposal (RFP) started with a revision of the previous (1998) request for a new ILS(Sierra), which was a benefit of good record-keeping. Applying the principle of recorded and shared knowledge, the committee assigned each department in the library to modify of all sections of the RFP related to its unit, while still following the rules and framework provided by the University's Purchasing Department. The department meetings formed for this task not only developed the core of what was important to the ILS, but also resulted in the creation of teams that would eventually work on the implementation. All meetings were open to anyone who wanted to attend. All training was open to employees regardless of work process.

Team mentality continued during the implementation, as evidenced by the fact that no single department in the library drove the entire implementation. This process required that meetings incorporate listening sessions and teamwork, an unwritten guiding philosophy of prioritizing student access/needs, simplifying overall workflow, and a blurring of the lines of job titles or responsibilities. Additionally, it was recognized and repeated to everyone that the implementation would be a process and would likely involve several iterations for elements such as the public-facing library catalog. Staff wanted to attend training and meetings, as they saw that it was in their interest. KM communication practices included regular emails to all staff, informal conversations regarding the documentation provided by the vendor, and frequent meetings of small teams.

Managing this process entailed weekly meetings of the core committee, as needed meetings with impacted personnel, and a continuation of the team leadership structure of that committee. Team leaders represented the technical services, systems, and public services sectors of library work. Each leader was a member of the core committee, along with other key

people such as reference/instruction librarians, catalogers, and systems personnel. KM communication and education practices included the functional composition of the team: dispersed assignments and training across functions.

The Library employed the KM practice of working with Basecamp to track progress, provide access to working documents, facilitate discussion, and eventually assist in making decisions. Since Google Suite cross-links with Basecamp, emails originating in Basecamp would be sent to Google Mail accounts. Google Calendar was used for meeting scheduling, and Google documents for collaborative writing. Basecamp and Google Drive proved to be valuable as a location for retaining project/committee documents, ideas, policies, and history. KM knowledge retention practices used include project management and cloud-based software.

Integrated library system at Paul Robeson Library. In July 2018 the entire library system migrated to a new ILS (Alma) and discovery solution (Primo)—both from Ex Libris. The library system consists of the main campus in New Brunswick and branch campuses in Newark and in Camden, and representatives from all three campuses were named to form two working groups to manage this change—the Ex Libris Fulfilment Team and the Discovery Working Group.

Invoking the KM principle of communication reflecting multi-directional dialogue, Paul Robeson Library communicated changes to library staff. This communication included regular update emails to Paul Robeson Library staff from the Library's Ex Libris Fulfilment Team and Discovery Working Group, and informal conversations between the Paul Robeson Library Director and Paul Robeson Library local representatives on these groups to share and disseminate information for the new ILS. Distributed maintenance software (LibGuides) and the Microsoft Office 365 suite of products were used to manage knowledge flow. Working groups created and used LibGuides to track the progress of the ILS implementation and to provide updates on known issues, as well as access to working documents. A Microsoft Outlook account was used to create a communication channel for working groups to facilitate discussions and assist in making decisions. KM communication and knowledge retention practices included using LibGuides for project management and Microsoft office 365 suite for communication.

To facilitate training, the Rutgers University Library's Ex Libris Fulfilment Team and Discovery Working Group conducted training in person and via Webex. They also travelled to all campuses to provide updates on the implementation and to answer questions from library staff. The new ILS implementation presented a paradigm shift where all library staff were learning not only new terminology, e.g. "fulfilment" is used as a synonym for "circulation," but also new workflows for checking out an item and creating a reserve request. The staff were able to share information across a complex library organization, which avoided the creation of silos and encouraged a culture of creating and sharing knowledge.

Cross training allowed for a skills transfer that allowed for staff to become part of a multifunctional team. For new staff this happened through pairing staff at the desk to learn daily workflow from adding new patrons to checking out study room keys. KM education practice used is cross-training.

Emails to all staff from the Ex Libris Fulfilment Team and Discovery Working Group, informal conversations with Paul Robeson Library representatives on these teams regarding the documentation provided by the vendor and frequent meetings of small local teams kept all staff updated and kept the process transparent. What clearly came through from this experience was that representatives needed an explicit charge to communicate broadly with their units and not to hoard learned information. KM communication practices included regular formal and informal communication.

KM used in response to external catalyst

Department cuts and growth at Eli M. Oboler Library. For years, the Eli M. Oboler Library staffed a three-person department dedicated to serving the primary mission of the university—health sciences. This team was responsible for performing reference, instruction, and collection development activities for a wide range of health science programs including nursing, physician's assistants, speech pathology, dentistry, pharmacy, and physical therapy among others, and to do so on both the Pocatello and the Meridian campuses of the university. The unit was defined as the Idaho Health Sciences Library (IHSL) and the head of this team reported to the Dean.

Due to budget cuts and to a reassignment outside of the Library, two of these positions were eliminated in a move that was intended to be temporary—given the University's continued emphasis on the health sciences. A few years after this, the remaining member of the original team left the university.

In response to these changes, two Associate University Librarians (AULs) one for Research and Learning Services and one for Collection Development stepped in to help fill the gap in reference and instruction and collection development. Support staff

in reference and in interlibrary loan also assisted in covering duties formerly performed in the now vacant department. A few months after these temporary changes had been put into place and before a new search could be initiated to fill the vacancy, a staff member in another unit left the university.

Utilizing the KM principle of organizational improvement, the Library reassigned the duties of the newly vacated position in the other unit to existing staff, which created the opportunity to redefine that vacant line. By doing so, the library management team was able to begin searches for two full-time faculty positions in the Health Sciences Library, which now reports to the AUL for Research and Learning Services.

Institutional memory is important and when personnel leave, sometimes they take that knowledge with them. In this instance, the Idaho Health Sciences Library (IHSL) was able to retain knowledge because of the efforts of the departing personnel who documented their workflow, kept files of instruction worksheets, online modules/tutorials, and followed the prescribed records management policies that led to the retention of even older agreements and contracts. The librarians who covered the gap were able to draw on these documents and reach out to the former employees for guidance in the short term. KM knowledge retention practices used include records management and online documentation.

Unfortunately, the new hires were unable to use the practice of job shadowing of the departing Director of the IHSL to learn their new jobs. While job shadowing can be effective, it may also continue bad habits and inhibit new ways of thinking. The fresh slate that happened to the Health Sciences Library demonstrates the opportunities to bring in new ideas and thinking to a unit. Former responsibilities that were tightly tied together have been restructured and the strengths of the new faculty members are used to determine who is doing what. KM education practice used was job shadowing.

When the Idaho Health Sciences Library lost its staffing that loss was felt at two sites, in Pocatello and in Meridian. In the transition period a faculty member from the Pocatello campus would travel to Meridian for a few days each month to see to the needs of the faculty and students there. Another temporary measure was instituted: with no librarian at the Meridian site to receive the mail, library administration decided to waive the postage fee attached to the mailing of books from the Pocatello campus to the student's home. This process was effective in maintaining relationships with the academic community at that location. Knowledge of informal cultural mores, local policies and procedures, and which people would be able to assist in different tasks was retained by the interim traveling librarian. This knowledge was then passed to the new hire. KM communication practice used was travel to distance sites.

The transmission and communication of information is a KM principle. One successful practice is the use of Skype particularly for small group work. The three-person Idaho Health Sciences team now meets on a regular basis via Skype since one member of the team is on the other side of the state. These small meetings are more effective than larger meetings using Skype in that it is easier to read body language and harder to overlook someone's input. KM communication practice used was audio visual communication technology.

Access services restructuring at Paul Robeson Library. There were several tipping points which made a compelling case for the need to restructure access services operations with an emphasis on those that add value to and support for the Library's and University's mission. First, there was a migration to a new ILS. This provided opportunities to evaluate workflows at the central and local levels. For example, to streamline workflow and provide accountability, the Paul Robeson Library turned to central Rutgers University technical services and asked that it check in serial issues, process subscriptions, and perform copy cataloging. Additionally, it completely discontinued practice of the pre-checking out of media items. These changes left a gap in the job duties of many Paul Robeson Library staff.

Second, growth on campus and feedback from multiple sources highlighted new needs for the library to meet. Sources include a recent LibQUAL Assessment survey, feedback from the student government association, and student success units on campus. Another source of information gathering resulted from the new practice of including the Paul Robeson Library Director in the Chancellor's leadership team meetings. This change opened opportunities for other members of the Chancellor's leadership team to meet with all Paul Robeson Library staff. Conversations and meetings with leadership team members from student success units and student organizations on campus brought forward the need for the Paul Robeson Library to extend its hours to a later time. Making and using external contacts on campus as an information source is an effective KM practice. Many library staff are determined about making contacts on campus, participating in conferences to learn about initiatives and opportunities, bringing feedback back to plan and realign library services, collections, and spaces. For

example, conversations with university faculty indicated a need to showcase faculty scholarly activity by creating prominent space in the library where local faculty publications could be placed on display. Also, feedback from the Fine Arts and Sciences Graduate School initiated discussions about the possibility of the Paul Robeson Library archiving graduate students research posters, conducted during research week. KM communication practice used included seeking feedback from external groups.

Serendipitously, staff turnover due to a variety of causes presented a third tipping point for change that was both a challenge and an opportunity. The challenge was a KM failure—lost tacit knowledge of some local circulation guidelines which were not documented. The opportunity and a KM success of having knowledge collected from internal and external stakeholders allowed the Paul Robeson Library Director, the Vice President for Information Services and University Librarian and central Human Resources to evaluate job descriptions to begin to adapt them to current library needs.

Having collected, discussed and analysed all previously mentioned information, the Library began access services restructuring. During this process the KM principle of continual planning and assessment was applied. First, the Library began streamlining library operations by merging Technical Services and Circulation Services departments into a single unit, the Access Services department, and locating them in one dedicated area. Next, the library initiated the process of flattening its organizational structure by hiring a library supervisor, who reports to the Library Director and supervises all Access Services staff. The next step was to review current roles and responsibilities of all staff across the Access Services department with the service needs of the user community in mind. Additionally, the Association of College and Research Libraries (ACRL) Access Services Interest Group's Framework for Access Services Librarianship Draft was used for updating jobs with programmatic areas and services that are common in modern Access Services departments (Warren et al., 2018). The KM communication practice used in this case was sharing information widely.

KM used proactively

Strategic planning at RU–Camden. The strategic planning provides a way to describe the destination for the library—where it expects to be as an organization in three to five years (Maloney, 2010). It is important for the library staff to contribute ideas and to know what direction the Library is going to in the future. Every year library directors are tasked with submitting local priorities for their unit/campus, for the next fiscal year. These priorities are then discussed in the cabinet retreat, addressing what can be done in coordination with central library infrastructure and what can be done locally. Akhter (2003) notes that knowledge generated through strategic planning is the result of collaborative efforts of people from different functional areas. It has both individual and collective components—knowledge that people acquire and knowledge that they collectively share.

Communication included the Library Director discussing and clarifying goals and objectives and activities in all-staff and one-on-one meetings, analysing everyone's input, and putting forward a plan for implementation. The draft of the planning document was shared with everyone in a Microsoft Planner, a task management software to give opportunity for everyone to be heard and contribute feedback. Planning is a way of communicating library direction both to internal library staff and campus community. KM communication practices used in this case were regular formal/informal communication and task management software.

Teaching a for-credit course at the Eli M. Oboler library. The Eli M. Oboler Library Libraries offers a full semester information literacy course LLIB1115. It is part of the University's general education curricula; specified learning goals and objectives must be met in this course and regular assessment of the course sections are required. The instructors for this course include a range of public service librarians. It can be daunting to new librarians to take on this new role, so faculty who will be teaching this course work together on assessment and hold regular meetings to discuss how their courses align with the university requirements.

New faculty are often given access to existing online courses prior to the semester they begin teaching. They can choose to job shadow an existing instructor and even clone a course in Moodle for modification. This process has been very successful in sharing knowledge, training new instructors, and implementing the principle of alignment with institutional mission. KM education practices used were training, cross training, and job shadowing.

Coordinated on-boarding program. Holding informal new employee orientations, regular and frequent meetings with the new employee's supervisor is very effective in transferring knowledge to the new employee regarding the culture, procedures, and policies of the library. It is also a way for the new

employee to share what they know and bring with them to the job. The Idaho State University Library is working on a more systematic on-boarding plan so the workload of integration does not fall solely on the supervisor. The new Health Science employees came from very different backgrounds and weekly meetings for the first six months of employment were very helpful. It was discovered that one had a real gift for working with technology and the other a deep understanding of teaching and training. Collectively, policies and procedures were discussed and reorganized in these meetings.

The Paul Robeson Library uses central Library Human Resources' on-boarding brochure for new employees—a document that discusses the Library's guiding principles, and includes a welcome from the Vice President for Information Services and University Librarian. Central Library Human Resources also offers an on-boarding and integration guide for faculty and staff that lists a sequence of key steps to be taken at important intervals within the newly hired employee's first months. Such critical points in time include the weeks prior to an employee's first day on the job, the first week on the job, at both the 60- and the 90-day points, and subsequent check-ins and reviews. These include setting expectations, reviewing department policies, introducing new employees to internal and external communities, asking them to serve on the committees and taskforces. Additionally, it is beneficial to hold scheduled weekly meetings to touch base, to discuss any issues, and to ask questions. These practices aim to introduce new employees to the culture of the organization, transfer knowledge, and exchange feedback. KM communication practices include regular formal/informal communication and two-way communication.

Annual evaluations. At the Eli M. Oboler Library, ISU annual evaluations are conducted once a year for all staff and faculty. Individual supervisors retain the option to conduct them more frequently during cases of disciplinary need. These evaluations are substantive, include a review of the job description, and employees must be assigned one of five ratings, which range from "does not meet" to varying degrees of meeting expectations.

This process provides useful information for both supervisor and employee when change is happening: ongoing dialog about individual employee priorities and responsibilities to mirror those changes at the end of the year evaluation. It is useful to create documentation of the conversations adjusting job responsibilities and priorities. This paper trail is a KM practice that helps protect both parties in case of disagreement or personnel loss. KM communication practices used include regular formal/informal communication and two-way communication.

At the Paul Robeson Library evaluations are conducted once a year only for a certain group of employees, and employees may be rated as "meets," "does not meet" or may receive no rankings at all. On one hand annual evaluations with this system of rankings do not provide an effective tool for evaluating performance. For instance, an employee who is putting in minimal effort will get ranked the same "meets" as somebody who is an outstanding employee. On the other hand, annual evaluation is a useful tool to provide feedback to an employee regarding their performance, formulate and measure goals, and determine professional development and training needs

To make the annual evaluation process effective, it helps having frequent feedback given throughout the year, so that there are no surprises when the evaluation time comes. Additionally, it helps to match job performance goals with a mission of the organization. For example, if enhancing student academic success is a strategic direction, then performance goals should reflect and support that direction. KM communication practices used were regular formal/informal communication and two-way communication.

Conclusion

KM can be used in academic libraries to improve the situations in which they find themselves. Articulating the principles underlying this management theory provides a useful framework for managers' use in improving their organization's performance. These principles, (a) organizational improvement, (b) alignment with institutional mission, (c) recorded and shared knowledge, (d) communication reflecting multi-level dialogue, and (e) continual planning and assessment, should guide the work of managers.

KM practices as identified and applied by these two academic libraries, have been shown to be effective in response to anticipated changes or events, as well as on a regular basis. The KM practices applied in this article can be placed into three categories for ease of use and are listed below:

Communication

- formal communication: email, meetings;
- informal communication: casual conversations, small team meetings;
- improved communication: two-way communication, composition of teams, dispersed assignments, travel to distance sites, audio visual and cloud-based

technologies, seeking feedback from external groups.

Education
- cross-training;
- job shadowing.

Knowledge retention
- project management software;
- cloud-based software;
- records management principles.

In many ways, these principles and practices are simply management tools which apply well to the management of a service organization whose primary assets are the humans who work within it.

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ORCID iD

Regina Koury https://orcid.org/0000-0001-8347-5500

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Author biographies

Sandra Shropshire is Associate Dean and Associate University Librarian for Collections at Idaho State University. She is directly experienced in acquisitions, serials management, electronic resources management, cataloging, collection development, reference, instruction, and has held supervisory positions related to all of these areas. She has managed migrations to two integrated library systems, has participated in several library restructuring efforts, and has served as a library representative in numerous campus and professional contexts. She holds an MLS from the University of Arizona and an MA in English from Idaho State University.

Jenny Semenza is Associate University Librarian for Research and Learning Services at Idaho State University. Jenny has been involved with reference, instruction, and management for 20 years. She is interested in management issues such as inclusion, hiring, onboarding, retention, and knowledge transfer. She has an MLS from Brigham Young University.

Regina Koury is a Director of Paul Robeson Library at Rutgers University–Camden. Previously she served as the Assistant University Librarian for Discovery & Resource Services at Idaho State University library. Regina holds a Master's degree in Instructional Technology from Idaho State University, a Master's degree in Library and Information Science from the University of Pittsburgh, and a Bachelor's degree in Foreign Language Teaching from Tomsk State Pedagogical University in Tomsk, Russia.

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Problems of knowledge management practices in libraries and information centres of Bangladesh

Md Nazmul Islam
University of Rajshahi, Bangladesh

Md Shariful Islam
University of Rajshahi, Bangladesh

Abdur Razzak
Khwaja Yunus Ali University, Bangladesh

Abstract

The main goal of the study is to explore the shortcoming in existing knowledge management practices of some selected academic and special libraries and information centres in Bangladesh in terms of knowledge management activities, human resource management, knowledge innovation-based activities and use of ICT as a tool for knowledge management. Data were collected through review of existing literature on knowledge management, and a structured questionnaire designed for a total of 16 libraries including five public university libraries, four private university libraries, six special libraries and one information centre. This study depicts that a good number of the respondents (25%) never tried to promote knowledge exchange and sharing programmes among staff and users. Half of the total respondents (50%) were not interested in encouraging staff members in the talent competition in all categories. About 38% of the respondents never developed knowledge resources for increasing knowledge level and ability among staff and users. The essence of the study is that knowledge management practice in the libraries of Bangladesh has just been started. Finally, the study provides some suggestions for the development of knowledge management practices in the context of libraries and information centres in Bangladesh.

Keywords

Human resource management, knowledge innovation-based activities, knowledge management (KM), libraries and information centres (LICs)

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Introduction

Knowledge is the ability which enhances the ability to evaluate context, making decisions and taking action and closely linked to doing and implies know-how and understanding. According to Wiig (1996, cited in Bridgewater and Bridgewater, 2004) knowledge as the fundamental resource helps us to work sagaciously. Knowledge assists in building up a structure for assessing new information and experience (Davenport and Prusak, 1998). Though in some cases the knowledge and information have been overlapping each other in meaning and concept there are some intense differences between these two. According to Drucker (1999, cited in Roknuzzaman et al., 2009), knowledge is personal and intangible, whereas information

Corresponding author:
Dr Md Shariful Islam, Department of Information Science and Library Management, University of Rajshahi, Rajshahi-6205, Bangladesh.
Email: sharif6islam@yahoo.com

is tangible and available to anyone who cares to seek it out.

Skyrme (1998, cited in Siddike and Munshi, 2012) denotes knowledge management or KM as the explicit and systematic management of vital knowledge. In an organization, KM includes capturing, organizing and disseminating knowledge within an organization (Rubenfeld, 2001). Organizational knowledge as a key resource can marshal and deploy knowledge dispersed across the organization which is an important source of organizational advantage (Teece, 1998; Tsai and Ghoshal, 1998). According to Santosus and Surmacz (2001, cited in Parker et al., 2005), KM allows organizations to generate value from their intellectual and knowledge-based assets. These assets may include databases, documents, policies, procedures, and previously un-captured expertise and experience of individual workers (Gartner Group, 1998). In the library and information centre KM is being used to identify, organize and manage its resources. In the libraries of developed countries, KM is being practised in the form of skills and competencies to make knowledge available to its exact users (Al-Hwamdeh, 2003). As a result, users of the libraries will be able to make appropriate decisions (Petrash, 1996).

KM and LIS are interdisciplinary in nature, and are concerned with the identification, acquisition, capture, processing, storage, retrieval, and use of knowledge. While KM deals with tacit as well as explicit knowledge, LIS focuses mostly on explicit or recorded knowledge. In this sense, the LIS activities are seen just as a part of KM process (Roknuzzaman and Umemeto, 2008). Some authors find a close relationship between LIS and KM, and describe KM as librarianship or information management by another name (Davenport and Prusak, 1998; Koenig, 1996, 1997). KM is a completely new discipline or a simply rebranding of librarianship or information management (IM) (Husain and Nazim, 2013). Davenport and Cronin (2000) describe KM in the LIS context as 'information management' (management of internal and external publications) by another name. Corrall (1998, cited in Roknuzzaman and Umemeto, 2008) remarks that librarianship is often used to describe the organization of recorded knowledge, and some people view KM as just an up-market label for information management.

There is also a strong view expressed within the LIS literature that KM is a distinct field from both librarianship and IM, because the focus of KM is on managing tacit knowledge which embedded in employees in the form of their experience, know how, insight, and expertise (Husain and Nazim, 2013). The difference between KM and IM in the context of libraries was explained by Broadbent (1998), who describes KM in libraries as not about managing or organizing books or journals, searching the Internet for clients, or arranging for the circulation materials, but rather these activities may be considered as parts of the KM spectrum and processes.

Bangladesh as a third-world developing country has greater prospects for sharing knowledge and managing resources in its knowledge-driven organizations like library and information centres. The implication of ICT has brought a massive change in all activities of library and information centres although the economic condition of the country is not stable enough to shape strong ICT infrastructure in all sections of the LIC. While the libraries of developed countries are moving to being developed as knowledge centres for the benefit of users, libraries of this part of the world are also trying to provide an effective service to their potential users managing their existing knowledge resources. A few libraries, special in nature, have been playing a significant role in KM activities by distributing, collaborating, learning, and innovation instead of having some barriers.

In Bangladesh libraries and information centres are facing challenges in the successful implementation of KM systems such as institutional, infrastructural, organizational, and psychological obstructions (Siddike and Munshi, 2012). Users in most of the libraries and information centres are not aware of the potential and far-reaching impact of KM. As a result, they are not actively contributing to making this a meaningful venture. Besides the policymakers, government, and non-government institutions did not consider information or knowledge as a key resource to the development of Bangladesh. Therefore, they are not performing proper roles in making the library a centre of KM initiatives (Haq and Munshi, 2005).

Objectives of the study

The study is carried out to know the exact problematic scenario of academic and special libraries and information centres in terms of LIC-based programmes, KM activities, human resource management, and promotion of knowledge innovation and use of ICT applications as a tool for KM. More specifically, the objectives are:

1. To understand the KM scenario in the context of libraries and information centres in Bangladesh;
2. To explore the existing realistic problems in KM practice;
3. Finally, to suggest some recommendations for overcoming these problems in KM practice.

Methodology

In this study, the survey method was used to select libraries and information centres purposively. A total of 16 academic and special libraries including nine university libraries, six special libraries and one information centre in Dhaka and Rajshahi were selected as an area of current research. The maximum of respondents had been taken from Dhaka and Rajshahi because the infrastructural level; the practices and service standard of libraries situated in Dhaka and Rajshahi are comparatively better than other parts of the country. The listed libraries and information centres under survey are shown in Table 1. (See Appendix 1 for tables.)

Likert seven-point scales have been used here to depict frequency and effectiveness level for the programmes and activities arranged by the surveyed LICs. For measuring frequency, the scale goes from 'Always' to 'Never' expressed by 1 to 7 numerical values. Likewise, for measuring effectiveness, the scale goes from 'Effective' to 'Ineffective' expressed by 1 to 7 numerical values. The analysis of the survey items bearing the scale of 7 is treated here as a problem for those particular surveyed libraries.

Mean score is the numerical value. In this research the lower the mean score is the greater in frequency and effectiveness for the programmes and activities conducted by libraries under survey as qualitative terms have been arranged in ascending order for example from 'Always' to 'Never'. In the present study mean score denotes the overall scenario of the survey item whereas percentage score denotes reflection of opinions of a portion of LICs regarding that item. For example, from Table 4.1, about 13% of respondent LICs think that arrangement of seminar, symposium and workshop does not generate new knowledge while the mean value of this item is 2.38 which denotes this programme can take place *frequently* for innovating new knowledge in the LICs under survey.

A structured questionnaire (Appendix 2) was designed for LICs based on the characteristics of KM in libraries described by Shanhong (2000), which was comprised of four sections, viz. KM activities, human resource-based activities, knowledge innovation-based activities, and components/functions of ICT.

Review of related literature

The researchers have identified some substantial research on the KM practices in libraries.

Shanhong (2000) explained the characteristics of KM in libraries as (1) human resource management (HRM) as a core activity, (2) knowledge innovation as the main objective, (3) ICT as a main tool. She further mentioned four features of KM in libraries as knowledge innovation management, knowledge dissemination management, knowledge application management, and human resource management. Nelson (2008) emphasized that knowledge could be made practicable by using several ICT-based tools and techniques to manage knowledge. ICT is an important tool of KM in libraries but more important that the library people work together, which ensures efficiency in the service. The most common tools of KM being used in library are communities of practice (CoPs), collaboration, mentoring, Web 2.0, blogs, wikis, tagging and bookmarking, network analysis, etc.

Maponya (2004) categorized the KM practices in libraries into policies and strategies, leadership, knowledge capturing, acquisition, and knowledge sharing. He identified knowledge sharing and partnership with other libraries as practised most in academic libraries whereas policies and strategies, leadership, and knowledge capturing and acquisition are not in use as KM practices. Despite having several differences in practices between KM and library activities such as goal oriented vs service oriented, outcome based vs people based, etc., Townley (2001) stated that for improving effective library operations, KM-based activities can be incorporated into various library functions. But in practice libraries are lagging far behind in incorporating KM-based practice.

The review of related literature shows that there are many challenges faced by library professionals in implementing KM in libraries. Haq and Munshi (2005) mentioned that as a developing country Bangladesh is yet to fully comprehend the notion of KM. The information institutions of Bangladesh lack adequate manpower, infrastructure, information resources, financial support, patronization from government and non-government organizations, and an educated user base that would play their due roles in making libraries a centre of KM initiatives. Roknuzzaman and Umemoto (2009) tried to find out some of the problems of incorporating KM into library practice such as unwillingness of LIS people, confusion of KM concepts, shortage of resources, absence of knowledge capturing and sharing culture, and lack of collaboration, etc.

Nazim and Mukherjee (2011) stated that misunderstanding of KM concepts and lack of a knowledge-sharing culture, top management commitment, incentives and rewards, financial resources, and IT infrastructure are the major challenges faced by library professionals in incorporating KM into library practices. Jain (2012) also identified almost similar

challenges in practising KM in libraries such as: constant budget decline, lack of incentives, inadequate staff training, lack of clearly defined guidelines on KM implementation, insufficient technology, and lack of a knowledge-sharing culture.

The most often mentioned challenges to the successful application of KM practice in libraries are inadequately trained staff and lack of expertise, reluctance of library professionals to accept the change, lack of understanding of the KM concept and its benefits, lack of a knowledge-sharing culture, lack of incentives or rewards for innovation and sharing of knowledge, lack of guidelines on KM implementation, lack of top management commitment, lack of collaboration, and lack of resources (financial, human and technological) (Jain, 2007; Maponya, 2004; Roknuzzaman and Umemoto, 2009; Sarrafzadeh et al., 2010).

The researchers found that there is a gap of comprehensive literature on problems of KM practices in libraries. In Bangladesh, substantial studies have been conducted on different aspects of KM in libraries, but there has been no study carried out on the problems of KM practices in the libraries of Bangladesh prior to this research. The present study tried to explore the problematic KM practices in libraries of Bangladesh. We divided the problematic domains into four subsection areas viz. problems in relating to KM activities, HRM-oriented problem, problems in innovating knowledge, and problems relating to the application of ICT as a tool for KM-based activities.

Results and discussions

We have gathered data on KM practices in the libraries of Bangladesh with special emphasis on four areas: (1) ways of promoting KM activities in LICs, (2) human resource management, (3) innovation of knowledge, and (4) application of ICT as a tool for KM (Appendix 1).

Ways of promoting KM activities in LICs

KM activities relate to those activities that are beneficial to acquire, organize, innovate, manage, store, retrieve, and use knowledge which is the prime concern for the LICs. LICs can promote KM activities in the following ways: by promoting knowledge exchange or sharing among staff and users; strengthening knowledge innovation; raising staff's and users' enthusiasm and abilities for learning; marking the knowledge most efficiently applied to operational activities of the library; rebuilding the library into a learning organization; fostering culture to its requirement; modernizing information support; and by creating an environment for innovation, exchange study, and application of knowledge (Table 2).

Human resource management (HRM)

One of the main aims of KM is to manage human resources effectively in such a way that they can assist a suitable platform to inspire knowledge innovation culture and its ultimate utilization. LICs can take various activities in relating to human resource-based activities. The better human resources management-oriented programme relates to several activities such as LICs linkage programme (Table 3.1), encouragement of staff members in the talent competition (Table 3.2), level and types of knowledge between staff and users (Table 3.3), raising the scientific knowledge level, and the ability to acquire and innovate knowledge of staff and users (Table 3.4).

Innovation of knowledge

In today's competitive world, LICs are regularly facing new difficulties in their daily activities. The patterns of their problems are not the same or predetermined. These problems differ from library to library and in some cases differ from country to country. As a result, LICs cannot always get ready-made remedies. At the same time, it is also important to solve problems quickly for the betterment of the library's development. To make the organization compatible with such a problem-solving situation and for future development, LICs have to play roles in innovating knowledge in different areas where the innovated knowledge will turn into realistic and productive forces. Surveyed libraries and information centres were given some examples of knowledge innovation-based activities to indicate how they play a role in innovating new knowledge. They were given such examples of knowledge innovation-based activities as carrying out research; conducting training programmes; arranging seminars, symposiums and workshops; guiding research students, scholars and teachers; synthesizing scientific literature preserved in repositories; conducting collaborative programmes; conducting group discussions and internal meetings; consulting with specialist, etc. (Table 4.1). There are several areas in LICs where the staff and users can play roles in turning the result of knowledge innovation into realistic production forces. The surveyed libraries were asked to indicate the areas where they turned knowledge innovation into the culture by mentioning a few areas in questionnaire such as knowledge Internetworking, quick knowledge flow, development and application of information resources, construction of the digital library, research

publication, and virtual reference services, etc. (Table 4.2).

Application of ICT as a tool for KM

The reasons for applying ICT in LICs are to make it easy in dealing with providing services to users, accumulating and storing resources into the repository, delivering multiple accesses to the repository, and making the organization dynamic. By implementing some ICT components LICs may benefit in practising KM activities to a larger extent. Respondent libraries were given some examples of ICT tools, components, and applications through which they were asked to indicate the usage of ICT in LICs that are relevant to KM activities. These ICT tools, components, and applications include: Internet, intranet, extranet, storage architecture technologies, database management system, metadata, data acquisition and gathering technologies, dissemination and retrieval technologies, information resource sharing technologies, messaging, groupware or mail group, federated search system, online information discovery system, virtual union catalogue and OPAC, etc. (Table 5).

Problems of knowledge management practices in the LICs of Bangladesh

There are several problems of knowledge management practice in the libraries and information centres of Bangladesh. Lacking good governance, financial crisis, corruption, lacking realistic and emerging technologies and their appropriate applications, lacking collaborative efforts, lack of awareness are the common theoretical problems of third-world countries in practising knowledge management in LICs. Beyond these, we would like to explore in more depth problems of KM practice by analysing the results gathered from responses of surveyed libraries. It means these problems are more realistic rather than theoretical. Here we would like to explain the problems of KM practices in LICs of Bangladesh from facts and findings gathered during the time of conducting this research. It is necessary to mention that, due to the absence of real concept and practice in some cases, a few librarians of libraries under survey think of KM practice in slightly different ways. They were trying to solve the same problems differently. Their shortcomings in thinking and practising in a real library world can be treated here as a real problematic domain. These problematic domains can largely be divided into four sub-section areas viz. problems in relating to KM activities, HRM-oriented problems, problems in innovating knowledge, and problems in relating to the application of ICT as a tool for KM-based activities. This is the real scenario of KM-based practices in the LICs of Bangladesh.

Problems relating to KM activities

Respondent librarians were asked to indicate how they promote KM activities and as per their opinion how effective these KM activities were in their libraries. They were given eight options of KM activities through the questionnaire to point out the frequency of practice and the level of effectiveness. Responses from the librarians (Table 2) show that a good number of respondent LICs under survey never try to '*promote knowledge exchange and sharing among staff and users*' (25%, $\bar{x} = 3.38$, $\sigma = 2.66$), '*raise staffs' and users' enthusiasm and abilities for learning*' (25%, $\bar{x} = 4.06$, $\sigma = 2.38$), and '*foster culture suitable to its requirement*' (31.3%, $\bar{x} = 4.44$, $\sigma = 2.28$). Some of the libraries treated '*modernize information support*' (31.3%, $\bar{x} = 3.56$, $\sigma = 2.63$), and '*making the knowledge most efficiently applied to operational activities of library'* (25%, $\bar{x} = 3.44$, $\sigma = 2.61$) as ineffective to their practice. In the case of frequency and effectiveness of KM activities mean values and standard deviation (SD) were also analysed. The mean value for the frequency and effective scale of '*foster culture suitable to its requirement*' was the highest ($\bar{x} = 4.44, 4.13$) which indicates moderate in both the Likert scaling. In the present study, the SD value for the frequency scale of '*promote knowledge exchange and sharing among staff and users*' ($\sigma = 2.66$) and effective scale of '*modernize information support*' ($\sigma = 2.63$) as ways in promoting KM activities was the highest which indicate the data point more spreading out over a substantial number of data (Note: $\bar{x}$ denotes average score and σ denotes Standard Deviation).

Human resource management (HRM)-oriented problems

In implementing human resource-based activities respondent LICs have been facing several problems as listed below.

LICs linkage problem. LICs can connect information with information, information with activities, and information with a man for getting greater throughput. In our survey a maximum number of respondents do not face such types of linkage problems to a greater extent though a few respondent libraries do not support these types of linkage programme (18.8%, $\bar{x} = 3.1$, $\sigma = 2.4$), and an equal number of respondents also think that these programmes (18.8%, $\bar{x} = 3.1$, $\sigma =$

2.4), do not bear any sort of effectiveness for their libraries (Table 3.1).

Problems in encouraging staff members in the talent competition. LICs can encourage staff members by awarding prize/certificate, increasing basic pay/remuneration, giving incentives, promoting designation, giving a training opportunity at home/abroad and by converting staff members into higher productive forces as staff motivation to get a standard output from them (Table 3.2). But in the case of the surveyed LICs, the major percent of the respondents are not interested in encouraging staff members in the talent competition in all categories (50% and above). To be more specific, half of the respondent LICs under survey never encourage staff member '*by awarding prize/certificate*' (50%, $\bar{x} = 4.9$, $\sigma = 2.3$) and they think that this encouragement programme is ineffective for their institution (50%, $\bar{x} = 4.9$, $\sigma = 2.3$). More than half of the respondent libraries under survey never encourage the staff members '*by increasing basic pay/remuneration*' (62.5%, $\bar{x} = 5.6$, $\sigma = 1.9$) and '*giving incentive for good job done*' (62.5%, $\bar{x} = 5.7$, $\sigma = 1.9$). '*Increasing basic pay/remuneration*' ($\bar{x} = 5.5$, $\sigma = 2.1$) and '*incentive for good job done*' ($\bar{x} = 5.8$, $\sigma = 1.8$) were treated as ineffective by a maximum number of respondent libraries (62.5%). For inspiring the staff members 50% of respondents under survey never encourage their staff members '*by promoting designation*' ($\bar{x} = 5.2$, $\sigma = 2.1$) and treated this encouragement activity as ineffective for their institution (43.8%, $\bar{x} = 4.9$, $\sigma = 2.2$). More than half of the respondent LICs (56.3%, $\bar{x} = 5.2$, $\sigma = 2.3$) are not interested in '*creating training opportunity for the staff members at home/abroad*' and '*converting intellectual assets of works and staff members into higher productive forces*'. Likewise, this encouragement programme as per their opinions is ineffective (43.8% and 56.3% respectively).

Problems in sharing different types of knowledge between staff and users. Knowledge-sharing culture is very effective not only for library staff but also users which will enable them quickly and effectively to find out relevant information or aid them in decision making and problem solving. LICs can accelerate a knowledge-sharing culture by promoting sharing tacit as well as explicit knowledge among staff and users. These knowledge-sharing activities both tacit and explicit can happen between staff, or users or staff and users simultaneously (Table 3.3). A significant number of LICs under survey (overall 31.3%) were lacking in awareness of the knowledge-sharing culture, thinking that these cultures did not bear any effectiveness for their LICs. But the fact is that to develop an effective knowledge-sharing culture every LIC should not only have the realization of its importance in mind but should also have the environment for sharing knowledge in their LIC premises. In contrast, a good number of respondents under survey never share the culture of tacit knowledge more or less *between staff* (31.3%, $\bar{x} = 3.9$, $\sigma = 2.6$), *between users* (31.3%, $\bar{x} = 3.8$, $\sigma = 2.6$), and *between staff and users* (31.3%, $\bar{x} = 3.7$, $\sigma = 2.6$). Roughly 32% respondents are not interested in sharing explicit knowledge *between staff* (31.3%, $\bar{x} = 3.9$, $\sigma = 2.6$), *between staff and users* (31.3%, $\bar{x} = 3.9$, $\sigma = 2.5$) and *between users* (37.3%, $\bar{x} = 4.3$, $\sigma = 2.4$).

Problems relating to raising the scientific knowledge level and ability among staff/users. All staff and users are not equal in terms of scientific knowledge level, ability to acquire and innovate knowledge. As these qualities help the staff and users to choose, take, and provide better services within the organization, LICs should support the raising of the scientific knowledge level and ability to acquire and innovate knowledge of staff/users by arranging some HRM-related activities such as training programmes, lifelong education, working as unit/team to a field, developing knowledge resource proper guidance services and staff quality improvement incentives. The present study depicts that LICs under survey do not support these activities properly (Table 3.4). More specifically about 38% respondent LICs under survey never conduct the *training programme* ($\bar{x} = 4.1$, $\sigma = 2.7$), *work as unit/team to a field* ($\bar{x} = 4.8$, $\sigma = 2.3$), provide *proper guidance service* ($\bar{x} = 4.3$, $\sigma = 2.6$). About 44% respondent libraries think that the *training programme* ($\bar{x} = 4.1$, $\sigma = 2.8$), *life-long education* ($\bar{x} = 5.2$, $\sigma = 2.3$), and *working as unit/team to a field* ($\bar{x} = 5.1$, $\sigma = 2.4$) bear no fruit for their LICs. About 38% of respondents never develop knowledge resources for increasing knowledge level and ability among staff and users ($\bar{x} = 4.5$, $\sigma = 2.5$).

Problems in relating to knowledge innovation-based activities

In innovating new knowledge, LICs have been facing two categories of problems: problems relating to innovating new knowledge (Table 4.1) and problems relating to turning new knowledge into realistic and productive forces (Table 4.2). The details of the results are discussed below:

Problems in innovating new knowledge. In the present study about 32% respondent LICs under survey think

that their libraries did not play any role in innovating new knowledge by conducting *group discussion and internal meeting* ($\bar{x} = 4.25$, $\sigma = 2.38$), *bibliometric/scientometric/webometric study of literature* ($\bar{x} = 4.63$, $\sigma = 2.16$), *citation analysis and indexing* ($\bar{x} = 4.25$, $\sigma = 2.44$); *taking part in scientific research process* ($\bar{x} = 4.31$, $\sigma = 2.27$). About 48% respondent LICs did not pay attention to *diffusion and conversion of knowledge* ($\bar{x} = 4.69$, $\sigma = 2.41$) and such type of activity does not bear any effectiveness to their libraries ($\bar{x} = 5.0$, $\sigma = 2.3$). More interestingly, 25% respondent libraries did not treat *research* as a good instrument for innovating new knowledge ($\bar{x} = 3.19$, $\sigma = 2.51$) and about 19% LICs think that *carrying out research* is an ineffective method in innovating new knowledge ($\bar{x} = 3.1$, $\sigma = 2.4$).

Problems in turning knowledge innovation into the culture. Respondent libraries were also asked to indicate the areas where they play roles in turning the results of innovated new knowledge into realistic and productive forces. Interestingly about 48% libraries do not think of knowledge on *Internetworking* like outsourcing ($\bar{x} = 4.8$, $\sigma = 2.5$), and *RFID* ($\bar{x} = 4.6$, $\sigma = 2.6$) as areas where innovated new knowledge can be applied. On the other hand, 25% libraries under survey did not reckon the areas like the *union list and OPAC* ($\bar{x} = 3.5$, $\sigma = 2.5$), *knowledge management* ($\bar{x} = 3.7$, $\sigma = 2.5$), *copyright and intellectual property right* ($\bar{x} = 3.4$, $\sigma = 2.4$) as ones where new innovated knowledge can be applied. About 32% respondent LICs under survey treat areas like *quick knowledge flow* ($\bar{x} = 4.6$, $\sigma = 2.2$) and *information literacy/information right* ($\bar{x} = 4.1$, $\sigma = 2.5$) as ineffective areas where new innovated knowledge cannot be applied effectively.

Problems in relating to the application of ICT as a tool for KM-based activities

Various components and functions of ICT are directly related with KM-based activities. In our recent study it was found (Table 5) that about 69% respondent libraries never use *multidimensional analysis and data mining* ($\bar{x} = 5.5$, $\sigma = 2.4$) and *wikis* ($\bar{x} = 5.8$, $\sigma = 2.1$). About 63% LICs under survey never offer *web-based reference tool* ($\bar{x} = 5.4$, $\sigma = 2.3$), *SNS* ($\bar{x} = 5.0$, $\sigma = 2.8$) and *library blog* ($\bar{x} = 5.4$, $\sigma = 2.3$) to their users. More than half of the respondent LICs (56.3%) under survey never use *extranet* ($\bar{x} = 4.8$, $\sigma = 2.7$), *online library feedback form* ($\bar{x} = 4.8$, $\sigma = 2.8$), *online analytical processing* ($\bar{x} = 4.8$, $\sigma = 2.7$), *tagging and bookmarking for common area of sharing* ($\bar{x} = 5.1$, $\sigma = 2.4$), *mentoring* and *apprentice technologies* ($\bar{x} = 5.2$, $\sigma = 2.5$) and they think that these technologies do not bear any effectiveness to their organization. Half of the total respondents (50%) were never habituated with *federated search system* ($\bar{x} = 4.9$, $\sigma = 2.5$), *groupware or mail group* ($\bar{x} = 4.5$, $\sigma = 2.8$), *citing tools* ($\bar{x} = 4.7$, $\sigma = 2.7$), *subject gateways* ($\bar{x} = 4.6$, $\sigma = 2.6$), *electronic research guides* ($\bar{x} = 4.9$, $\sigma = 2.5$) and *network analysis for showing who goes to whom for information needed to do a job* ($\bar{x} = 4.9$, $\sigma = 2.5$).

Recommendations for overcoming KM-related problems

To overcome from this situation in practising KM activities in the LICs of Bangladesh, the researchers have suggested a set of recommendations or action plans so that KM-based activities can effectively be cultured in LICs of this part of the world. The action plans or recommendations are as follows:

- Build up enriched digital collections
  LICs should devise a comprehensive collection policy and build up a huge digital collection based on the demand of their users to represent knowledge in documents, databases, software, and so forth. This is important to easily transfer and disseminate existing knowledge around or outside the LICs and to facilitate users' remote access to their collections.
- Use of more emerging technologies
  LICs should use more emerging ICT tools and technologies. LICs may benefit by using ICT application to provide users with a variety of quality services to develop the communication, usage, and creation of new knowledge. All sorts of library activities can be done easily with the implementation of ICT application which may lead the library into a dynamic one.
- Promote staff incentive
  Staff incentive is very necessary for motivating staff members in innovating new knowledge and engaging them in KM management activities. Promotion of staff incentives would enhance staff's quality, enthusiasm and abilities for learning, knowledge innovation strength, consciousness, and eagerness for knowledge sharing which must be needed for LICs to be successful KM enabled organization. Therefore, the staff members of the LICs should be given incentives for a good job done, remuneration for extra work, and should be promoted based on their actual performance.

- Create KM posts and establish a KM committee
  For making a quick decision, sustainably solving the problem, making an effective policy it is immensely important to have a post for KM and a committee relating to KM activities. By realizing the importance of KM, many libraries of the western world have the post of KM officer and particularly there is also a committee on KM for ensuring the best management of knowledge.
- Arrange more training programmes/seminars/workshops and symposiums
  Undoubtedly, the training programme can develop the quality of staff and professionals and creates awareness among users. Therefore, LICs should arrange more training programmes to make well-trained staff as well as make their users aware about their services.
- Organize talent competition among staff members
  LICs should create a platform where a staff member will be involved in a talent competition positively. In a creating talent competition environment, LICs should take some motivational steps such as awarding a prize, increasing basic pay, giving an incentive, promoting designation, giving training opportunities outside the country, etc. Therefore, LICs should give more importance to these activities and provide such types of encouragement that can inspire the staff member in the talent competition.
- Encourage a knowledge-sharing culture
  One of the most important aspects of KM is to develop a knowledge-sharing culture within the organization because the ultimate goal of knowledge sharing is to distribute the right content to the right people at the right time. It enables staff members in quick decision making and problem solving. LICs should encourage their staff members with inspiration and incentives, and arrange programmes on knowledge-sharing cultures. In addition, various tools such as content management tools, knowledge-sharing tools, document management tools, portals, wikis, data warehousing can be applied to accelerate the speed of knowledge sharing cultures among staff members and users within and outside the LICs.
- Establish sound ICT infrastructure and application
  LICs always have to deal with the user community to meet their daily requirements and manage their resources in a way that can be easily accessible. The ICT infrastructure of LICs in Bangladesh is not at a satisfactory level. It is important to build a strong infrastructure with emerging library and ICT technologies in LICs. Implementation of ICT application would help the LICs to accelerate the speed of KM activities.

Conclusion

The present study has tried to explore the real problematic scenario in relating to the KM practices in LICs of Bangladesh. The study reveals that a good number of the respondents (25%) never tried to promote knowledge exchange and sharing programmes among staff and users. Half of the total respondents (50%) were not interested in encouraging staff members in the talent competition in all categories. About 38% of the respondents never developed knowledge resources for increasing knowledge level and ability among staff and users. About 48% of the respondents did not pay attention to diffusion and conversion of knowledge while the same percentage of the respondents never treated knowledge on Internetworking and RFID as areas where innovated new knowledge can be applied. Half of the total respondents (50%) were never habituated with a federated search system, groupware or mail group, citing tools, subject gateways, electronic research guides, and network analysis for showing who goes to whom for information needed to do a job.

LICs can play an important role in keeping close contact with user communities with a common goal to serve based on their collections and services available. But this task is not easy for them because of the dynamic nature of the users which is constantly changing for getting particular services. On the other hand, providing service is not a simple process. Behind the scenes, they have to manage a numbers of functions. Therefore, LICs should plan to create a KM-based post and committee to accelerate the speed of their working process.

The chance of getting better output from personnel and positive responses from users depends upon their skills, attitude, and experience. New library staff, as well as existing staff members in the case of new service and activities, might fail to understand the mission and vision of the library. As a result, it might be sometimes impossible to get the best efforts from them. They often need to be groomed for accelerating their skills, innovativeness, proficiency, and expertise. Similarly, new users often fail to comprehend the services and activities of a library. As a result, LICs

have to take various programmes like orientation programmes and training programmes both for the library staff as well as users, and arrange seminars, workshops, and symposiums on various issues. Without arranging such types of programmes and activities for staff and users of LICs might be disheartened about providing service and activities. LICs can arrange orientation programmes regularly for smoothing educational communication between library and users.

There is no mentionable work that dealt with practices relating to problems of KM activities in the LICs of Bangladesh. Though NGOs and private organizations have recently been dealing with KM practices especially on social networks and human resources, in LICs this practice is in a conceptual stage. It is a matter for hope that LICs are now trying to realize the importance of knowledge management.

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ORCID iD

Md Shariful Islam https://orcid.org/0000-0002-6170-084X

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Author biography

Dr Md Nazmul Islam is currently working as Associate Professor in the Department of Information Science & Library Management at University of Rajshahi, Bangladesh. His primary research interest focuses on scientometric study, knowledge-based society, knowledge management, ICT in library and information centres, scholarly communication etc.

Dr Md Shariful Islam is Professor in the Department of Information Science and Library Management, University of Rajshahi, Bangladesh. His research interests include knowledge management, rural library services, information literacy, information-seeking behaviour, social media and digital divide.

Abdur Razzak is a Lecturer in the Department of Library and Information Science at Khwaja Yunus Ali University, Bangladesh. His primary research interest focuses on the knowledge-based institution, knowledge management, knowledge sharing.

Appendix 1. Tables

Notes

Numbers in parentheses indicate percentages; Frequency Scale: 1= Always, 2=Frequently, 3=Sometimes, 4=Moderately, 5=Seldom, 6= Rarely,7= Never;
Effective Scale:1=Very Effective, 2=Effective, 3=Nearly effective, 4=Moderate, 5= Somewhat effective, 6= Less effective, 7=Ineffective;
$\bar{x}$ denotes average score and σ denotes Standard Deviation.

Table 1. Name of the surveyed libraries and information centres (LICs).

SN	Name	Types	Location
1.	Rajshahi University Central Library (RUCL)	Academic Library	Rajshahi
2.	Rajshahi University of Engineering and Technology Library (RUETCL)	Academic Library	Rajshahi
3	Dhaka University Library (DUL)	Academic Library	Dhaka
4.	Bangladesh University of Engineering and Technology Library (BUETL)	Academic Library	Dhaka
5.	Sher-e-Bangla Agricultural University Library (SAUL)	Academic Library	Dhaka
6.	BRAC University Library (BRACUL)	Academic Library	Dhaka
7.	North South University Library (NSUL)	Academic Library	Dhaka
8.	East West University Library (EWUL)	Academic Library	Dhaka
9.	Independent University, Bangladesh Library (IUBL)	Academic Library	Dhaka
10.	Bangladesh National Scientific and Technical Documentation Centre (BANSDOC)	Special Library	Dhaka
11.	CIRDAP Azizul Haque Library (CIRDAPL)	Special Library	Dhaka
12.	Archer K Blood American Library (AKBAL)	Special Library	Dhaka
13.	Asian Development Bank Library (ADBL)	Special Library	Dhaka
14.	Bangladesh Parliament Library (BPL)	Special Library	Dhaka
15.	Bangladesh Bureau of Statistics Library (BBSL)	Special Library	Dhaka
16.	National Institute of Local Government Library, Information and Documentation Centre (NILGLID)	Information Centre	Dhaka

Table 2. Ways of promoting KM activities in LICs.

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Promote knowledge exchange/sharing among staff/user																	
43.8	12.5	0.0	6.3	6.3	6.3	25.0	3.38	2.66	37.5	18.8	0.0	6.3	6.3	6.3	25.0	3.44	2.61
Strengthen knowledge innovation, consciousness, and abilities																	
31.3	18.8	6.3	12.5	6.3	6.3	18.8	3.38	2.36	25.0	31.3	6.3	12.5	0.0	6.3	18.8	3.25	2.29
Raise staffs'/users' enthusiasm and abilities for learning																	
18.8	18.8	6.3	12.5	6.3	12.5	25.0	4.06	2.38	12.5	25.0	6.3	37.5	6.3	12.5	0.0	3.38	1.59
Making the knowledge most efficiently applied to operational activities of the library																	
37.5	18.8	6.3	12.5	6.3	0.0	18.8	3.06	2.32	37.5	18.8	0.0	6.3	6.3	6.3	25.0	3.44	2.61
Rebuilding the library into a learning organization																	
50.0	6.3	6.3	18.8	6.3	6.3	6.3	2.69	2.06	37.5	12.5	6.3	18.8	6.3	6.3	12.5	3.13	2.22
Foster culture suitable to its requirement																	
12.5	18.8	0.0	18.8	12.5	6.3	31.3	4.44	2.28	12.5	18.8	12.5	12.5	12.5	6.3	25.0	4.13	2.22
Modernize information support																	
37.5	12.5	18.8	18.8	0.0	0.0	12.5	2.81	2.01	37.5	12.5	0.0	18.8	0.0	0.0	31.3	3.56	2.63
Create an environment for innovation, exchange, study, and application of knowledge																	
43.8	6.3	6.3	18.8	6.3	6.3	12.5	3.06	2.26	37.5	18.8	6.3	18.8	0.0	6.3	12.5	2.94	2.17

Note: The respondent libraries were asked to indicate how they promote KM activities.

Table 3.1. Linkage programme (human resource management).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Information with information																	
43.8	6.3	18.8	6.3	0.0	6.3	18.8	3.1	2.4	37.5	12.5	18.8	6.3	0.0	6.3	18.8	3.1	2.4
Information with activities																	
50.0	0.0	18.8	6.3	0.0	6.3	18.8	3.0	2.4	43.8	6.3	18.8	6.3	0.0	6.3	18.8	3.1	2.4
Information with man																	
43.8	6.3	12.5	12.5	0.0	6.3	18.8	3.1	2.4	43.8	6.3	12.5	12.5	0.0	6.3	18.8	3.1	2.4

Note: The respondents were asked to indicate how they link information with information, with activities, and with the man.

Table 3.2. Encouragement of staff members in talent competition (human resource management).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
By Awarding prize/certificate																	
6.3	12.5	12.5	18.8	0.0	0.0	50.0	4.9	2.3	6.3	12.5	12.5	18.8	0.0	0.0	50.0	4.9	2.3
Increasing basic pay/remuneration																	
0.0	0.0	25.0	12.5	0.0	0.0	62.5	5.6	1.9	6.3	6.3	6.3	18.8	0.0	0.0	62.5	5.5	2.1
By giving incentive																	
0.0	6.3	18.8	6.3	0.0	6.3	62.5	5.7	1.9	0.0	6.3	12.5	12.5	0.0	6.3	62.5	5.8	1.8
By promoting designation																	
0.0	18.8	12.5	6.3	6.3	6.3	50.0	5.2	2.1	6.3	12.5	12.5	12.5	6.3	6.3	43.8	4.9	2.2
By giving training opportunity at home/abroad																	
12.5	6.3	6.3	12.5	6.3	0.0	56.3	5.2	2.3	12.5	6.3	6.3	12.5	0.0	18.8	43.8	5.1	2.3
By for converting intellectual assets of works and staff members into higher productive forces																	
6.3	12.5	6.3	18.8	0.0	0.0	56.3	5.2	2.3	6.3	6.3	6.3	18.8	6.3	0.0	56.3	5.4	2.1

Note: The respondents were asked to indicate how they encourage the staff members in the talent competition.

Table 3.3. Level and types of knowledge sharing (human resource management).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Sharing tacit knowledge between staff																	
37.5	0.0	6.3	12.5	12.5	0.0	31.3	3.9	2.6	31.3	12.5	0.0	12.5	12.5	0.0	31.3	3.9	2.6
Sharing tacit knowledge between staff & user																	
31.3	18.8	0.0	12.5	6.3	0.0	31.3	3.7	2.6	31.3	6.3	6.3	18.8	6.3	0.0	31.3	3.9	2.5
Sharing tacit knowledge between users																	
37.5	0.0	12.5	12.5	6.3	0.0	31.3	3.8	2.6	31.3	6.3	0.0	25.0	6.3	0.0	31.3	3.9	2.5
Sharing explicit knowledge between staff																	
37.5	0.0	6.3	12.5	12.5	0.0	31.3	3.9	2.6	18.8	18.8	6.3	18.8	6.3	0.0	31.3	4.0	2.4
Sharing explicit knowledge between staff & user																	
25.0	12.5	12.5	12.5	6.3	0.0	31.3	3.9	2.5	25.0	12.5	12.5	12.5	6.3	0.0	31.3	3.9	2.5
Sharing explicit knowledge between users																	
18.8	6.3	18.8	12.5	6.3	0.0	37.5	4.3	2.4	12.5	12.5	12.5	18.8	6.3	0.0	37.5	4.4	2.3

Note: The respondents were asked to indicate types of knowledge being shared between the different levels of staff and users

Table 3.4. Scientific knowledge level and ability programme (human resource management).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Training programme																	
31.3	12.5	0.0	6.3	6.3	6.3	37.5	4.1	2.7	31.3	6.3	12.5	6.3	0.0	0.0	43.8	4.1	2.8
Life-long education																	
18.8	0.0	18.8	6.3	6.3	6.3	43.8	4.8	2.4	18.8	0.0	0.0	12.5	6.3	18.8	43.8	5.2	2.3
Working as a unit/team to a field																	
12.5	12.5	6.3	6.3	12.5	12.5	37.5	4.8	2.3	18.8	0.0	6.3	6.3	12.5	12.5	43.8	5.1	2.4
Developing knowledge resource																	
25.0	6.3	12.5	0.0	18.8	6.3	31.3	4.3	2.5	25.0	0.0	12.5	6.3	12.5	6.3	37.5	4.5	2.5
Proper guidance services																	
25.0	12.5	0.0	12.5	6.3	6.3	37.5	4.3	2.6	25.0	0.0	12.5	12.5	6.3	12.5	31.3	4.4	2.4

Note: The respondents were asked to raise scientific knowledge level and ability in acquiring and innovating knowledge of staff and users

Table 4.1. Key roles in innovating new knowledge (knowledge innovation-based activities).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
By carrying out research																	
43.8	6.3	12.5	12.5	0.0	0.0	25.0	3.19	2.51	43.8	6.3	12.5	6.3	12.5	0.0	18.8	3.1	2.4
By conducting training programme																	
37.5	25.0	0.0	12.5	6.3	0.0	18.8	3.00	2.34	37.5	25.0	0.0	6.3	6.3	0.0	25.0	3.2	2.5
By arranging seminar, symposium and workshop etc.																	
43.8	31.3	6.3	6.3	0.0	0.0	12.5	2.38	2.00	31.3	25.0	12.5	6.3	0.0	12.5	12.5	3.1	2.2
By guiding research students, scholar, teacher etc.																	
43.8	6.3	12.5	12.5	6.3	6.3	12.5	3.00	2.25	31.3	12.5	12.5	12.5	6.3	6.3	18.8	3.4	2.3
By synthesizing scientific literature preserved in repositories																	
25.0	12.5	25.0	12.5	6.3	0.0	18.8	3.38	2.16	18.8	18.8	18.8	6.3	18.8	6.3	12.5	3.6	2.1
By conducting collaborative programme																	
6.3	25.0	6.3	12.5	31.3	0.0	18.8	4.13	1.96	6.3	12.5	12.5	25.0	18.8	6.3	18.8	4.3	1.9

(continued)

Table 4.1. (continued)

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
By conducting group discussion/internal meeting																	
18.8	12.5	6.3	18.8	6.3	6.3	31.3	4.25	2.38	18.8	12.5	12.5	6.3	12.5	6.3	31.3	4.3	2.4
By consulting with specialist																	
6.3	43.8	0.0	18.8	6.3	12.5	12.5	3.63	2.03	6.3	37.5	12.5	6.3	12.5	12.5	12.5	3.7	2.0
By taking part scientific research process																	
12.5	18.8	0.0	31.3	0.0	6.3	31.3	4.31	2.27	31.3	6.3	18.8	6.3	18.8	6.3	12.5	3.4	2.2
By paying attention to diffusion and conversion of knowledge																	
12.5	12.5	12.5	12.5	0.0	6.3	43.8	4.69	2.41	12.5	6.3	12.5	6.3	6.3	12.5	43.8	5.0	2.3
By publishing journal/article, research report, newsletter etc.																	
18.8	12.5	0.0	31.3	12.5	12.5	12.5	3.94	2.05	18.8	12.5	0.0	18.8	37.5	0.0	12.5	3.9	2.0
By conducting bibliometric/scientometric/webometric study of literature																	
6.3	18.8	6.3	18.8	6.3	12.5	31.3	4.63	2.16	12.5	6.3	6.3	18.8	12.5	12.5	31.3	4.8	2.1
By citation analysis/indexing																	
18.8	12.5	12.5	12.5	0.0	12.5	31.3	4.25	2.44	12.5	18.8	6.3	6.3	12.5	18.8	25.0	4.4	2.3
By taking part resource sharing, networking or consortium, exchange programme																	
37.5	12.5	6.3	25.0	0.0	6.3	12.5	3.06	2.17	25.0	12.5	12.5	18.8	12.5	6.3	12.5	3.5	2.1

Note: The respondent LICs were asked how they play role in innovating new knowledge.

Table 4.2. Knowledge innovation into culture (knowledge innovation-based activities).

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Knowledge Internet working																	
18.8	6.3	12.5	0.0	6.3	12.5	43.8	4.8	2.5	12.5	6.3	0.0	18.8	0.0	25.0	37.5	5.1	2.2
Quick knowledge flow																	
12.5	12.5	18.8	12.5	6.3	0.0	37.5	4.4	2.3	12.5	6.3	12.5	18.8	6.3	12.5	31.3	4.6	2.2
Digital collection, process, storage and dissemination of knowledge/information																	
37.5	18.8	12.5	12.5	12.5	6.3	0.0	2.6	1.7	37.5	6.3	6.3	25.0	6.3	12.5	6.3	3.2	2.1
Development and application of information resources																	
50.0	18.8	0.0	12.5	12.5	0.0	6.3	2.4	1.9	31.3	12.5	12.5	12.5	12.5	12.5	6.3	3.3	2.1
Construction of digital/virtual library																	
31.3	6.3	12.5	18.8	18.8	12.5	0.0	3.3	1.9	37.5	6.3	12.5	12.5	6.3	25.0	0.0	3.2	2.1
Research and publication																	
37.5	6.3	6.3	18.8	12.5	6.3	12.5	3.3	2.2	37.5	6.3	0.0	25.0	12.5	6.3	12.5	3.4	2.2
Virtual reference service																	
37.5	6.3	12.5	6.3	12.5	12.5	12.5	3.4	2.3	43.8	0.0	6.3	12.5	12.5	12.5	12.5	3.4	2.4
Union list/OPAC																	
37.5	6.3	12.5	6.3	12.5	0.0	25.0	3.5	2.5	37.5	0.0	6.3	12.5	6.3	12.5	25.0	3.9	2.6
Metadata/RDA Standard																	
0.0	25.0	6.3	12.5	6.3	43.8	6.3	4.6	1.8	37.5	18.8	6.3	12.5	0.0	12.5	12.5	3.1	2.3
RFID																	
25.0	0.0	12.5	6.3	6.3	6.3	43.8	4.6	2.6	31.3	0.0	12.5	12.5	0.0	6.3	37.5	4.2	2.6
Information literacy/Information right																	
31.3	0.0	18.8	6.3	12.5	0.0	31.3	3.9	2.5	25.0	6.3	12.5	12.5	6.3	6.3	31.3	4.1	2.5
Copy right/Intellectual Property right																	
31.3	18.8	12.5	6.3	6.3	0.0	25.0	3.4	2.4	25.0	6.3	25.0	12.5	0.0	12.5	18.8	3.7	2.3
Institutional Repository																	
37.5	12.5	12.5	6.3	12.5	6.3	12.5	3.1	2.2	31.3	12.5	6.3	18.8	12.5	12.5	6.3	3.3	2.1
Web Content Management																	

(continued)

Table 4.2. (continued)

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
37.5	12.5	12.5	6.3	12.5	0.0	18.8	3.2	2.3	37.5	12.5	6.3	18.8	0.0	12.5	12.5	3.2	2.3
Database/Network Management																	
31.3	25.0	6.3	6.3	6.3	6.3	18.8	3.3	2.4	37.5	6.3	12.5	12.5	6.3	12.5	12.5	3.3	2.3
Information Discovery																	
37.5	12.5	6.3	12.5	12.5	0.0	18.8	3.3	2.4	37.5	6.3	0.0	18.8	12.5	6.3	18.8	3.6	2.4
Knowledge management																	
31.3	12.5	6.3	12.5	6.3	6.3	25.0	3.7	2.5	31.3	6.3	6.3	12.5	0.0	18.8	25.0	4.0	2.6
Different sections of the library																	
43.8	6.3	18.8	12.5	0.0	6.3	12.5	2.9	2.2	43.8	6.3	12.5	12.5	6.3	6.3	12.5	3.0	2.3
Library operation/service pattern																	
37.5	6.3	12.5	12.5	0.0	18.8	12.5	3.4	2.4	43.8	6.3	0.0	18.8	6.3	18.8	6.3	3.2	2.3
Bridging digital divide																	
37.5	6.3	6.3	18.8	6.3	6.3	18.8	3.4	2.4	43.8	0.0	6.3	18.8	6.3	6.3	18.8	3.4	2.4
User study																	
31.3	25.0	12.5	6.3	0.0	12.5	12.5	3.1	2.2	37.5	12.5	6.3	12.5	6.3	6.3	18.8	3.3	2.4

Note: The respondents were asked in which areas they play roles in turning the result of knowledge innovation into realistic production forces.

Table 5. Application of ICT as a tool for KM.

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
Internet																	
68.8	0.0	0.0	0.0	6.3	0.0	25.0	2.8	2.7	56.3	6.3	0.0	0.0	6.3	0.0	31.3	3.2	2.8
Intranet																	
56.3	0.0	0.0	6.3	6.3	0.0	31.3	3.3	2.8	56.3	6.3	0.0	0.0	6.3	0.0	31.3	3.2	2.8
Extranet																	
25.0	6.3	6.3	6.3	0.0	0.0	56.3	4.8	2.7	25.0	6.3	0.0	12.5	0.0	0.0	56.3	4.8	2.7
Storage architecture technologies																	
37.5	12.5	0.0	6.3	6.3	0.0	37.5	3.8	2.8	25.0	12.5	6.3	12.5	6.3	0.0	37.5	4.1	2.6
Database management system																	
50.0	12.5	0.0	6.3	12.5	0.0	18.8	2.9	2.5	0.0	12.5	6.3	6.3	12.5	0.0	62.5	5.7	1.9
Metadata																	
43.8	12.5	12.5	0.0	6.3	0.0	25.0	3.1	2.6	50.0	6.3	12.5	0.0	6.3	0.0	25.0	3.1	2.6
Data acquisition/gathering technologies																	
25.0	31.3	6.3	12.5	6.3	0.0	18.8	3.2	2.2	25.0	25.0	18.8	0.0	0.0	6.3	25.0	3.4	2.4
Dissemination/retrieval technologies																	
25.0	25.0	6.3	12.5	6.3	12.5	12.5	3.4	2.2	31.3	12.5	18.8	12.5	6.3	6.3	12.5	3.2	2.1
Information resource sharing technologies																	
18.8	18.8	6.3	18.8	12.5	0.0	25.0	3.9	2.3	18.8	18.8	18.8	18.8	12.5	0.0	12.5	3.4	1.9
Messaging																	
31.3	0.0	6.3	12.5	6.3	0.0	43.8	4.4	2.7	31.3	0.0	12.5	6.3	0.0	0.0	50.0	4.4	2.8
Groupware or mail group																	
25.0	12.5	6.3	0.0	6.3	0.0	50.0	4.5	2.8	18.8	18.8	6.3	0.0	0.0	6.3	50.0	4.6	2.7
Federated search system																	
12.5	18.8	6.3	0.0	6.3	6.3	50.0	4.9	2.5	12.5	12.5	6.3	6.3	6.3	6.3	50.0	5.0	2.4
Online information discovery system																	
31.3	18.8	6.3	0.0	12.5	0.0	31.3	3.7	2.6	31.3	18.8	0.0	0.0	12.5	0.0	37.5	3.9	2.7
Virtual union catalogue/OPAC																	

(continued)

Table 5. (continued)

Frequency scale									Effective scale								
1	2	3	4	5	6	7	$\bar{x}$	σ	1	2	3	4	5	6	7	$\bar{x}$	σ
37.5	12.5	0.0	6.3	0.0	12.5	31.3	3.8	2.8	37.5	12.5	6.3	0.0	0.0	12.5	31.3	3.8	2.8
Electronic research guide																	
12.5	18.8	0.0	12.5	0.0	6.3	50.0	4.9	2.5	12.5	6.3	6.3	12.5	0.0	6.3	56.3	5.3	2.4
Web-based reference tool																	
6.3	18.8	0.0	6.3	6.3	0.0	62.5	5.4	2.3	12.5	18.8	6.3	0.0	6.3	6.3	50.0	4.9	2.5
Online library feedback form																	
25.0	12.5	0.0	0.0	0.0	6.3	56.3	4.8	2.8	31.3	6.3	6.3	0.0	0.0	6.3	50.0	4.5	2.9
Online analytical processing																	
25.0	6.3	6.3	0.0	6.3	0.0	56.3	4.8	2.7	12.5	12.5	12.5	6.3	0.0	0.0	56.3	4.9	2.5
Social networking sites																	
25.0	6.3	0.0	6.3	0.0	0.0	62.5	5.0	2.8	31.3	0.0	0.0	12.5	0.0	0.0	56.3	4.8	2.8
Web content management																	
31.3	18.8	12.5	6.3	0.0	12.5	18.8	3.4	2.4	25.0	12.5	12.5	6.3	6.3	12.5	25.0	3.9	2.5
Citing tools																	
18.8	18.8	0.0	6.3	0.0	6.3	50.0	4.7	2.7	12.5	18.8	6.3	0.0	6.3	6.3	50.0	4.9	2.5
Subject gateway																	
12.5	18.8	12.5	6.3	0.0	0.0	50.0	4.6	2.6	12.5	12.5	12.5	6.3	0.0	6.3	50.0	4.9	2.5
Multidimensional analysis and data mining																	
12.5	12.5	0.0	0.0	6.3	0.0	68.8	5.5	2.4	18.8	6.3	0.0	0.0	6.3	6.3	62.5	5.4	2.5
Communities of practice (CoPs)																	
25.0	18.8	6.3	6.3	0.0	0.0	43.8	4.1	2.7	25.0	12.5	18.8	0.0	6.3	0.0	37.5	4.0	2.6
Library blogs (for internal and public facing)																	
6.3	12.5	12.5	0.0	6.3	0.0	62.5	5.4	2.3	12.5	6.3	12.5	0.0	12.5	0.0	56.3	5.2	2.4
Wikis (for 'Seed' and innovation play)																	
6.3	6.3	6.3	6.3	6.3	0.0	68.8	5.8	2.1	6.3	6.3	0.0	12.5	6.3	0.0	68.8	5.8	2.0
Tagging and bookmarks (for common area of sharing)																	
6.3	18.8	12.5	0.0	6.3	0.0	56.3	5.1	2.4	6.3	12.5	12.5	12.5	6.3	0.0	50.0	5.0	2.3
Network analysis (for showing who goes to whom for information needed to do a job)																	
12.5	18.8	0.0	6.3	12.5	0.0	50.0	4.9	2.5	6.3	12.5	6.3	6.3	6.3	6.3	56.3	5.4	2.2
Mentoring and apprentice technologies																	
18.8	6.3	0.0	6.3	6.3	6.3	56.3	5.2	2.5	12.5	12.5	0.0	6.3	6.3	0.0	62.5	5.3	2.4

Note: The respondent LICs were asked to indicate the main components or functions of ICT they used in LIC relevant to KM.

Appendix 2. Questionnaire

Name of the organization/institution :

Year of establishment :
Address :
Name of the LIC :

(Frequency scale: 1= Always, 2=Frequently, 3=Sometimes, 4=Moderately, 5=Seldom, 6= Rarely, 7= Never; Effectiveness scale: 1=Very Effective, 2= Effective, 3=Nearly effective, 4= Moderate, 5= Somewhat effective, 6= Less effective, 7=Ineffective)

1. KM activities

KM activities (Put √ on the appropriate cell)	Frequency Scale							Effectiveness Scale						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
How does your LIC promote KM activities? • Promote knowledge exchange/sharing among staff/user • Strengthen knowledge innovation, consciousness, and abilities • Arise staffs'/users' enthusiasm and abilities for learning • Making the knowledge most efficiently applied to operational activities of the library • Rebuilding the library into a learning organization • Foster culture suitable to its requirement • Modernize information support • Create an environment for innovation, exchange, study and application of knowledge														

2. Human resource-based activities

Human resource-based activities (Put √ on the appropriate cell)	Frequency Scale							Effectiveness Scale						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Does your LIC linkage information a) With information b) With activities c) With man														
2. How do you encourage the staff members of your LIC in talent competition? a) By Awarding Prize/certificate b) Increasing Basic pay/remuneration c) By giving incentive d) By promoting designation e) By giving training opportunity at home/abroad f) By for converting intellectual assets of works and staff members into higher productive forces g) By doing nothing														
3. What level does your L/IC share what types of knowledge between staffs and users? a) Sharing tacit knowledge between staffs b) Sharing tacit knowledge between staff & user c) Sharing tacit knowledge between users d) Sharing explicit knowledge between staffs e) Sharing explicit knowledge between staffs & user f) Sharing explicit knowledge between users														
4. What do you do to raise the scientific knowledge level and ability to acquire and innovating knowledge of staffs/users? a) Training programme b) Life-long education c) Working as a unit/team to a field d) Developing knowledge resource e) Proper guidance services f) Other (Please specify):														

3. Knowledge innovation-based activities

Knowledge innovation-based activities (Put √ on the appropriate cell)	Frequency scale							Effectiveness scale						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. How does your LIC play role in innovating new knowledge . . . .?														
a) By carrying out research														
b) By conducting the training programme														
c) By arranging the seminar, symposium, and workshop, etc.														
d) By guiding research students, scholar, teacher, etc.														
e) By synthesizing scientific literature preserved in repositories														
f) By conducting a collaborative programme														
g) By conducting group discussion/internal meeting														
h) By consulting with a specialist														
i) By taking part in the scientific research process														
j) By paying attention to diffusion and conversion of knowledge														
k) By publishing journal/article, research report, newsletter, etc.														
l) By conducting bibliometric/scientometric/webometric study of literature														
m) By citation analysis/indexing														
n) By taking part in resource sharing, networking or consortium, exchange programme														
o) Other (Please specify):														
2. Which areas does your LIC play roles in turning the results of knowledge innovation into realistic productive forces?														
a) Knowledge of Internetworking (Like outsourcing)														
b) Quick knowledge flow														
c) Digital collection, process, storage and dissemination of knowledge/ information														
d) Development and application of information resources														
e) Construction of Digital/Virtual Library														
f) Research and publication														
g) Virtual reference service														
h) Union list/OPAC														
i) Metadata/RDA Standard														
j) RFID														
k) Information literacy/Information right														
l) Copy right/Intellectual Property right														
m) Institutional Repository														
n) Web Content Management														
o) Database/Network Management														
p) Information Discovery														
q) Knowledge Management														
r) Different sections of the library														
s) Library Operation/Service Pattern														
t) Bridging Digital Divide														
u) User Study														
v) Other (Please specify):														

4. Components/Functions of ICT

Components/Functions of ICT (Put √ on the appropriate cell)	Frequency scale							Effectiveness scale						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Indicate the main ICTs used in LIC relevant to KM														
i. Internet														
ii. Intranet														
iii. Extranet														
iv. Storage Architecture Technologies														
v. Database Management System														
vi. Metadata														
vii. Data Acquisition/Gathering Technologies														
viii. Dissemination/Retrieval Technologies														
ix. Information Resource Sharing Technologies														
x. Messaging														
xi. Groupware or Mail group														
xii. Federated Search System														
xiii. Online Information Discovery System														
xiv. Virtual Union Catalogue/OPAC														
xv. Electronic Research Guide														
xvi. Web-based Reference Tool (e.g. virtual reference service)														
xvii. Online Library Feedback Form														
xviii. Online Analytical Processing														
xix. Social Networking Sites														
xx. Web Content Management														
xxi. Citing Tools														
xxii. Subject Gateway														
xxiii. Multidimensional Analysis and Data Mining														
xxiv. Communities of Practices (CoPs) e.g. Koha community etc.														
xxv. Library Blogs (for internal and public-facing)														
xxvi. Wikis (for 'Seed' and innovation play)														
xxvii. Tagging and Bookmarks (for the common area of sharing)														
xxviii. Network Analysis (for showing who goes to whom for information needed to do a job)														
xxix. Mentoring and Apprentice Technologies														

Article

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City library network knowledge management for social cohesion: The case of Santa Coloma de Gramenet, Barcelona, Spain

Daniel García Giménez
Barcelona Provincial Council, Spain (Diputació de Barcelona)

Lluis Soler Alsina
Barcelona Provincial Council, Spain (Diputació de Barcelona)

Abstract

In Santa Coloma de Gramenet (Catalonia, Spain) there is a network of four public libraries. They belong to the City, with technical assistance, strategic orientation and financial support from the provincial government, Diputació de Barcelona. These four libraries have been built in different historical periods and located in neighbourhoods with very unequal social backgrounds. They have been working on adapting their services to their neighbourhoods and as a network they have been moving on along the differences. Even so, the current information society challenges require a city library project in order to guarantee social cohesion and equal opportunities. This article tries to explain the strategy to achieve those goals, based on knowledge management and networking, transversal workshops and a shared communication circuit that so far has allowed this urban library network to extend and to renew services as well as to empower vulnerable sectors in accordance with the United Nations 2030 Agenda.

Keywords

Information and development, information and society/culture, knowledge management, libraries and development, libraries and society/culture, principles of library and information science, services to user populations

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Introduction

Santa Coloma de Gramenet is a town of 120,000 inhabitants, located at 6km from Barcelona centre and connected by underground with the whole Barcelona area. There, a network of four public libraries makes up the library service in the town. The service and the seven buildings belong to the City Municipality, but they get technical assistance, services, orientation and financial support from Diputació de Barcelona, including management professionals and periodical activities and book contributions. Diputació de Barcelona is a provincial government which joins all the public libraries of the region in a unique library network, union catalogue and a technical organization, reinforcing the municipal library organization.

What are the challenges of putting this into practice?

These public libraries in Barcelona province belong to and are ruled by the City Government. Santa Coloma City Municipality owns and maintains the buildings and contributes the auxiliary staff of the human resources and part of the budget that these libraries spend on books and activities. On the other hand, Diputació de Barcelona has created and developed the complete library network for the province,

Corresponding author:
Daniel García Giménez, Diputació de Barcelona, Jardí Can Sistere, s/n, 08921 Santa Coloma de Gramenet, Barcelona, Spain.
Email: garciagdn@diba.cat

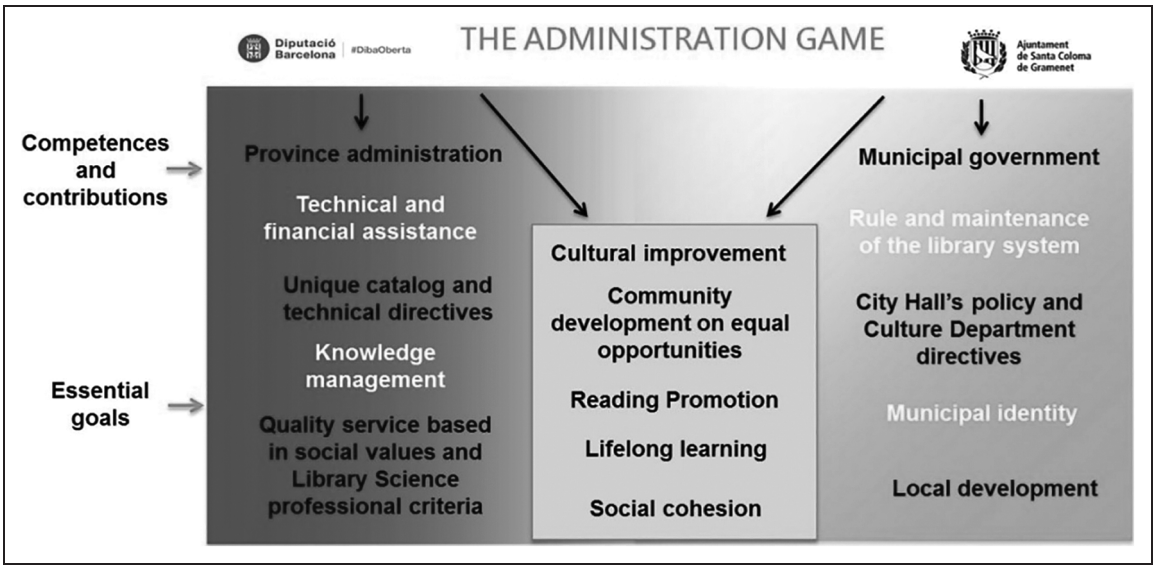

Figure 1. The shared job of the two administrations.
Source: Self-edition based on the presentation *Weaving a Library Network: The case of Santa Coloma de Gramenet* (García Giménez, 2019).

the union catalogue for more than 200 libraries in the province and provides all the standards for technical systems that are set up by their librarians and library directors working in the field. On Scope 6 of their Annual Plan for 2019 Diputació underlines the need for cooperation and networking, in order to promote mechanisms for library cooperation with local agents to consolidate the cohesion of each library in their area, and to promote networking as a value of this service (Gerència de Serveis de Bibliotheques, 2019: Scope 6).

The cultural strategy of both administrations is concerned about social cohesion (Figure 1). Their goals and philosophy of work are closely related to the United Nations 2030 Agenda for Sustainable Development. Moreover, from a local perspective, to contribute to social cohesion and both enhance local identity and respect values for diversity are very important targets of the cultural management and probably the most important goal for a local politician. To keep the balance between the needs, the real casuistry of the infrastructures and neighbourhoods' social composition and the will to design a unique city network to grow a balanced and united library service, is a big challenge. And an even more necessary strategy if it is considered that this network has still some deficiencies to face up to, like low statistics of loans, traditional coordination weakness and a low budget for infrastructures and book collections. Besides that, Diputació de Barcelona's plan proposes to review and update the collaboration between Diputació de Barcelona and municipalities for municipal library service management, to reorganize the strategic information and work processes in order to improve coordination and communication between management and area bosses, and to share the library service model with different agents in the area (Gerència de Serveis de Bibliotheques, 2019: Scope 6).

All of these goals need a theory method and a systematic practice of knowledge management. Considering that knowledge management is defined 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' (Sarrafzadeh et al., 2006: 624), it is clear that offering a range of services covering the entire city and designed to promote social cohesion and equal opportunities requires careful management of information, both internal and external. Internal among all the staff employees and the local technicians and politicians with whom this network collaborates. And external, with citizens, to whom it is mandatory to offer access to quality knowledge and develop communication strategies that allow better interaction. Thus, knowledge management must include 'the knowledge of the library's operation, the knowledge of library users and their needs, knowledge of the library collection and knowledge of library facilities and technologies available' (Koteswara, 2018: 5).

A library network based on knowledge management is that one that is in a permanent process of creating, sharing and managing knowledge and information in their plan, targets and policies, using a multidisciplinary approach to achieving organizational objectives by making the most effective use of knowledge. Santa Coloma Library network conceives its

vision of knowledge management through the following methodological tools:

- Knowledge sharing, as a culture in the whole organization, inter-project and inter-professionals exchange, intra-organizational and inter-organizational knowledge sharing;
- Cross-project learning, in order to facilitate innovation and organizational learning, around the sectorial committees and between libraries;
- Knowledge mapping, to leverage expertise across the organization;
- Communities of practice, around the creation of sectorial committees;
- Competence management and systematic evaluation and planning of competences of individual organization members around a formation plan;
- Master-apprentice relationship, mentor-mentee relationship and job shadowing;
- Collaborative software technologies on social software;
- Knowledge repositories, documents and data bases;
- Workflow systems, managing intellectual capital and assets in the workforce;
- Content management and document management systems;
- Measuring and reporting about the plan and the policies annually with a formal document and monthly in meetings with the city hall culture department.

The library system of Santa Coloma has started to implement a coordinated knowledge management strategy in order to join objectives, unify goals and targets, create synergies and multiply skills, capacities and results to set up a more efficient public service, suited to the needs and population demands and based on territorial balance and social cohesion criteria for Santa Coloma de Gramenet. It was, and still is, a challenge and a complicated effort of more than 40 people working together but spread among four libraries, in coordination with the cultural department of the City Municipality and the technical directives of Diputació de Barcelona.

This article is going to explain how to implement a possible system to do that in Santa Coloma de Gramenet, but also how these measures and practices so far allow citizens to perceive some improvements that are derived from these changes and new services that have been launched, like inter-library loan at the city level completely free, creation of new reading clubs, renovation and adaptation of the bibliographical collections, or new activities focused on empowering vulnerable sectors and favouring social cohesion.

Santa Coloma de Gramenet, some main features

Santa Coloma de Gramenet has currently 117.597 habitants.[1] Its municipal territory is small and its population density is really high. Until the middle of the 20th century, Santa Coloma was a really tiny town, but between 1950 and 1975, during the Franco dictatorship, its population grew spectacularly, going from 15,281 inhabitants to more than 130,000,[2] mainly due to the immigration from the poorest Spanish regions. This spectacular demographic growth was not accompanied by the necessary infrastructures and urban, educational, health care and social services.

Nevertheless, since the arrival of democracy, one of the priorities of the successive City Governments has been to provide its population with the necessary equipment and services. As a result, infrastructures (public transport, green areas, public facilities) have dramatically improved and nowadays the entire population can access public schools, health care, social services and quality cultural facilities.

However, the city must face many challenges. Its per capita income ratio is lower than the Catalan average and its unemployment rate is still very high, although it has decreased considerably since 2013. Moreover, the city now has a strong presence of immigrants from outside the European Union, mainly from Morocco, China, Pakistan and Ecuador. They make up a total of approximately 22,500 people,[3] (19% of the population). In many cases, they do not speak Catalan or Spanish (the two official languages in Catalonia) and come from socially and economically disadvantaged backgrounds. Most of them live in densely populated and poor neighbourhoods, with lower per capita incomes and hard social conditions.

Each neighbourhood has distinctive features and a strong identity. Conscious of this reality, the City Municipality has made a firm commitment to decentralization[4] and to equip each neighbourhood with quality cultural services, thus creating new areas of centrality. The challenge, however, is to ensure that the population of the poorest neighbourhoods, as well as the surroundings, has the same kind of services and opportunities equality to reinforce the social cohesion.

To face up to these challenges, unfortunately the city has few financial resources. There are no industrial estates or large commercial areas. Therefore, it requires financial support from the Catalan and Spanish governments to face the necessary expenses and investments.

In this context, one essential goal of the culture services is to be the key tool for promoting social inclusion, strengthening the feeling of belonging and offering more opportunities to spread knowledge among social classes, especially in the most disadvantaged sectors. Thus, the traditional roles of the public library – promoting reading, access to information and knowledge, support for lifelong learning – have a particularly relevant social dimension and, therefore, need collaboration and a professional consciousness of the need to work as a network between libraries, municipal authorities and citizen associations.

Library network organization

Following the instructions of the Public Reading Map of Catalonia (*Mapa de Lectura Pública*) (Generalitat de Catalunya, 2014b), Diputació de Barcelona divides the province into different library districts, according to population criteria. Santa Coloma libraries network area is Barcelonès Nord, which is formed by three municipalities: Badalona, Sant Adrià del Besòs and Santa Coloma de Gramenet, with a total population of 370.069 habitants (Generalitat de Catalunya, 2018) and an extension of 33.6km^2. Currently, this area has a total of 12 libraries in operation.

In the framework of the formation of the vast contemporary metropolitan areas, the concept of the urban centrality has changed. Town centres have shared part of their prominence with other outskirts, and municipal policies have been working, since the arrival of democracy in Spain (1977), on the social cohesion and equality of opportunities and services between neighbourhoods. Therefore, the provincial library system build by Diputació de Barcelona has been thought to work on a quality library system all around the territory. So the priority in the investment plan is to focus on the proximity of the libraries. The central idea is that every neighbourhood must have its own fully equipped library.

In Santa Coloma there are four libraries: Biblioteca Central, Can Peixauet, Singuerlín – Salvador Cabré and Fondo (Figure 2). As has been said, they belong to the City Municipality administration and depend on the Culture Department of the Municipality. This network is directly coordinated with the City Municipality's culture service that includes the library service in their cultural policy. Moreover, Santa Coloma's library network has its own strategic plan (Pla Municipal del Servei bibliotecari 2011–2015, 2010) to guide its policies for five years, as well as the annual plan (Pla d'acció de Biblioteques Santa Coloma de Gramenet, 2019).

So beyond the historical centres, all of them unique and multifunctional, there have grown up new and

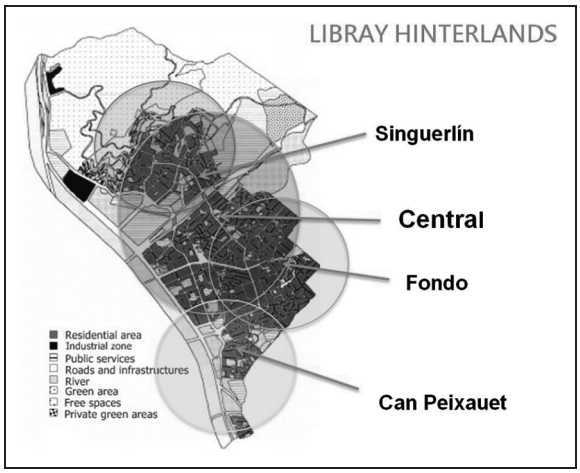

Figure 2. Library area.
Source: Self-edition based on *Anuari estadístic Santa Coloma de Gramenet* (2016).

decentralized areas in towns. This fact has a correlation in Santa Coloma's library network. The role of the central library as the head of the urban network should be to coordinate this scenario by capitalizing results on the differences, making libraries adhere to common objectives, working together under the same technical processes and unique city plan and service conception. So far, this is work in progress. Figure 3 illustrates the model of the city library network.

Regardless of the dissemination of services, library collections and spaces, contacts and alliances with stakeholders, institutions and a handful of agents in the territory to collaborate with, the network has established an institutional coordination strategy based on the institutional presence and sectorial planning documents for the City Municipality approval. At the same time, it is necessary to keep trying to maintain a coordinating contact between the four libraries' directions with the City Municipality and Diputació de Barcelona in order to communicate, institutionalize and improve the network's policy which is reflected in the most important strategic documents:

- Municipal Library Plan. A five-year policy programme (Pla municipal del Servei bibliotecari 2011–2015, 2010);
- Annual Library Action Plan. A one-year programme that develops the Municipal Plan in the short term (Pla d'acció de Biblioteques Santa Coloma de Gramenet, 2019);
- Library Network Regulation. A pending formal approval specific regulation of the city library system;
- Collection Development Policy. A document to regulate the collection evolution.

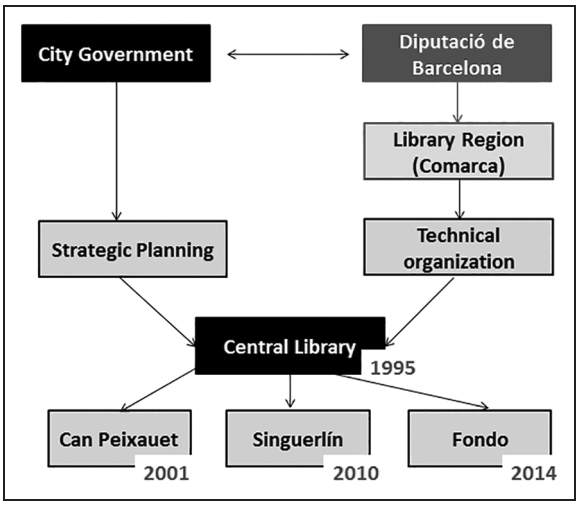

Figure 3. Model of the city library network of Santa Coloma de Gramenet
Source: Self-edition based on the presentation *Weaving a Library Network: The case of Santa Coloma de Gramenet* (García Giménez, 2019).

Previous weaknesses

Between 1995 and 2014, Santa Coloma went from having only one public library to having four. The oldest one, Biblioteca Central (Central Library), opened in 1995, is placed in the centre of the city, only 200m away from the City Municipality. The other three – Can Peixauet, inaugurated in 2002; Singuerlin, opened in 2009, and Fondo, in 2014 – are more modern, well-equipped and serve different neighbourhoods. Given that this municipal area is small, the four libraries cover the entire space, so that everyone has a library nearby. In addition to this, all of them are well connected with public transport, both bus and metro. Therefore, the goals of the *Mapa de lectura pública* (Public Reading Map) (Generalitat de Catalunya, 2014a) have been fully achieved.

However, during the last few years it has become clear that the network has some important shortcomings. Specifically, at least from 2009, public library directors, politicians and technicians of the City Municipality have detected the following weaknesses:

- A high percentage of books and document collections were obsolete and/or unsuitable for the demands and needs of the users;
- Lending rates were clearly below the average of other urban networks comparable to Santa Coloma's. As a result, bibliographic and document collections have been lent at a rate below the average;
- A very high percentage of the population does not identify those public libraries as a municipal service, but rather attributes their exclusive management and responsibility to Diputació de Barcelona;
- The offer of cultural and educational activities was high, but often little coordinated, poorly spread and, therefore not known enough to the majority of the population;
- Highly professional and motivated teams, but with some formative deficiencies and some dysfunctional working routines.

In order to solve this problems and to improve and adapt the services to current local population needs, the Xarxa de Biblioteques (Library network) de la Diputació de Barcelona and Ajuntament (City Government) de Santa Coloma de Gramenet started and approved a strategic plan that included the main deficiencies, a careful diagnosis of the situation and established strategic lines to solve them (Pla Municipal del Servei bibliotecari 2011–2015, 2010). Obviously, the causes of the deficiencies and the possible solutions contemplated are varied, but there is an element that stands out: there was not historically a real network culture on the execution of the common library policies.

Some failures of coordination were detected, mainly in collection development, communication systems, activities programmes and human resources policy. So the need to implement an authentic urban network model, capable not only of optimizing available resources and improving efficiency, but also, and above all, to offer a better service to the citizens came up consequently.

Why, and how, it has been decided to implement a library network knowledge management

Aware of this diagnostic, since 2011, public libraries, in close collaboration with the City Municipality, started to implement an authentic network model. This commitment is even more accentuated by the creation of the post of urban network director (the director of the Central Library is also the coordinator of the Network) in 2016 and with the arrival of new directions of the city libraries.

Besides that, social inclusion is other reason to implement an urban network system based on knowledge management. According to the World Bank's (n.d.) definition social inclusion is 'The process of improving the terms on which individuals and groups take part in society -improving the ability, opportunity and dignity of those disadvantaged on the basis of their identity'. As it has been argued before, in Santa

Coloma de Gramenet there are a considerable number of people – specially, but not only, among the non-European immigrants – in social exclusion risk. Low incomes, high unemployment rates, lack of education, but also serious difficulties in taking part in social life because of their different languages or ethnic and religious backgrounds are prevalent among most of the newcomers. Those conditions set up a complicated scenario that public administrations must face with an integrating perspective.

So, to enable the disadvantaged people to take part in society, both local policy makers and city library staff have to increase the ability, enhance the opportunity and raise a sense of dignity among them.

How can this be done? Several actions and strategies have been set up:

- Provision of universal access to knowledge: collection has been updated and adapted in two years according to the most modern standards with a new policy of collection development protocol and the collection committee. Those tools have used knowledge sharing and a working method according with multidisciplinary profiles available in the network;
- Improvement of social inclusion by increasing cultural and social capital, improvement of formal informal training, etc.;
- Strong collaboration between municipal libraries, local administration and cultural, educational and social agents present in the city are needed. That has been the main reason for implementing a network strategy.

Which are the main reasons for doing it this way?

In the present era of information and communication technology (Castells, 2005), knowledge has become a key resource, and:

> although the conventional function of libraries is to collect, process, disseminate, store and utilize information to provide service to their user communities; the environment in which libraries operate today has changed due to the developments in ICT, which necessitates new ways of information handling. (Koteswara, 2018: 3)

Secondly, the intrinsically multifunctional and multidisciplinary nature of any strategy for social inclusion requires careful management of the knowledge that encompasses all the agents involved. According to Davenport and Prusak (1998: 5):

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information. It originates and is applied in the minds of knower. In organizations, it often becomes embedded not only in documents and repositories but also in organizational routines, processes, practices and norms.

According to this approach, knowledge management is much more than collecting, processing, organizing and disseminating information and documents. It is also – and above all – a dynamic process, both intellectual, attitudinal and cultural, which includes technological competences and the capacity for collecting and managing all kinds of information (Kumar, 2010). And besides that, attitudes like sharing innovation, team-work, motivation, vision, objective, people-oriented culture: 'The development of a knowledge sharing culture that encourages the creation and transfer of knowledge is thus a major priority in formulating a library KM strategy' (Sarrafzahed et al., 2010: 202).

A network in progress

As has been explained before, the authors of this article made that analysis working on the plan documents and decided to start working on it. They wanted to focus on the coordination and wished also to promote the discovery of library collections and their adaptation to local reality and promote the role of libraries with active agents in the cultural dynamics of municipalities.

Nowadays libraries must be active agents in the current knowledge society of the 21st century. The users will not be passive recipients of information anymore but active agents in the creation and transmission of knowledge, based on the belief that libraries could help with that and the awareness that collaboration between libraries, institutions and associations is a clue to doing that. But the question was how to ensure that the libraries keep this equality of opportunities and social cohesion that was mentioned above in a low resources situation: coordination is essential on this matter.

In this strategy, to involve users and all those libraries' staff to make collective projects that were aimed at different kinds of specific publics around all the city area is the key. The network promoted mechanisms of cooperation between the different libraries' professionals and with local agents to consolidate the job in the area, facilitate possible synergies and promote a networking culture. This effort matches with the Diputació planning proposal to strengthen professional public library employees as the main value of the library service, identifying new proposals for the configuration of the staff in urban

networks (Gerència de Serveis de Biblioteques, 2019: Scope 4), and it has been systematized within the lines of 2018 Action Plan for Santa Coloma de Gramenet:

1. Strategic line 1: Library planning.

Implementation of the Communication Plan and Social Media Plan agreed and drafted in 2018, to seek the consensus needed for Regulation document political approval and the renewal of the strategic documents.[5]

2. Strategic line 2: Community, encouragement of reading and cultural dynamism.

Encouraging and improving community readership habits, including the consolidation of the unique city collection to adapt bibliographic collections to the demands and needs of users. Specifically focus on the development of the common projects for all the city which the libraries are currently running, linked to and starting from the specializations each library has: a cinema city project, a mental health project with the City Municipality public health care department coordination, a solidarity project in Palestine, a seniors programme to fight against loneliness, a historical local memory project in collaboration with the city museum and a data base and an Internet repository for local artists and writers.

3. Strategic line 3: Information, training and self-learning.

A common programme to consolidate, renew and extend ICT training courses as a tool to fight against the digital fracture in the society (helped by a network informative brochure, which will be delivered to each library card owner), as well as to renew the municipal library web content and improve it.

4. Strategic line 4: Team management and work dynamics.

Carrying out the previous analysis for the future consensus for a Training Plan by 2020 and implementing the Hosting Plan for new personnel in libraries.

5. Strategic line 5: Networking.

Improving the network working groups and committees for activities and starting the approved content of the Network Project Map, making the necessary changes based on statistic tracking.

Looking for synergies: Library network committees

One of the areas where city library knowledge management has been implemented is in the creation of library network committees. The committees are formed by at least one member of each library team in order to solve specific issues of their competences scopes. Currently there are three committees (Children, Collection and Communication) and a fourth one is a work in progress (Activities and Programming). The network's plan has split the scopes of the daily job in these four areas and created transversal teams to work on them. The oldest committees are Children and Collection, working for almost two years, since 2017, and Communication which is almost a year old, since 2018.

In each committee, knowledge management operates through the following procedures:

- periodic meetings (approximately monthly);
- meeting plan;
- debate and search for consensus on their specific relevant topics;
- subsequent act and results communication.

As a result, in 2018 some important results have been achieved:

- exchange of professional experiences and network synergies acquired by the contact with other professionals from this area and from other libraries, partners in the urban network;
- saving of unnecessary duplication in the urban network through sharing and ordering together activities (up to 15%) and office supplies (up to 10%);
- debate and search for consensus on the interest of each library and the whole network about how to offer a better service to everybody.

Sharing knowledge, communicating better: An information circuit

A substantial way to improve the performance of any organization is to implement a modern and accurate knowledge management system, mainly through the improvement of the information circuit. Communication is separated into two areas, internal and external, for a more efficient management of improvements.

Internal information circuit

In libraries, communication is guaranteed by a system of meetings, communication by email and a system of shared files or electronic library in a local computer

network called 'Xemeneia' [chimney] that contains electronic documents relevant to all the personnel of every library.

Among the different libraries, communication is channelled through a system of meetings by sectorial work committees, emails and meetings and by a system of shared files through Google Drive, which reproduces, with documentation relevant to staff of the four libraries and municipal personnel, the electronic library system to share with each person who has responsibilities in the urban network.

Through this system, strategic plans, memories, protocols, projects, statistical data, manuals and other usefulness documents are used for the network operation.

- Strategic plans: In order to share information, values and improve the participation in the creation of consensus and making decisions taking advantage of the different profiles;
- Memories: Sharing information for improving the evaluation capacity;
- Statistical data: Making it possible to correct some dysfunctions and achieving more goals;
- Manuals: Making teams effective and facilitating the adaptation process and learning of new recruits.

External information circuit

The communication with the users is done through triptychs, municipal periodic publications, the newsletter of the library as well as by electronic subscription, municipal website posts and social networks like Facebook, Twitter, Instagram, Spotify, YouTube and ISSUU.

External communication is understood as that which occurs between libraries and their users and the purpose of the communication is related to the objectives of the library. To know and adjust policies to the needs of the users, communication will have a two-way purpose. Any interpellation is replied to reasonably by any communication channel, whenever possible. The tone of the message must always be empathetic, professional and with the vocation of service. Target audiences will be segmented based on communication channels. In social networks, the interaction over institutional communication will be sought and enhanced.

The analysis of all the previous points will send us enough data to be able to choose which channels the network uses to communicate with the target audience. Some part of the communication takes place through offline channels such as radio and television, the print press, specialized magazines, furniture and signage, posters, public relations events and other events. On the other hand, a number of channels of online communication such as the Web, social networks, newsletters and distribution lists are available too.

Current situation: Main improvements

Over the last few years, there has been notable progress in consolidating Santa Coloma's urban network model. In particular, important goals have been achieved:

- Planning documents. Documents that must regulate the regulatory framework and the operation of Santa Coloma network. Now they are waiting for the City Municipality official approval;
- City strategy. Strategic lines, objectives and main actions to be carried out are planned at an urban level and agreed between the directors and staff of the culture area of the City Municipality;
- Common timetables. Complementary schedules, in order to guarantee the maximum possible opening hours to citizens;
- Committee organization. The network has organized a working system based on sectorial committees. The committees are integrated by professionals of the four libraries and their decisions on their own fields are completely respected by the other professionals of the network, including the directors.
    - Collection Committee. The document collections committee has been created, which, among other functions, guarantees the coordinated acquisition of books and some new services like Llibre-express, for instance, one through which the network guarantees that everyone can request the purchase of books and, if the petition is accepted, he/she can get it as a loan in less than 10 days.
    - Common Activities and Children's Area Committee. Currently, main activities are jointly planned between the directors of the four libraries and the staff of the municipal Culture Area Staff. This is specially consolidated in the planning of children's activities, thanks to the existence of a Children's Area Committee, which is in charge of managing it at the level of urban network. In the near future it is expected that an Activities Committee will be created.

- Communication Committee. A group making decisions by consensus for internal and external communication, information circuit and processes, marketing, social media and web strategy, common corporative image and model of billboard advertising.

The network has advanced significantly towards the implementation of a knowledge management network. Specifically, a system of regular meetings has been established – at library direction level and municipal technicians of the Culture Area, but also sectorial; the access to some Google tools has been shared and, moreover, each library team shares common organizational goals and culture. The network has also extended the network model to include different kinds of local institutions, services and associations, assuming the city's diversity as an asset, while trying to guarantee real equality of opportunities, so that all neighbourhoods and social classes could access quality library resources and services at the same quality level.

Let us look at the most significant improvements around those committees:

- partial renovation and adaptation of bibliographical collections to the needs and demands of the users;
- new services, such as inter-library loan at the city level completely free;
- increase in the number and range of activities offered, most of them in collaboration with local cultural and social entities;
- enhancement of reading habits through the creation of new reading clubs, aimed at specific segments of the population;
- introducing local authors to general public through the creation of an online database available from the local website, presentations of books and other cultural activities;
- new working lines focused on empowering vulnerable sectors and favouring social cohesion.

Current situation, social cohesion and the 2030 United Nations Agenda for Sustainable Development

Santa Coloma de Gramenet faces particularly serious social challenges: lower incomes per capita compared with the Catalonian average, high rates of unemployment and a high percentage of immigrants from outside Europe. Therefore, Santa Coloma's urban library network model works in close collaboration with the City Government and local entities in order to promote equal opportunities and social cohesion.

The strategy for social cohesion and social development is directly inspired by the 2030 Agenda for Sustainable Development (United Nations, 2018). Thus, the network conceives equality and empowerment of all people 'as an integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental' (United Nations, 2015: 1). Santa Coloma libraries have carried out services, programmes and actions as a network related to some goals of the 2030 UN Agenda (see Table 1).

To make sure that all the area and all social groups have equal access to these empowerment resources under equal conditions, coordination between libraries is essential. Knowledge management and networking are main points to reinforce that social cohesion and achieve sustainable development in every neighbourhood. This is the reason why all these initiatives, actions and services are planned, carried out, communicated and evaluated at a network level (see Figure 4).

The future

Library trends and public service evolution consist in the concatenation of services and hybridization of policies, pushing towards a greater collaboration between public administration and all kind of stakeholders. It is necessary to keep collaborating, between us and with the others, and extending this collaboration to all areas that are currently run and those which will be run in the future.

Libraries are facing times of change. If the resources and infrastructures allow it, libraries will provide content fully adapted to the area, in coordination with the municipal policies and the technical guidelines of the Diputació de Barcelona. There are two changes in particular that directly affect the reason for the existence of public libraries and which require coordinated action to tackle them. The first of them is the real revolution that education is undergoing: continuous training, distance learning or self-learning that has created a new scenario where experimentation and access to information where socialization of knowledge should play a key role. On the other hand, in a context in which information and culture are increasingly accessible online and in which society is increasingly diverse – and unequal –, cultural services must become, more than ever before, spaces for meeting, exchange and socialization.

The network should keep going on the map of alliances with municipal and supra-municipal departments and every possible stakeholder to develop a good strategy, appropriate to changing scenarios, based on flexible but structured planning with a clear priority:

Table 1. Santa Coloma's library services that match the 2030 UN Agenda goals.

Service or activity	Agenda 2030 goals
'Sentir salut mental' [to feel mental health], an initiative aimed at providing bibliographic resources, information and personalized attention to people with mental health problems, in order to promote their empowerment and their relationship with the rest of society	Goal 3 Ensure healthy lives and promote well-being for all at all ages
Start-up of 'Laboratoris de lectura' [Reading laboratories], a new tool provided by Xarxa de Biblioteques de la Diputació de Barcelona to promote knowledge and learning, based on experimentation, learning by doing and interaction between attendees	Goal 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Acquisition of bibliographic resources on job research and work and professional development, as well as creation and dissemination of a database on labour resources	Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Consolidation and expansion of computer science, Internet and smartphone courses offer for beginners, as a way to reduce digital gap, especially among older people	Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Libraries are now developing a laboratory for intercultural coexistence and social mediation in Can Peixauet, a library that, as has been seen before, serves an area with a lot of immigration and strong social inequalities	Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable
Extension and updating of the specialized collection in solidarity, cooperation, education for peace and intercultural dialogue, which is further strengthened by a stable catalogue of exhibitions, conferences and storytelling and workshops for children	Goal 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

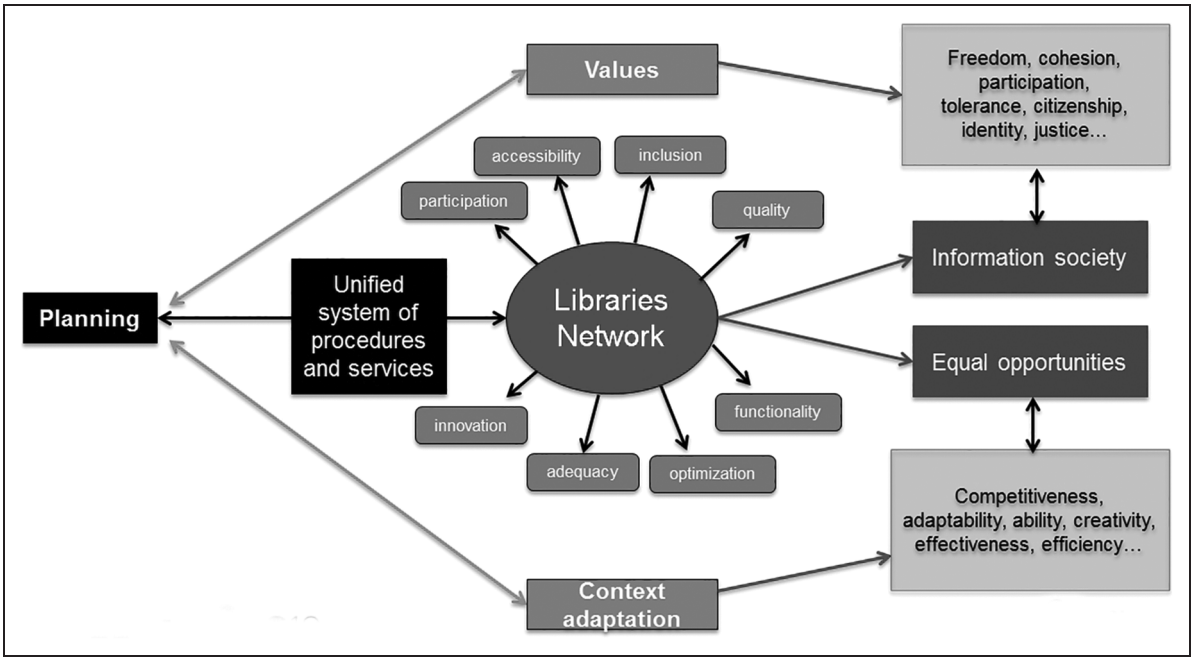

Figure 4. Weaving a library network in Santa Coloma de Gramenet.
Source: Self-edition based on the presentation *Weaving a Library Network. The case of Santa Coloma de Gramenet* (García Giménez, 2019).

coordination for better services for everybody. And, moreover, collaboration ought to become more efficient and intelligent: optimizing the resources available, improving communication, reaching new audiences, offering new and better services, getting good values and sharing equal opportunities. This is the reason why it will be necessary to update and strengthen knowledge management and communication.

At the same time, it cannot be forgotten that 'public libraries in the digital age should take a new role whereby they should act not only as a gateway to knowledge, but also as a platform facilitating the creation of, and access to, local community knowledge (Chowdhury et al., 2006).

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ORCID iD

Daniel García Giménez https://orcid.org/0000-0002-3049-0616

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4. In the course of recent years, the City Municipality has invested many efforts in decentralizing procedures, equipment and services, thus guaranteeing comprehensive and proximate management throughout the territory. See: https://www.gramenet.cat/ajuntament/arees-municipals/millorem-el-nostre-barri/accions-als-barris/ (accessed 12 July 2019).
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Author biographies

Daniel García Giménez graduated in History and Documentation from Barcelona University. He is currently Director of the Central Library of Santa Coloma de Gramenet and Head of the Santa Coloma de Gramenet urban library network. He is lecturer in Audiovisual Documentation at Universitat Oberta de Catalunya (UOC).

Lluís Soler Alsina graduated in Library Science and Documentation in 1992 from Barcelona University, graduated in Sociology and Political Science in 1995 from Universitat Autònoma de Barcelona, graduated in Humanities in 2004 from Universitat Oberta de Catalunya and gained a Master's in Citizenship and Human Rights in 2017 from Barcelona University. He is currently working at the Central Library of Santa Coloma de Gramenet, where he is in charge of coordinating the management of documentary collections. He is a lecturer in History of Modern Philosophy at Universidad Nacional de Educación a Distancia (UNED).

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Determining the impact of knowledge sharing initiatives in international organizations: Case studies

Linda Stoddart
Haute école de gestion de Genève, Switzerland

Abstract

No one disputes that knowledge is the lifeblood of international organizations and especially specialized agencies of the United Nations. However, there has been little consensus on the best methods to share knowledge, leverage the extensive international expertise and make it available to the constituents and partners of these organizations. What is their strategy for managing knowledge? Do they have one? What impact does it have? What is the role of senior management in championing knowledge sharing in these international organizations? These are the questions this paper addresses through the lenses of the evaluations of current knowledge sharing practices in two institutions located in Geneva, Switzerland, both part of the United Nations system.

Keywords

Evaluations, international organizations, knowledge audit, knowledge sharing, knowledge strategy

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Introduction

The work of international organizations has changed dramatically over the last few years with globalization, the increased access to information due to technological advances, the ubiquitous Internet and social media which have changed forever how these organizations have carried out their work and reach their audiences. In some ways, the core business of international organizations is similar to consulting firms that assist clients to determine priorities, move on to new directions and find innovative solutions to specific issues. Like consulting firms, the UN specialized agencies aim to inform, assist and influence decision-makers to resolve crucial problems. One key challenge is to turn tacit knowledge into useable products and services that can be shared to stimulate innovation. Many of these institutions have developed knowledge strategies to help develop and launch initiatives to improve content management, collaboration and organizational culture, the use of technology and social media.

A recent report for the United Nations Joint Inspection Unit (Dimitriu, 2016) provides a comprehensive overview of knowledge management strategies and practices in the United Nations system and its specialized agencies. In order to take a closer look at what these entail and their impact, this paper highlights recent assessment of knowledge sharing in two specialized agencies of the United Nations system: the International Labour Organization (ILO) and the World Intellectual Property Organization (WIPO), as examples only. Although they have very different mandates, both institutions recognize their role as knowledge leaders in their specific areas of expertise: social and labour issues for the ILO and international copyright, patents and trademarks for WIPO. In the last few years, both have undertaken evaluations or audits of their knowledge-sharing capacities. In the case of the ILO, the study was carried out as an audit of knowledge sharing; the WIPO review was an evaluation. The methodology used to carry out these

Corresponding author:
Linda Stoddart, Haute école de gestion de Genève, Rue de la Tambourine, Carouge, GE 1227, Switzerland.
Email: linda.stoddart@gmail.com

reviews covering the different objectives and approaches is described, as well as the outcomes and recommendations of the studies. The author of this paper was involved in undertaking these reviews.

As explained in the JIU report:

> knowledge constitutes an intangible and a concrete asset, an operational reality and a permanent aspiration, a general and a specific resource. The United Nations system is the generator and catalyst of a special kind of knowledge – one that is based on values. It is knowledge that makes cooperation possible among Member States – irrespective of their size and location – in so many areas of high complexity and diversity. Knowledge is acquired from lessons learned together with new ideas and concepts. (Dumitriu, 2016: iii).

Discussing how two organizations evaluated their knowledge sharing capacities, this paper outlines a methodological approach used to assess the impact of these initiatives within the context of an international organization, and how it led to specific recommendations for the further development of a knowledge strategy.

This paper describes two case studies that were based on consultancy work that was carried out in the two organizations covered in this paper. Some of the information used in the drafting of this paper is confidential, therefore more in-depth data are unavailable.

ILO and WIPO: Their mandates

Established in 1919, the ILO is the only tripartite UN agency, which brings together governments, employers and workers representatives of 187 Member States to set labour standards, develop policies and devise programmes promoting decent work for all women and men. WIPO was created in 1967 to encourage creative activity, and to promote the protection of intellectual property throughout the world. WIPO currently has 189 Member States, administers 26 international treaties and like the ILO, has its headquarters in Geneva, Switzerland.

Knowledge management or knowledge sharing? What does it mean in the international organization context?

Each international organization or UN specialized agency has its own definition of knowledge management. One of the key findings of the JIU report was that there was 'no common approach, either conceptual or practical, to adopting a conscious and systematic knowledge management policy within any given organization or in the United Nations system as a whole' (Dumitriu, 2016: iii).

There is often confusion between knowledge management and knowledge sharing, and definitions sometimes do not facilitate clarity. Both organizations covered in this paper opted to review knowledge sharing and provided their own definitions and context for their studies. As there are no agreed standards or definitions for these terms, the fact that each organization provided its own definition, based on research and reflection, seemed to be a pragmatic approach.

WIPO provided the following definition in its evaluation report:

> Knowledge sharing refers to the collaboration on problems solving for the development of new ideas, or to implement policies or procedures, with the aim of effecting innovation and change in organizations. A knowledge sharing strategy involves codifying information, (documenting, organizing and capturing knowledge) and encouraging personalized approaches, meaning face-to-face communications through networking and other forms of interpersonal communication. (WIPO, Internal Audit and Oversight Division, internal document, 2014)

For the ILO, knowledge sharing and the ability of the organization to access efficiently and rapidly information and knowledge created internally is critical to the achievement of the objective of ensuring the ILO's capacity to be a global knowledge leader on social and labour issues.

The overall goal of both knowledge management and knowledge sharing is to increase innovation and effectiveness in an organization. It is difficult to draw a sharp distinct between the two terms. The majority of knowledge management initiatives in international organizations has aimed to make knowledge more accessible and useable, encourage a knowledge-intensive collaborative culture and build a knowledge infrastructure and incentive to interact and collaborate. The reputation of these organizations is almost entirely based on their ability to disseminate and share relevant information and knowledge. Their mandate is clear and therefore improving knowledge sharing is a crucial activity not only in relation to undertaking an audit or evaluation as is discussed in this paper. Knowledge is the lifeblood of both organizations and indeed of the entire United Nations system.

Evaluation objectives

For WIPO, the primary purpose of the evaluation carried out in 2014, was to provide a systematic and comprehensive assessment of the relevance,

effectiveness and efficiency of internal knowledge-sharing capacities in the organization and identify the main assets and needs in knowledge sharing.

The evaluation had three main objectives:

1. To develop a common understanding of what knowledge sharing entails and provide a glossary of terms to enhance this understanding; complementing the initial in-house inventory and assessing the organizational knowledge needs and gaps;
2. To evaluate the relevance, effectiveness and efficiency of current knowledge sharing capacities and practices in achieving expected results that are practicable;
3. To propose key elements of a knowledge sharing strategy.

WIPO management wanted to better understand how to leverage the organization's expertise and find ways of working more effectively together.

Audit objectives

The knowledge sharing audit carried out by the ILO during the first quarter of 2017 was part of an annual risk-based work plan which was approved by its leadership. The primary purpose was to identify the risks in ensuring a robust system of effective and efficient internal knowledge-sharing capacities and practices in the organization and identify the main assets and needs in knowledge sharing. The audit reviewed the implementation and current status of the ILO's Knowledge Strategy (ILO, 2007). Knowledge sharing was viewed as a potential risk since it impacts on the ability of the organization to deliver accurate, relevant and current information and knowledge to its constituents. It was recognized that one of the key risks in relation to knowledge sharing was linked to its reputation. If the organization was ineffective in the use of the information and knowledge it collects, creates and communicates, its reputation and impact in the world of work would suffer.

Differences between an audit and an evaluation

Although some of the methods for reviewing the components of knowledge sharing in these two organizations were similar, there are distinct differences between and audit and an evaluation.

There is extensive literature on knowledge audits outlining various methodological approaches. The National Aeronautics and Space Administration (NASA) has done extensive work on this issue, defining a knowledge audit: an assessment of an organization's knowledge capabilities. For NASA, a knowledge audit defines the gap between available knowledge and what is needed based on the organization's strategic objectives. Auditing is often used in an accounting context, to ensure the validity and reliability of information. It is basically an inspection, verification and examination of systems. For knowledge sharing in the ILO, the audit was intended to determine risks to the organization and review the systems, processes and other elements that impacted on having a successful knowledge sharing approach.

An evaluation is normally carried out to identify and understand certain processes and their impact, as well as how to improve these processes, and enable reflection and identify aspects of change required.

Measuring the impact of knowledge initiatives

Unlike other issues, the impact of knowledge sharing is difficult to justify in precise economic terms and measurable monetary savings. It is often difficult to quantify the time spent looking for the right information, or the cost of reproducing knowledge that already exists somewhere else or using out-of-date rather than current information (Dumitriu, 2016). The benefits of knowledge initiatives have more to do with preventing a waste of money, reinventing the wheel, and identifying new innovative approaches through better collaboration and communication. Although it may be a challenge to measure saving time and human resources, overspending is usually easily detected.

Methodology

Knowledge sharing means many things to many people. Clarifying what it is supposed to accomplish and the expected impact was the first essential hurdle in both reviews. Finding the answers to these questions meant examining the overall goals of each organization, exploring the decision-making processes, and assessing the current problems and issues. This provided a starting point for the review which led to recommendations for pragmatic solutions to current problems.

The review in both institutions began with meeting with the heads of the organizations, followed by several informal discussions organized by the internal audit/evaluation group within the organization covering all departments, involving a representation of staff in the different areas.

The *framework* (see Figure 1) was used to help elicit discussion on areas for improvement and help provide an understanding of what knowledge sharing

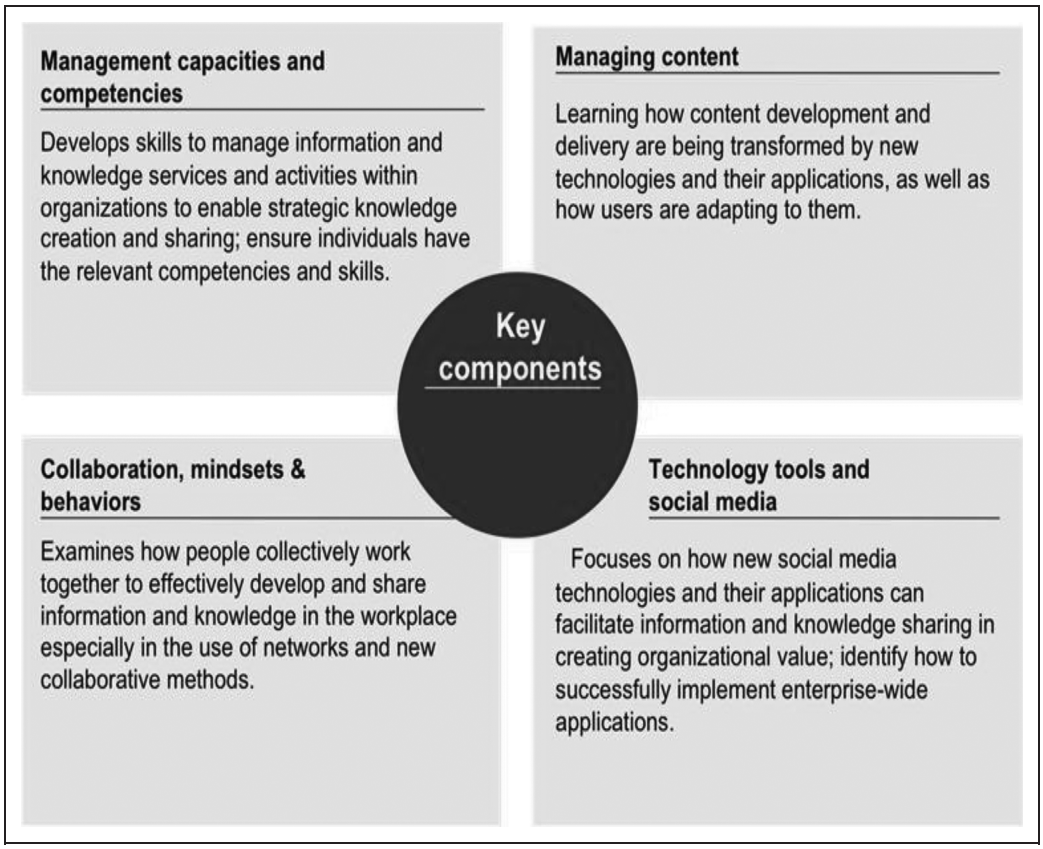

Figure 1. Knowledge management framework.

encompasses. Both organizations used this framework covering the following components:

Management capacities and competencies: this component reviews the role of management and leadership in the organization and studies the 'tone at the top'. This component also covers the importance of relevant competencies and skills.

Managing content: studies how content development is handled in the organization and if there are coherent ways of managing explicit information and data. The issue of access is explored.

Collaboration, mind-sets and behaviours: examines how people collectively work together to effectively develop and share information and knowledge in the workplace.

Technology tools and social media: focuses on how technology applications and digitization projects act to facilitate information and knowledge sharing in creating organizational value and examine the effectiveness of enterprise-wide applications.

This framework helped define knowledge-sharing activities, processes and systems as integral parts of the operation of the organization, not as something different and discrete. The discussions involved:

- developing a common understanding of what knowledge sharing entails;
- discussing examples of current good practices and determining opportunities for some to become standard practices;
- reviewing the skills, competencies and responsibilities of knowledge management positions;
- identifying methods for how collaboration and knowledge sharing might be improved
  - within departments,
  - with constituents and
  - across the organization;
- examining ideas for solutions to solve some of the problems, looking at potential blockages;
- determining if and how effective collaboration and knowledge sharing could lead to opportunities for innovation.

As is highlighted in Figure 2, the steps that were taken included: the *preparation* stage which involved clarifying the mandate and meeting with senior management to discuss the work plan, logistics, and having initial discussions; *diagnostic* stage covering the

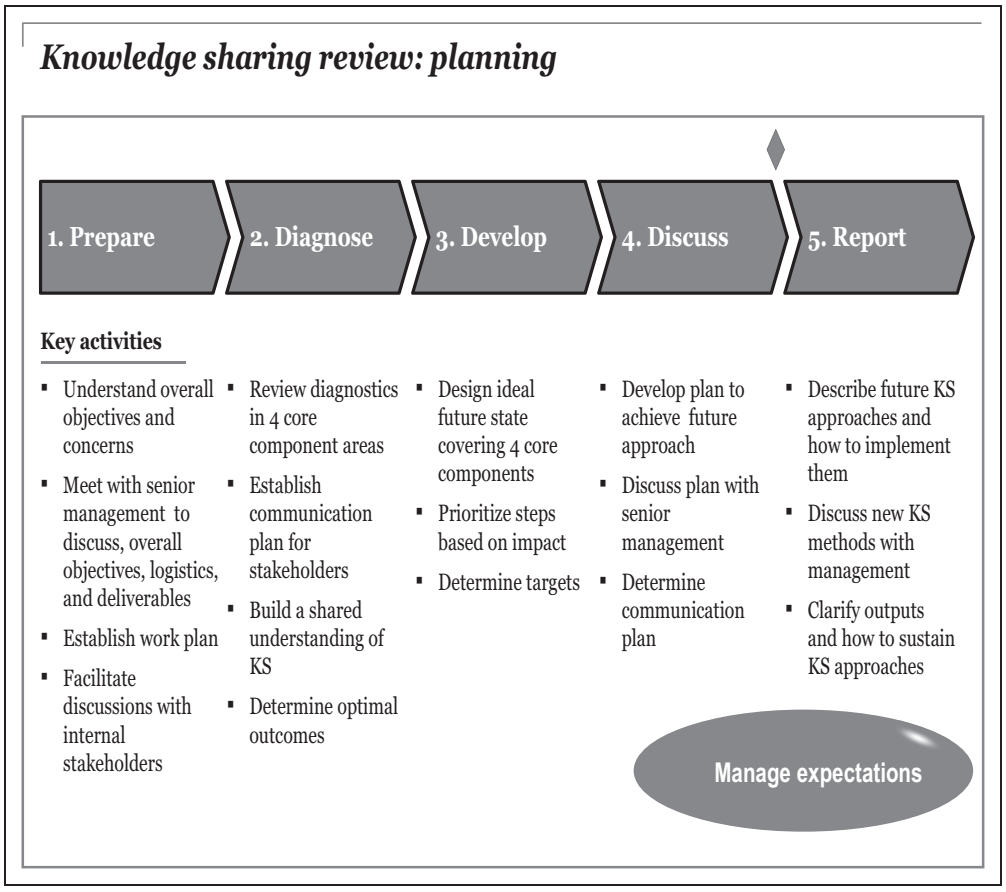

Figure 2. Planning chart for the evaluation/audit.

use of the four key components of the framework and establishing a communication plan (how to explain the process and results); *development* of initial recommendations and future steps and *discussing* them with senior management and others; and finally *reporting* on the findings and recommendations, including clarifying outputs.

Both organizations used diverse methodological approaches to triangulate information in several phases, including a comprehensive desk review of documents and consultancy reports, informal roundtable discussions, consultation meetings and semi-structured interviews. As mentioned above, interviews with the Director-Generals of the organizations were organized and all members of the senior management teams. For the roundtable discussions, participants were asked to provide comments on each of the components listed above including on: 'what works successfully'; 'what needs to be fixed'; and 'ideas for solutions'. In addition, WIPO designed a specific survey which was sent to all staff.

The involvement of top management from the outset of the study was crucial, not only to have buy-in but also to help engage the other important actors in the organization and encourage their involvement. Regular communication to all parties was key in explaining the objectives of the evaluation, the intended outcomes, and ensuring the involvement and participation of personnel. The reviews served as an opportunity not only to collect and glean information, but also to inform stakeholders about knowledge-sharing approaches used effectively in other organizations, examining good/best practices. On average, the reviews took four months to complete. They helped to map current knowledge sharing processes already undertaken and enumerate recommendations that would lead to the development of a roadmap and strategy for knowledge sharing covering:

- assessing and documenting what knowledge and information were needed to support activities;
- understanding the organizational environment, information flows, stakeholders and how these change with time and new mandates;
- finding ways of sharing/communicating information and knowledge;
- identifying technology tools, including social media to facilitate the process.

Findings and recommendations

In each final report, findings and recommendations were grouped by the core framework themes covered. These were similar in both organizations, although there were also clear differences.

Management capacities and competencies

Senior management and staff recognized that the concept of 'knowledge is power' was no longer acceptable. Some noted that they would be more willing to share their expertise and knowledge with others if an atmosphere of reciprocity was the de facto way of operation. The lack of mobility in these organizations and the long tenure of staff create a protectionist attitude that hinders collaboration and knowledge transfer. In addition, the organizations are bureaucracies which imply that there is little delegation, key decisions being taken at senior leadership levels in the organization. The role of managers to mentor their colleagues was highlighted and training and learning opportunities particularly for senior officials to encourage strategic knowledge creation and sharing.

Recommendations. Both organizations called for a concerted effort with senior level support to address knowledge sharing. WIPO called for a new strategy to be developed. The ILO audit recommended that an organization-wide initiative be launched highlighting knowledge sharing and identifying new approaches facilitating and emphasizing knowledge sharing as an essential and crucial component of organizational culture and leadership internally and externally. Another recommendation focused on establishing a new intellectual capital plan ensuring that knowledge does not just walk out the door when officials retire or leave the organization. Both organizations determined to address the issue of institutional memory.

Managing content

Because of the absence of coherent methods in various parts of both organizations, many departments established their own knowledge management procedures. Again, this was similar in both organizations where there is a plethora of data bases and organized collections of information; however, they have been developed using a variety of different standards and taxonomies and are fragmented. Information is generally pervasive and difficult to access effectively. Both organizations have libraries; however, they do not play a key role in championing knowledge sharing although they provide effective access to documentation and publications published by the organizations. There is an absence of practices to promote the sharing of and use of recommendations and advice by experts. Mission reports, seminar results and consultancy products are not easily accessible in an electronic document management system. Internal communications are also an issue. While both organizations have intranets, they do not serve as an effective entry-point and sharing tool for the institutions.

Recommendations. The role of internal communications, especially the further development and use of a digital workplace/intranet was stressed. In one organization, a new unit was proposed to be set up at a senior level to focus on knowledge sharing coordination, in particular on rethinking the intranet and coordinating its content, involving all departments. The group would be an enabler engaging departments in a common goal, working with a governance network. It would also oversee knowledge sharing initiatives and content management for all areas of the organization.

Collaboration, mind-sets and behaviours

The organizational culture of these organizations does not facilitate the systematic sharing of knowledge or collaboration. Knowledge sharing is not fully institutionalized as a natural cross-functional and cross-practice exercise. Much of the work takes place is specialized silos. Knowledge needs to be considered as a corporate asset, not an individual one. The performance evaluation systems need to include knowledge sharing competencies. Even though collaboration and knowledge sharing are assessed indirectly in performance evaluations, there are no real incentives for staff to share their knowledge and expertise across the organization. Leadership from managers should serve as an example to change mind-sets and encourage knowledge sharing, collaboration and communication.

Recommendations. In addition to a year-long initiative highlighting knowledge sharing, one recommendation was to make knowledge sharing competency mandatory as part of the performance evaluation process. In addition, a recommendation was made by one review to establish a mentoring programme, providing training particularly for managers in this regard.

Technology tools and social media

Whereas technology applications implemented in the organizations have helped WIPO and ILO to address coherent ways of managing information, there remain challenges in accessing and providing critical

information. Significant resources are needed to ensure sustainable information technology tools, systems, and content management procedures. Compliance and enforcement of office-wide applications, operating procedures and good practices are essential in ensuring a coherent approach.

Recommendations. The reviews explored the essential role of information technology in knowledge sharing and recommended better decision-making, oversight and governance at the highest level to ensure the selection and support for sustainable information technology tools, systems and content management processes. Both organizations recommend that a methodological approach is necessary rather than a laissez-faire approach which would not promote effective access and use of information and knowledge in the organizations.

Objectives met?

Both the ILO and WIPO aimed to have a better understanding of knowledge-sharing policies and practices in their organizations through the use of an evaluation or audit. Senior management were involved at all stages of the process and fully engaged in providing their views on what was important, what didn't work, what needed to be improved and ideas for solutions. One key question is: will this lead to action?

WIPO (2015) produced a knowledge management strategy based on the recommendations in the evaluation, organizing it around the same themes as were used in the methodological framework. The ILO also produced a new knowledge management strategy in 2018 using the information gleaned during the audit undertaken in 2017 and the recommendations made. In both organizations, the success of these strategies will depend very much on the decisions of the Director-Generals and senior management and how it is accepted and communicated internally and with constituents. However, does the development of a strategy lead to action? A plan of action and resources are needed to ensure positive steps forward, as well as commitment by senior management as to the importance of the initiative to reaching the overall objectives of the organization. Appointing a team leader and team are important first steps as well as determining reporting lines, setting up a governance structure and creating a plan and timetable. (Barnes and Milton, 2015)

Conclusions

This paper focused on the methods used in undertaking an audit and evaluation of knowledge sharing in two specialized agencies of the UN. The paper did not try to answer all the questions concerning how to improve knowledge sharing in these organizations, issues which are linked to organizational culture, international politics and bureaucracy. Despite their different mandates, the challenges of creating successful knowledge-sharing cultures and processes are very similar. Using a standard framework highlighting the overarching components of knowledge sharing supported the process by focusing on issues that were understood by the management and staff of the organizations reviewed and led to pragmatic recommendations covering the essential themes. Using this framework helped the organizations to view knowledge sharing as an essential component of their work, not a separate process on its own.

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ORCID iD

Linda Stoddart https://orcid.org/0000-0003-4906-4278

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Author biography

Linda Stoddart, PhD is adjunct faculty at the Haute école de gestion de Genève, Switzerland and works as a consultant to a number of organizations, on knowledge strategy issues and undertaking evaluations and knowledge audits. Linda was formerly the Academic Director of the MSc programme in Information and Knowledge Strategy, Columbia University. Previously, she held the position of

Director of Knowledge Management at the United Nations in New York, and was the Director of the Bureau of Information Services of the International Labour Organization (ILO), in Geneva, and Professor of Information Management at a business school in France, where she was responsible for an executive education programme for senior managers. Earlier, as Director of Information Systems at the International Federation of Red Cross and Red Crescent Societies, based in Geneva and later in Zimbabwe, she led the implementation of a global knowledge management strategy in field delegations and Red Cross national societies worldwide.

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The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

Spencer Acadia
Independent researcher, USA

Abstract

This article offers a conceptual framework of library dysfunction by defining it in terms of 'trap-gaps' that happen when libraries become stuck relying on their outdated, legacy habits that, in turn, lead to discontinuities in new organizational knowledge, competency, and strategy. According to the Organizational Trap-Gap Framework, library leaders may address trap-gaps by blending theories and methods from knowledge management, organizational learning, organizational behavior, and organizational development; supporting a new culture of learning that relies on the socially interactive and performative elements of play, questioning, and imagination; and applying new, reformed processes of knowing, competence, and strategizing. The article concludes with a hypothetical consideration of the trap-gap framework using lack of organizational communication as an example along with further reflection on pertinent issues related to library leaders' utility of the framework such as top-down dynamics, ethics, and cultural environment.

Keywords

Dysfunctional library, library management, knowledge management, organizational behavior, organizational development, organizational learning, organizational learning

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Introduction

Organizational dysfunction is widespread in libraries worldwide and has reached a critical point where the endurance of libraries is threatened. In 2017, the American Library Association published a book called *The Dysfunctional Library* by Henry, Eshleman, and Moniz wherein the authors convincingly argue, backed by survey research and previous literature, that the library workplace of today is in turmoil—libraries are internally disorganized, their employees discontented, and their leaders discouraged. The book takes, as does this article, a positive outlook by suggesting that libraries can improve and need not remain in dysfunctional states. Henry et al. (2017: 184) conclude that communication problems are the primary, but not exclusive, culprit for library dysfunction. They are not wrong—the lack of communication in libraries is a matter of serious concern. However, the current article offers a conceptual framework that looks deeper into the issue of library dysfunction by defining it in terms of 'trap-gaps' of which the lack of communication is one example. Trap-gaps happen when libraries become stuck in their legacy habits that, in turn, lead to discontinuities in knowledge, competency, and strategy.

Dysfunction as an organizational phenomenon is not well understood by administrators, executives, and other managers of library institutions. Even when dysfunction is acknowledged by leaders in libraries, library systems, and library consortia, they rarely know how to address it with any viable long-term sustainability. According to Henry et al. (2017: 25), continuity is central to functionality in any library workplace, and the current article aims to help library leaders think about organizational dysfunction as

Corresponding author:
Spencer Acadia, Independent researcher, USA.
Email: acadias1@gmail.com

discontinuity brought on by trap-gaps. Thus, when library dysfunction is thought of as trap-gaps, leaders may be better able to identify discontinuities in organizational competency, knowledge, and strategy. More precisely, library leaders are encouraged to think of trap-gaps in terms of knowing, competence, and strategizing as processes (instead of knowledge, competency, and strategy as things). That is, discontinuity happens not because any given pieces of knowledge, specific competencies, or parts of strategy are missing, but rather because there exist fundamental problems in the active processes that lead to the creation of those things. The processes of knowing, competence, and strategizing, therefore, are what requires attention if sustainable reduction of dysfunction is to be achieved. Once recognized, trap-gaps may be addressed by the core of the framework: (1) blending theories and methods from knowledge management, organizational learning, organizational behavior, and organizational development; (2) supporting a new culture of learning, as envisioned by Thomas and Brown (2011), that relies on the socially interactive and performative elements of play, questioning, and imagination; and (3) applying new, reformed processes of competence, strategizing, and knowing.

This article begins by briefly introducing the dysfunctional library according to Henry et al. (2017), followed by an overview of the Organizational Trap-Gap Framework. The overview provides a discussion of the trap-gap concept and its three core components, including Thomas and Brown's (2011) notion of a new culture of learning. The article concludes with hypothetical consideration of the framework using lack of communication as an example, as well as a discussion of further reflections pertinent to the framework and its potential utility by library leaders.

Important to clarify at the outset here is that this article, and the trap-gap framework itself, is purposefully broad; the very point of it is to provide a 'high-level' discussion meant to inspire library leaders to (re)think library dysfunction and the forms it might take in their own libraries, systems, and consortia. The framework is not prescriptive; that is, it does not set out to universally define a predetermined set of problems, hypotheses, cause-and-effect relationships, or solutions as these are dependent on individual library settings, nor is it, itself, a theory—it is a framework aimed to invigorate library leaders. Moreover, this article is not a study, nor is the framework a model, in the scientific sense; its purpose is not to describe a case study or generalizable empirical research that has been conducted, nor is the point of this article to offer any statistical account. Case studies, as well as generalizable ones, and statistical models that might be stimulated by the framework presented here are for library leaders and librarians to perform based on their own library's unique dysfunctional situations. The sole point of the framework and this article is to assist library leaders in opening new paths of contemplating, recognizing, and approaching dysfunction. As limited library literature exists that is fully focused on organizational dysfunction as a phenomenon, and none that seeks to intertwine the multifaceted aspects of the framework proposed here, library leaders should find that this article offers an original, innovative, and fresh start toward abstracting, analyzing, and abating dysfunction in the library workplace that, indeed, may lead to empirical case and generalized studies of library dysfunction.

The dysfunctional library context

In Henry et al.'s (2017) book *The Dysfunctional Library*, the authors make the case that libraries do not function well internally; that is, libraries are rife with toxic work cultures, communication problems, unhappy employees, disorganization, and deficient leadership, all of which negatively affect library employees individually as well as libraries, library systems, and library consortia. The authors conducted a survey of over 4000 librarians (Henry et al., 2017: xii) in the United States. Survey results indicate that more than 50% of respondents report working in a library having a dysfunctional culture and an overwhelming 91% report having been a victim of incivility at work (Henry et al., 2017: 40, 188). Given widespread evidence of their troubled internal state, libraries generally may be described as having dysfunctional work environments. Yet, this dysfunction is not exclusive to libraries; the reality is that many institutions and organizations globally, like libraries, deal with dysfunction (Henry et al., 2017: xii). Organizational dysfunction, in general, results in "markedly lower effectiveness, efficiency, and performance" of an organization (Balthazard et al., 2006: 710) and is usually viewed as something 'bad' and in need of attention, but can never be completely eradicated (Henry et al., 2017: 20, 161). The principal aim of library leaders is to keep dysfunction under enough control so that their libraries actively produce and proactively anticipate change.

Though academic libraries fall behind in innovating themselves compared to public and corporate libraries (Islam et al., 2017: 268), all libraries face change and the challenges that go with it. The absence

of change awareness, preparedness, and adaptability threatens libraries' improvement, not just externally in the form of providing new services to users, but also internally by way of transforming legacy thinking of times-gone-by that, in fact, are still stubbornly entrenched in times-of-today. Indeed, changes described as innovation often focus outwardly on user services rather than inwardly on improving organizational operation. While librarians and libraries may do well at dealing with *external* information and knowledge, they are less inclined to communicate and manage their own *internal* organizational information and knowledge. For nearly 20 years, extant library and information science literature (e.g. Islam et al., 2017: 267; Townley, 2001) has recognized the irony that libraries in their own ways are sufficient at handling information, especially for their users, yet remain insufficient in managing their own organizations' information and do not create new knowledge/knowing processes or practices that are sustainable long-term. If libraries could somehow harness their attentiveness to external elements and redirect some of their energy internally to help sustainably grow and mature themselves by attending to their own organizational problems, perhaps they could be less dysfunctional.

The Organizational Trap-Gap Framework: An overview

The current article presents a conceptual framework that recognizes the importance of organizational knowledge, competency, and strategy dynamics in the library workplace. In terms of dysfunction, these dynamics are viewed traps and gaps in *knowing*, *competence*, and *strategizing*. Traps are often discussed in extant literature specifically as competency traps, but, more generally, may be thought of as occurring when organizations cling to and replicate institutionalized processes, routines, mindsets, and workflows that go unquestioned and unchanged over time, likely because what was once a good-enough outcome was achieved from a now-insufficient procedure (Hislop et al., 2018: 96; Levitt and March, 1988: 322–323). Traps suppress innovation and manifest into a mentality of 'it's how we've always done things' so prevalent in libraries today. Gaps, classically framed in terms of knowledge gaps and strategy gaps (Zack, 1999: 135–136), can be thought of, in general, as disparity between two organizational states—where the organization is now in the present versus where it wants to go in the future. Traps and gaps in knowing, competence, and strategizing are defined in Table 1. Combined, a trap-gap is a condition where libraries are caught in traps that stymie their internal growth by dependency on reuse of outdated and mostly ineffective ways operating, as well as prevention of development and follow-through of new and progressive competence, strategizing, and knowing processes. When libraries get snarled in traps, they—whether they realize it or not—become complacent, allowing gaps based in knowledge, competency, and strategy to blossom and these continue to expand if left unattended. The danger here is that contented libraries are inactive and become stuck in their own trap-gaps where neither competency, knowledge, nor strategy are transformed, leading to continued (re)production of dysfunction.

Table 1. Working definitions of traps and gaps in knowing, competence, and strategizing.

Working Definitions	
Knowing	
Trap	A condition leading to organizational dysfunction where existing *knowledge-based* processes remain in practice that are no longer suitable for optimized operation in an evolving environment
Gap	A condition leading to organizational dysfunction where deficiency in existing *knowledge-based* processes prohibits attainment of increasingly desired and optimized states of operation
Competence	
Trap	A condition leading to organizational dysfunction where existing *competency-based* processes remain in practice that are no longer suitable for optimized operation in an evolving environment
Gap	A condition leading to organizational dysfunction where deficiency in existing *competency-based* processes prohibits attainment of increasingly desired and optimized states of operation
Strategizing	
Trap	A condition leading to organizational dysfunction where existing *strategy-based* processes remain in practice that are no longer suitable for optimized operation in an evolving environment
Gap	A condition leading to organizational dysfunction where deficiency in existing *strategy-based* processes prohibits attainment of increasingly desired and optimized states of operation

The development of the trap-gap framework presented here is inspired by the recognition of dysfunction in libraries and conceptualizing such dysfunction

as deeply rooted problems related to processes of strategizing, competence, and knowing. The framework intentionally draws attention to active processes rather than set states or objects, preferring the term *knowing* instead of knowledge, *competence* instead of competency, and *strategizing* instead of strategy, though the latter forms of these terms are more commonly used in much of the knowledge- and learning-based organizational and management literature. The use of these preferred terms is intentional. Polanyi (1966/2009: 7), in his landmark book *The Tacit Dimension*, wrote that he, himself, "shall always speak of *knowing* . . . to cover both practical and theoretical knowledge" [emphasis mine]. Gourlay (2006: 1422) confirmed that "Polanyi used 'knowledge' to mean a *process*, 'knowing,' not an object" [emphasis in original]. Thus, following Blackler (1995), Cook and Brown (1999: 387–388), and Örtenblad (2018: 153), library leaders should place their energies on supporting the dynamic processes of knowing (versus knowledge), competence (versus competency), and strategizing (versus strategy) as socially constructed and constituted interactions and performances. The viewing of competence, strategizing, and knowing as fluid performativity and interaction rather than stationary, taken-for-granted 'things' may be uncomfortable for library leaders, yet they must become familiar with this discomfort because these processes are relative and negotiated, produced and reproduced in sociocultural spaces that are, themselves, relative and negotiated.

For 40 some-odd years, existing academic and practitioner-based literature in management, broadly defined, has called for new avenues through which to explore the connections between knowledge, culture, learning, and organizations. In the 1980s, Pacanowsky and O'Donnell-Trujillo (1983) were already calling for a fresh, updated look at the role of formalized organizational structure. In their example, organizational communication is best explained not in terms of how an organization is structured, per se, but instead as cultural performativity; that is, communication and its meanings are cultural phenomena performed by social actors. Blackler (1995: 1035) called for the abandonment of "old concepts" and advocated for new ways of "conceptualizing the multidimensional process of knowing and doing." In the early 2000s, Easterby-Smith et al. (2000: 790) and Amin and Cohendet (2004: 30) recognized that a new emphasis or unit of analysis was needed: many researchers and practitioners had long focused their attention on individuals, groups, and organizations as their main point of interest rather than on the social and cultural features that shape and impact those individual, group, and organizational levels. Noting the importance of sociocultural aspects, Day (2005: 631) wrote that the expression of knowledge should be seen as "culturally recognized sets of performances called 'knowing'" and, along the same lines, Crane and Bontis (2014: 1132–1133) preferred the term 'tacit knowing' over 'tacit knowledge' because the former implies performative action while the latter does not. Finally, Örtenblad (2018: 153) notes that a "newer, social perspective of organizational learning" is emerging "but rarely present" and is based on the idea of collective learning, the notion that learning is both social and cultural, and the view that all learning is context-dependent. Thus, over time, an increasing number of practitioners and scholars have observed, conceptually at least, that 'the social' and 'the cultural' are fundamental in the organizational aspects of learning and knowledge. The trap-gap framework, therefore, is situated at the nexus of both the call for new ways of thinking about organizations in terms of their cultural and social attributes, and the need to address rampant dysfunction found in libraries.

The trap-gap framework endorses a shift away from the usual examination of individuals, teams, and organizations as units of analysis toward, instead, the active processes themselves that constitute knowing, strategizing, and competence at whatever level they exist. Towards solving dysfunctional issues of discontinuity brought on by trap-gaps, the framework encourages development of collective, targeted (i.e. context-specific), and action-based systemic processes of knowing, competence, and strategizing to ameliorate dysfunction and establish continuity. Although the principal intent and benefit of the framework is skewed toward the organizational context, it accepts that problems may occur at any or all levels—individual, group, and organizational. Thus, library leaders can use the framework to think about dysfunction at whichever level they choose, whether that be individual employees; groups, teams, or departments; or organizations as entities, keeping in mind that the primary purpose of it, conceptually, is geared toward institutional improvement.

A schematic of the Organizational Trap-Gap Framework is presented as Figure 1. The framework shows that trap-gaps lead to organizational dysfunction, and this dysfunction feeds back into maintaining trap-gaps. Toward breaking this link and reducing dysfunction, library leaders intervene by acknowledging their traps and gaps and the dysfunction they cause and commit to doing what they can to facilitate solutions; this is expressed by the thick arrow pointing towards the core of the framework containing three parts: (1) using a blended approach of theories and

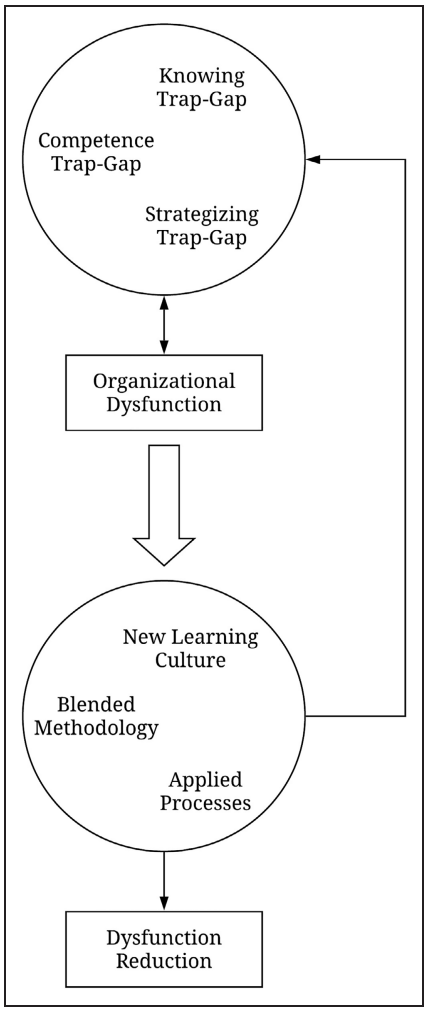

Figure 1. Conceptual representation of the organizational trap-gap framework.

methods from the fields of knowledge management, organizational learning, organizational behavior, and organizational development; (2) supporting a new culture of learning where the reflexive relationships of play, questioning, and imagination embedded within social interaction and performativity may be explored; and (3) building new processes of applied knowing, competence, and strategizing that lead to outcomes for sustainably reducing and controlling organizational dysfunction. Generally, two outcomes are possible: either intervention by library leaders is successful in some way and dysfunction is reduced, or intervention is unsuccessful, and reconsideration of approach is needed.

Blended methodology

Although Davenport et al. (1998: 43) believed that "conceptual analysis is of little use to practitioners faced with questions about what specifically they should do as managers of knowledge," the trap-gap framework contends that utility of the practical (methods) *along with* the conceptual (theories) is required if dysfunctional libraries are to be improved in any sustainable way. Both Budd (2001: 203-205) and Leckie and Buschman (2010: xi) realized the usual reluctance of library and information science (LIS) practitioners to combine theory and methods *together* towards better informed applied practice and conceptual inquiry, yet it is this combination that libraries must embrace if they are to transform their current dysfunctional state—one without the other is careless and incomplete. Specifically, the trap-gap framework necessitates library leaders consider the breadth of methodological options (i.e. theories and methods) provided by the four fields of knowledge management (KM), organizational learning (OL), organizational behavior (OB), and organizational development (OD). Each of these analyzes the multifaceted phenomena of knowledge/knowing, competency/competence, and strategy/strategizing—and how these relate to learning—but do so through differing methods and theories often borrowed from or augmented by the disciplines of sociology, psychology, education, communication, computer science, economics, philosophy, and so on. These disciplines are at times complementary and at other times disparate. For these reasons, KM, OL, OB, or OD alone cannot be—and has not been—consistently successful in dealing with the complexities of organizational dysfunction. A blended methodology comprised of theory and methods borrowed from all four, however, exposes library leaders to an abundance of theoretical and applied techniques that better inform how to think about, describe, and act upon the discontinuities in competence, strategizing, and knowing at their libraries.

The first of these, knowledge management (KM), came into favor during the early-to-mid 1990s, though its intellectual traditions stretch back into the 1950s and 1960s (Lambe, 2011). Over decades, myriad and sometimes conflicting definitions of KM have been offered, but one of the best definitions was provided nearly 20 years ago by De Long and Fahey (2000: 115): "to enhance organizational performance by explicitly designing and implementing tools, processes, systems, structures, and cultures to improve creation, sharing, and use . . . " of knowledge. The measurement of organizational performance—in the traditional way that managers aim to do—will vary depending on organizational priorities. This definition of KM is useful because it, first, suggests that continuity of organizational knowledge—as a facet of organizational performance—*can* be improved and, second, paves a general path towards doing so though

creation and deployment of systematized mechanisms (i.e. organizational tools, processes, cultures, etc.)

Like KM, the field of organizational learning (OL) also has a history of conceptual and definitional conflict, mostly because there is little consensus on how learning occurs at the organizational level. Learning *in* organizations can be done by employees as individuals but learning *by* organizations suggests an organizational cognition wherein learning is something beyond organizations' members (Watkins and Kim, 2018: 15-16). Often, 'knowers' and 'learners' are thought of as individuals, but organizations may be knowers and learners, too, as Porrini and Starbuck (2015: 74) explained that "an organization's knowledge is both more or less than the sum of the knowledge held by its individual members" because individual knowledge becomes a part of organizational knowledge and culture in the form of norms, beliefs, procedures, systems, memories, and more. Tsoukas (2006: 15) describes the "collective mind" as "an *emergent joint accomplishment* rather than an already-defined representation of any one individual" [emphasis in original]. Out of an organization's collective mind emerge vision and mission statements, for example, but an organization itself cannot learn what to do with those without people in place. Even though the trap-gap framework is ultimately aimed at organizations, its success still depends on individual library employees who are learning-coordinated because organizations learn "not because they think and behave independently of the people who work within them (they cannot), but through the embedding of individual and group learning in organizational processes, routines, structures, databases, systems of rules, etc." (Hislop et al., 2018: 94).

As a discipline, organizational behavior (OB) is related to organizational learning in that they both are concerned with how organizations operate. However, whereas OL focuses on the cognitive, social, and cultural aspects of how organizations and the people within them *learn*, OB is concerned with how and why organizations and their employees *behave*, as well as the cognitive underpinnings that guide their behaviors. For example, Parent and Lovelace (2018: 207, 210) propose that *organizational* engagement, defined as "an individual's involvement and satisfaction with and enthusiasm for their workplace [and] the positive attitude held by the employee toward the organization and its values," is a predictor of improved adaptability to change, whereas *job* engagement, that is, focusing merely on job tasks and roles, diminishes employee change adaptability. Importantly in Parent and Lovelace's (2018: 208) model, engagement is dependent on a positive organizational culture "where employees can develop, grow, and operate at their full potential." Though Parent and Lovelace do not explicitly mention learning in their model, they use the theoretical backdrop of positive psychology which validates the importance of learning as a pathway for resilience from workplace challenges (Youssef and Luthans, 2007: 778).

Finally, organizational development (OD), too, has been defined in various ways, but the underlying theme is continuous, knowledge-based change (Balthazard et al., 2006: 711). Though OD has been around since at least the 1960s, it was not taken up by academic libraries until the 1990s (Holloway, 2004: 8), around the same time KM came into prominence. Holloway explains the 30-year gap as a problem of the continued rigid and hierarchical structure of higher education within which academic libraries operate. While libraries have wanted to evolve with quicker pace, thanks largely to new technological influx, universities themselves continue to move sluggishly relative to swift global change.

Although none of these definitions refer to knowledge management, organizational learning, organizational behavior, and organizational development explicitly in methodological terms, the current article frames them as such: KM, OL, OB, and OD can serve *as* library methodologies—manners of exploring, examining, and explaining new theoretical and applied directions in knowledge/knowing. Thinking of these as methodologies rather than only as distinct fields or sub-fields frees them from their disciplinary constraints. The debate of whether KM, OL, OB, and OD are better represented by computer science, or education, or management, or psychology, or sociology, etc. suddenly becomes less important when scholars and practitioners envision them as methodologies, comprised of multidisciplinary methods and theories. Blended together, these provide access to a plethora of ways to account for issues related to organizational dysfunction in libraries. Despite being interested in some of the very same issues, a blended approach of these fields is uncommon; academicians and practitioners tend not to communicate well across disciplines even when faced with identical topics and issues (see Jonsson's (2015: 46–47, 55) mention of KM, OL, and the learning organization, for example).

Theories and methods are the intellectual and applied techniques individuals, groups, and organizations use to explore, explain, and carry out action. Many theories and methods may be relevant for and applicable to libraries in their efforts to deal with internal dysfunction. Among possible theories and theoretical ideas library leaders might consider are, but not limited to, those of attribution, discourse,

networks, schema, sensemaking, social exchange, social identity, structuration, systems, and rational choice (and there are many others), while potential methods and systematic approaches could include best practices, communities of practice, gamification, internal interviewing, lessons learned, mentoring, digital repositories, rewarding (intrinsic and/or extrinsic), storytelling, and Web 2.0 (again, there are many others). In all cases, library leaders must judge the utility of theories and methods for their library situations and, in choosing how to proceed, must be realistic and realize that investigation and implementation of all possible ones is not feasible. Instead, leaders must decide which specific ones have the best applied potential to meet their current and evolving knowing, competence, and strategizing needs within their distinct dysfunctional environment.

An important consideration for library leaders is the question of if attending to trap-gaps is always 'good' and desirable for libraries. Generally, the answer is yes, but leaders still must be able to recognize and articulate precisely what are the actual or intended benefits of specified theories and methods tailored for their specific library rather than rely on means that are too general for their library's unique situations. The theories and methods taken up by leaders will depend on the methodological applicability of them to confront the severity of their library's dysfunction and its overall plan of sustainable action. Through their evaluation and selection process, library leaders may realize—perhaps for the first time—what are their current and anticipated capacities and capabilities for organizational change, an important realization because "many organizations tend to launch programs without due consideration of capabilities to guarantee any measure of success" (Gold et al., 2000: 206).

In choosing which theories and methods to use from a blended KM, OL, OB, and OD approach, libraries may benefit, as a starting point, from conducting a trap and/or gap analysis (Dalkir, 2017: 348–349) to ascertain, for instance, what knowledge/knowing is missing. Trap-gaps are not static, discrete, and unchanging; more accurately, their boundaries are liquid and constantly shift. To become unstuck from a trap-gap, therefore, requires a blended, flexible, dynamic methodology that goes beyond one-shot solutions all too common in libraries. Rather, addressing trap-gaps requires an iterative means of continually revisiting continuity over time by way of theories and methods grounded in an understanding of *how* knowledge, competency, and strategy themselves change in their processes, not just *what* constitutes those changes in their outcomes. Similarly, while trap-gap analyses may be useful as a first step, figuring out *how* these traps and gaps (re)form over time and context, rather than simply determining *that* they exist in the here-and-now, should be expected and, therefore, likely will need to be performed periodically.

New learning culture and new learning organization

Organizational culture—shared values, norms, beliefs, goals, etc.—has much to do with the learning that underpins knowing, competence, and strategizing because "culture fundamentally influences what organizations do—and it is both learned by people and yet consists of more than the aggregate of learning of individuals" (Watkins and Kim, 2018: 16). Leaders may recognize that culture plays a key role in organizations, and that knowledge and culture are somehow linked, yet wrestle with how to understand them together (De Long and Fahey, 2000: 113). Although the importance of organizational culture in knowledge/knowing is known, and calls for prioritization by leaders of organizations to facilitate constant employee learning and inspiration are clear, leaders still struggle to foster a vibrant organizational culture that is conducive to sustainable learning, rendering the culture itself stagnant and an impediment to organizational improvement (Davenport et al., 1998: 52–54; Gold et al., 2000: 189; Kulkarni et al., 2007: 340; Ribière and Sitar, 2003: 46). The function of learning cultures in organizations, therefore, should be to pair culture with learning in ways that lead to organizational improvement. Correlational evidence has, indeed, shown statistically significant relationships between learning culture and organizational performance (Watkins and Kim, 2018: 18, 21). Thus, libraries as organizations must take seriously and strive to understand how learning culture is an operational influence, and, toward that end, their leaders must discover how to sustain that learning culture which adapts as challenges arise (Henry et al., 2017: 31-32).

If library dysfunction is to be reduced, a cultural revolution is needed, particularly one that transforms organizational processes of knowledge/knowing, competence/competency, and strategy/strategizing. Although the term 'knowledge culture' has been used by others (e.g., Intezari et al., 2017), and because the term 'learning culture' itself is a bit too generic, the specified term '*new* learning culture' is most appropriate and employed here as an equivalent to Thomas and Brown's (2011) phrase 'new culture of learning.' The addition of the word *new* in the context of *learning* and *culture* is intentional and signifies a shift

away from 'old' and outdated approaches to learning still entrenched in many organizations, especially institutions of higher education and their libraries. Thomas and Brown base their notion of new learning culture on the central idea that most current methods of learning used in higher education (e.g. students sitting in a classroom listening to a lecture or rote memorizing of 'facts' for a multiple-choice exam) are less relevant in a world of fast-paced, interconnected, and technological global change than are action-based, participative, peer-to-peer, and experiential methods. Thus, according to Thomas and Brown, new approaches to learning are needed that are flexible and fluid, adapting and corresponding to the technological, information-driven, 'instant' environment—that, itself, is fluid and flexible—in which humans now live. For Thomas and Brown (2011: 18–19, 116–117), these approaches in new learning culture must be founded in play, questioning, and imagination; learning by way of these occur in a "bounded and structured environment that allows for unlimited agency to build and experiment with things" afforded by the "massive information network that provides almost unlimited access and resources to learn about anything" now made possible by Internet technology. Thomas and Brown's focus is on students in higher education, but their concept of new culture of learning is equally salient for organizational contexts.

New learning culture is relevant to organizations because it "gives us the freedom to make the general personal and then share our personal experience in a way that, in turn, adds to the general flow of knowledge" while still providing the bounded and constrained parameters within which to operate (Thomas and Brown, 2011: 31, 81). For example, Thomas and Brown (2011: 97) noted that play is important because it engages people in experimentation and allows for negotiation of meaning with oneself and others. Library employees in a department and/or those centered around a common interest may engage in workplace experimentation through use of shared creative online spaces using any number of collaboration and project tools within which ideas, prototypes, diagrams, audiovisual mashups, and more may be exchanged and worked on in real time. In this way, "expertise and authority are dispersed rather than centralized;" employees are not taught about using these creative spaces *from* colleagues, but rather learn how to use them through interactive and personalized engagement *with* colleagues in those spaces, an important distinction for collaborative learning in new learning culture (Thomas and Brown, 2011: 38, 67, 71). In these shared, online creative spaces, employees experiment in ways that allow them to make something that may be both personal to them and general to the organization at the same time. For instance, one or more librarians' drawing of a flowchart based on their own work experiences of project management may inform the rest of the group about a specific way to sequence an information literacy audiovisual tutorial, and the logic behind that flowchart might result in a new institutional best practice of tutorial creation.

Although Thomas and Brown (2011) do not integrate their new culture of learning into the concept of the 'learning organization,' doing so may have its merits. Extant literature on the idea of learning organization is plentiful, though some have asked if the concept is dead (Pedler and Burgoyne, 2017). Watson and Kim (2018: 19) describe a learning organization as one which

> . . . has an enhanced capacity to learn and to transform. Organizations structured to promote continuous learning have a culture that provides an infrastructure rich with resources and tools for individuals to engage in formal and especially *informal* learning. It facilitates and encourages *dialogue and inquiry* at all levels. Systems are in place to capture suggestions for change and lessons learned. The culture emphasizes *team learning* and a *spirit of collaboration* in order to promote cross-unit learning. Central to the culture is that it empowers people to enact a *collective* vision and makes systemic connections between the organization and its environment, scanning the environment to learn and anticipate future needs. [all emphases mine]

Results from Pedler and Burgoyne's (2017) inquiry about the state of the learning organization are inconclusive, though, perhaps in the same way that Thomas and Brown introduced the notion of a new culture of learning, the idea of a *new learning organization* along the very same lines of change could be useful because evident connections between the two, conceptually at least, are already possible. For instance, the 'standard' notion of the learning organization already espouses the importance of informal learning which, in a new learning culture, happens through experimental play, inquiry, and imagination. The idea of a new learning organization, then, would be one where such informal learning occurs in imaginative, inquisitive, and experimental shared online spaces. To think of libraries distinctly, and suddenly, as new learning organizations operating with a new learning culture may seem daunting. Nonetheless, the transformative possibilities of 'new' as mentioned here could be beneficial in working towards the internal cultural revolution libraries so desperately need.

Much like knowledge management, organizational learning, organizational behavior, and organizational

development, the idea of a learning organization in its traditional meaning is not without criticism. Critics maintain that the concept of a learning organization is an unattainable ideal because inherent in the employer-employee relationship is a "'democratic deficit' where the values, ideas, and interests of workers are largely downplayed [and] the authority and knowledge of management is privileged" (Hislop et al., 2018: 102). At the same time neither is Nonaka's (1991) long-held, and often recapitulated, idea of a knowledge-creating company democratic. While library leaders may think their libraries are learning or knowledge-creating organizations, it is more likely the case that—based on Watkins and Kim's (2018) description—they are not, neither in democratic agreement among their employees, nor in activities tied to mission and vision statements. Lecture-style training sessions and webinars provided by specialists or experts, for instance, may have some perfunctory utility for libraries, but they do not represent a new learning culture of a new learning organization. Library employees might not be autonomous enough from their leaders to fully engage in the experimental nature of what a new learning culture and new learning organization entails, but, nonetheless, at least in principle, thinking of libraries as *new libraries*—that is, as new learning organizations with a new learning culture—may be conceptually advantageous for library leaders and their staff to move beyond cursory training and habitual thinking.

Applied knowing, competence, and strategizing

Though Thomas and Brown's new learning culture provides the space for creation of new knowing, competence, and strategizing processes, their systematization, optimization, and continual transformation for institutional benefit is not automatic. For these processes to materialize in outcomes, they must be applied in practice. Using mathematical theory as an example, Polanyi (1966/2009: 17) wrote that such theory "can only be learned by practicing its application: its true knowledge lies in its ability to use it." Some extant literature already has emphasized the importance of creating new knowledge/knowing with an applied purpose for real-life applicability in workplaces and organizations (Brown and Duguid, 2001: 200; Dalkir, 2017: 3–5, 29; Gold et al., 2000: 187; Islam et al., 2017: 277). Inherent in the trap-gap framework, therefore, is the principle of application. Library leaders must first learn how to develop their processes of knowing, competence, and strategizing, then subsequently *apply* those processes to remediate their corresponding trap-gaps and reduce organizational dysfunction. Toward reduction and control of this dysfunction, libraries must not only become steadfast in applying new ways of conducting itself over time but also be ready to recognize strengths and weaknesses of outcomes when they arise and sustain those processes which lead to advantageous results for the organization.

Application of competence, knowing, strategizing processes should be demonstrable and assessable in some way as trap-gaps are challenged by library leaders with solutions based on specified concerns. To show value, library leaders would ideally calculate or measure direct impact of application cross-sectionally, or longitudinally in optimal cases, but neither are always possible due to the obscure and complicated nature of knowing, strategizing, and competence, as well as new learning culture itself. Even sophisticated techniques such as those proposed in studies by Huang (2014), Aharony (2011), and others, as analytically useful as they are, do not measure applied value or effects *directly* or *in practice*. In truth, the real effects library leaders want to see are likely not directly measurable and trying to quantify them may, in the end, be in vain. Writing about knowledge management, Garfield (2017: 175–176) wrote that just because calculation of a return on investment is not always possible does not mean that there are no benefits to be had. In fact, where measurement has happened in knowledge management projects, most end in failure, one reason for which is lack of an organizational culture that promotes knowledge sharing (Lam and Chua, 2005: 424, 429). Although the terms 'learning' and 'knowledge sharing' are not synonymous, they are related because the sharing of knowledge may lead to learning.

Over recent decades, a lot of management literature has talked about the success or failure of organizational change projects. The same tendency exists in libraries, too, to discuss projects in terms of successes or failures, especially as they puzzle over how to determine their own value in today's information-competitive and budget-declining environments. The success/failure dichotomy, however, is irrational and should be put to rest in favor of a perspective that looks at failure and success not as an either/or dualism but rather as a range of possibility. Success and failure co-exist; they are not independent of the other or of the organizational environment. In a new learning organization, attainment of success or falling into failure in an organizational library project depends on social interaction, negotiation, and performativity not unlike that found for knowing, competence, and strategizing. That is, the parameters of what counts as a success or a failure are not fixed, rather those

boundaries change from one project, situation, or library to another and, as such, are regularly (re)negotiated. Because what counts as a failure or success varies, it is questionable for libraries to hold on to a rigid success/failure dichotomy when a dynamic alternative is possible. Success and failure are not directly manageable, not even in quantifiable instances, because they occur in imperfect organizational space with employees, all of which are unpredictable. This line of reasoning harkens back to Tsoukas' (1996) and Tsoukas and Vladimirou's (2001) assertion that complete and total control over any given situation, which is what some leaders expect, is impossible. Instead, failure and success can only be *indirectly* managed in social and cultural space. Such a view may, again, make library leaders uncomfortable because they are accustomed to managing and measuring 'things' rather than processes. Nonetheless, libraries will never be sustainable if they continue to think of their successes and failures as dependent on arbitrarily achieving *what-goals* instead of concentrating on the development of *how-goals*.

Sustainability conjures up notions of retention, reuse, (re)transformation, reinforcement, and other actions with persistence and stability in mind. How libraries sustain continuity of their knowing, competence, and strategizing processes depends on their own judgement because individual libraries, systems, and consortia face different organizational trap-gaps and degrees of dysfunction. Specific implementations toward sustainability will depend on the realities of their own trap-gap situations, how they decide to describe those situations, and which KM, OL, OB, and OD theories and methods they decide might help mitigate their organizational discontinuity. Such a contingent approach—that is, basing chosen methods and theories depending on specific problems—is a reframing of the question posed by Huber (1991: 102) who asked: "Should organizational learning be defined in terms of the *commonality* of [information] interpretation, or should it be defined in terms of the *variety* of [information] interpretations held by the organization's various units" [emphasis mine]? The essence of Huber's argument calls into question the role of *convergence* (i.e. unity and agreement) as an optimal organizational state. Instead, Huber (1991: 102) suggests that *divergence* is more indicative of organizational learning; that is, "it seems reasonable to conclude that more learning has occurred when more and more varied [information] interpretations have been developed." The principle behind Huber's reasoning is relevant for library leaders in two ways. First, the consideration of KM, OL, OB, and OD as methodologies: concentrating on any one of them, or on applying any single theory and method from them, toward solving complex institutional problems is unsound because it places limits on possible solutions. Second, the very nature of the new learning culture: questioning, play, and imagination require divergent thinking and reasoning. Library leaders, then, must be willing to embrace divergence in their investigations and explorations of ways to address library trap-gaps so that they can choose from a wider range of potentialities for application.

Finally, in their study of knowledge management, Hussinki et al. (2017) asked if KM practices are universally applicable or culture- and context-specific. With a sample size of over 600 firms across the four countries of China, Finland, Russia, and Spain, Hussinki et al. (2017: 1609) concluded that "the phenomenon of KM practices is primarily context-specific, as many differences existed between the studied countries." Extrapolating Hussinki et al.'s conclusion more broadly, library leaders must infer also that OL, OB, and OD, along with KM, have cross-cultural implications where, while human-based *similarities* may exist, there are culture- and context-based *variances* that influence the effectiveness of some methods and theories over others. Thus, the trap-gap framework does not support striving for unattainable universal answers, but rather suggests aiming for applicable, pragmatic solutions that account for contextual and cultural nuances found in libraries, library systems, and library consortia worldwide. The same logic, too, is appropriate for new learning culture—all people can experiment, be inquisitive, and engage their imagination, but the ways in which they do so, and under what conditions, may vary cross-culturally around the world.

The Organizational Trap-Gap Framework in the dysfunctional library

To recap, the Organizational Trap-Gap Framework frames library dysfunction in terms of discontinuity caused by traps and gaps in knowing, competence, and strategizing as defined in Table 1. Libraries get stuck in traps when they become complacent, failing to move away from the "it's how we've always done things" mentality and other unproductive legacy attitudes (e.g. "that's someone else's problem," "we don't provide that service," "that just won't work," "we can't do that," etc.) When trapped, libraries sit in a weakened, immobilized state where their gaps in knowing, strategizing, and competence become deeper and wider, making it challenging for them to rise above this. Dysfunction may be mitigated through successful adaptation of new strategizing, knowing,

and competence processes. These new processes may arise out of the tripartite combination of blending KM, OL, OB, and OD methodologies; following a new culture of learning by way of play, questioning, and imagination; and applying new operational processes that are sustainable. The framework is a conceptual aid—not a theory, per se, nor an empirical model—to help library leaders think broadly and at a high level about dysfunction; how the framework plays out for individual libraries will vary depending on their own unique trap-gap situations and levels of dysfunctional severity. Library leaders must be willing to admit dysfunction exists, call it out, and be up front about it so that it can be addressed; acknowledging dysfunction is a key, positive step towards its control and reduction (Henry et al., 2017: 165, 177, 182).

A hypothetical example of the framework in use

Henry et al. (2017: 166, 184) provide three messages, or directives, to library leaders for thinking about lack of communication which, for them, is the greatest source of library dysfunction. Two of these directives are combined here to show hypothetically how the trap-gap framework might be useful: all library employees should be continually informed by library leaders of how library goals will be met, as well as if the goals are, in fact, met or not. When library leaders do not communicate key information such as this to library employees, organizational dysfunction is heightened. Following Henry et al. (2017), library leaders, first, must acknowledge that lack of communication is problematic and a form of a trap-gap. In the trap-gap framework, lack of communication is one of any number of possible traps and gaps—it is a trap because restricted communication flow paralyzes library advancement by keeping the organization quiet and uninformed; it is a gap because without free-flowing communication transparency and decision-making is compromised. Lack of communication, as a form of discontinuity in knowing, competence, and strategizing, is both a trap and a gap that yields a dysfunctional library workplace. Organizations are "systems of purposeful activity" (Spender, 1996: 64) and library leaders must be able to communicate their library's purpose and the proposed actions to fulfill that purpose.

The second step for library leaders is to engage in the triadic core of the trap-gap framework. In terms of blended methodology, library leaders might identify a connection, for example, between the diffusion of innovation theory (see Weiner, 2003: 72–75) and lack of organizational communication about vision and goals where the lack of communication about the library's purpose, its goals, and overall vision, is holding back proliferation of new, innovative ideas. Leaders may see that this "asymmetry of knowledge," where organizational purpose, goals, vision, etc.—if they even exist in any substantive form—are held at the top without funneling down to employees, could be approached using an array of methods in successive stages from a communication strategy framework such as that proposed by Al-Hawamdeh (2003: 111–112, 116–118).

Organizations are not accustomed to regarding imagination, play, and inquiry as suitable ways of communication, yet they should be because these are, in essence and broadly construed, sensemaking techniques. Sensemaking, in its broadest sense, may be thought of as the assignment of meanings and interpretations (i.e. *what* does it mean?) within contexts (i.e. *where* does it mean?) through socially interactive and iterative communication (Maitlis, 2005; Thomas and Brown, 2011: 95; Weick et al., 2005). Employees, including library leaders themselves, who engage in experimental play, questioning, and imagination as part of a new learning culture reflexively *do* sensemaking and these *are* forms of communication. Thus, if lack of communication about a library's purpose is a problem, a library leader might draw upon those *communicative* foundations of new learning culture—play, questioning, and imagination—toward helping employees 'make sense' of what the library is supposed to do and be. Via sensemaking by way of this shared communication, asymmetry of knowledge—or, more appropriately, asymmetry of knowing—with regards to a library's goals, mission, vision, etc. becomes more distributed.

Continuing with the example of lack of communication, library leaders might aim to provide spaces where and tools through which employees may engage in communicative sensemaking with each other *through* the library's purpose (e.g. mission, vision, goals, etc.) Web 2.0 channels that encourage interaction and reciprocal engagement could be an applied solution aimed at facilitating the flow of communication. For example, organizational blogs, wikis, text messages, tagging, social media, and audiovisual content sharing could be used as internal communication playgrounds where employees explore meaning through sensemaking.

Islam et al. (2014: 328), with their emphasis on knowledge management, coined the term "KML 2.0" to mean "KM using Web 2.0 in libraries" and existing research shows Web 2.0's potential as a collective tool of communication for libraries (Jones and Harvey, 2016; Kim and Abbas, 2010). More research

is needed, however, on how Web 2.0 might be used among library staff for internal, institutional matters (versus the much more common use for and pertaining to external users).

Further considerations

Library leaders—those with formal titles (e.g. directors, managers, deans, department heads, etc.) and those who are innovative 'trailblazers' and 'movers-and-shakers' but without formal administrative titles—may find benefit in considering the trap-gap framework for contemplating reduction and control of dysfunction at their libraries. After all, "the problem-solving burden ultimately rests on the shoulders of library leaders" (Henry et al., 2017: 178). Although library leaders are well positioned to take the lead on problems of organizational dysfunction at their library, they should be wary of 'top-down' perceptions among library personnel. Leaders should position themselves as *facilitators* of learning; that is, 'evolving' a new learning culture that acknowledges and supports both formal and informal learning. Two important points made by Ribière and Sitar (2003: 42–43) should be emphasized: (1) avoidance of the term 'change' when talking about culture because organizational change is associated with employee resistance; instead, the more favorable term 'evolve' is preferred because it signals a process that is less jarring, and (2) leadership style should embrace "setting direction, motivating, and inspiring employees" rather than commanding them. Another way that library leaders might avoid top-down perceptions among staff is to ascertain 'readiness' of employees; that is, how prepared are library staff to accept something new and different than what they are accustomed? According to Marouf (2017: 139), leaders must "assess the readiness of their organization prior to implementation [of something new] to avoid failure and wasting resources, time, and effort."

Following well-known economist Kenneth Arrow's 1970s work, Lambe (2011: 182) notes that organizations might address their need for new knowledge by simply replacing employees; those who do not have required knowledge or competencies are ousted for those who do. Such a view seems more commonplace in private industry where, for example in a study by Dymock and McCarthy (2006: 535), an Australian company "made no secret of the fact that it expected its workers to be learners for the sake of the organization, and those who would not were encouraged to move on." However, such a view calls into question the role and value of people consistency in organizations, implying that employee discontinuity (i.e. replacing employees as needed based on what they know or do not know *now*) is necessary to achieve organizational continuity. To be sure, employee recruitment and replacement has its time and place, and training and continued education of employees is costly and time-consuming. Nonetheless, library leaders have a responsibility to facilitate an environment where employees have new opportunities to grow, learn, and become organizational champions as the first line of action before encouraging them to leave on their own. However, should library leaders force organizational participation on an unwilling employee or, said another way, should organizationally nonparticipative employees be held accountable and encouraged to move on (or, even more directly, have their employment outright severed)? At what point should library leaders themselves take responsibility for failure to successfully nurture their library's culture and its employees? As institutions of power and politics, organizations have influence, discipline, and control over their employees, and, therefore, the possibility of employee exploitation, devaluation, domination, and maltreatment always exists (Land et al., 2007), as does the assumption among organizations that the management of people and their knowledge is always for some inherent, undisputed good (Chan and Garrick, 2003), but organizations are not always so virtuous. While the trap-gap framework may assume that library employees *want* to participate in reducing organizational dysfunction, this may not always be the case. Employees may realize that library leaders simply expect them to participate without question or choice. Writing on KM, Hislop et al. (2018: 83) note that "... willingness of knowledge workers to participate in knowledge management initiatives should not be taken for granted." Library leaders, therefore, must never assume library employees want to be a part of new initiatives, including new learning culture, or help solve dysfunctional problems even when brought to their attention. People do not always act in rational ways and their workplace behaviors may not always be in an organization's best interests; even if well-meaning, they are at times self-interested, look out for themselves, and have personal goals not aligned with the organization (Alvesson and Kärreman, 2001: 1000; Balthazard et al., 2006: 727).

Relatedly, ethical considerations need mentioning because organizational knowing, competence, and strategizing do not arise out of nothing; they are predicated on individual employee learning that is 'used' for organizational benefit. Libraries as organizations learn but do so via learning that takes place by their

employees; individual learning must manifest institutionally for an organization to take long-term advantage. Ethically speaking, however, is it acceptable for libraries to capitalize on their employees' learning by requiring them to 'give' what they learn to the organization? Who 'owns' knowledge in the workplace—employees or their organization? At what point does requiring employees to contribute their learning and knowledge for a library's long-term institutional gain become exploitative? Kamoche et al. (2014: 1374) suggest that employees and organizations are in a constant battle over knowledge as a resource, calling this endless contest a "knowledge-appropriation regime." On this point, and regarding tacit knowledge, Dalkir (2017: 392) offers a proposal: perhaps knowledge—whatever it is—belongs to employees as individuals and is *leased* by organizations who employ them. In any case, the debate is far from settled.

Though the trap-gap framework aims to help reduce and control dysfunction in libraries ultimately through learning, library leaders must keep in mind that, in the end, learning is difficult to explain and using it to leverage employee participation towards organizational improvement must be done carefully. Learning does not have to be "conscious or intentional," nor must it always "result in observable changes" or "increase the learner's effectiveness;" learners may "incorrectly learn" as well as "correctly learn things that are incorrect" (Huber, 1991: 89). While library leaders may be mindful that some methods of learning could be more effective with some learners than others, the learning-styles approach has been criticized (see Pashler et al., 2008). The larger question to be asked here is: What gained from learning is useful, why, and for what purpose? Is some knowledge/knowing useful only because management says it is? Such questioning is important because it draws attention to the organizational tendency to regard all knowledge and learning as unquestioned, guaranteed remedies. Yet, knowledge is not necessarily always "functional, useful, or a good thing" nor does it equivocally lead to the solving of problems and, thus, could be equally detrimental as it is useful (Alvesson and Kärreman, 2001: 999). While the trap-gap framework encourages the identification of traps-gaps in knowing, strategizing, and competence, it does not support striving for something new simply for newness' sake, nor does it epitomize an idealistic, revered state of operation created in mind by library leaders that is, in any case, unrealistic and unattainable.

Library leaders also must avoid the tendency to think narrowly of learning culture. Though the trap-gap framework emphasizes the key role of new learning culture as described by Thomas and Brown (2011), it does not suggest that such a culture occurs in complete solitude. As noted by Alavi et al. (2005: 195–196) and Balthazard et al. (2006: 727), organizations often are made up of many different cultures; even if a "dominant" or "underlying" organizational culture exists, there still may be many smaller organizational cultures within the 'main' one based on "professional orientation, status, history, power . . . and more." Moreover, in the broader sense of culture, the trap-gap framework is not limited by local, national, or regional culture; it may be used as a conceptual device by library leaders worldwide. One main criticism of frameworks generally is that they are created by people located within specific cultures using data that are products of those cultures. For example, Nonaka's (1994: 19) famous SECI model of knowledge creation has been criticized for its creator's claim that it is universally applicable despite being developed out of Japanese business customs and practices that are unique to Japan (Glisby and Holden, 2003). While the idea of the trap-gap framework emerged out of a conceptually specified context (i.e. dysfunctional library environments), it is not founded on local, national, or regional cultural ideals, beliefs, or practices; it is purposely left 'open' for library leaders working globally in libraries, library systems, and library consortia of all types—public, academic, special, etc.—to decide how to best proceed in addressing dysfunction at their own institutions.

If the trap-gap framework 'frames' library dysfunction in a useful way that inspires library leaders in their quests to find new means of handling it in their workplace, the framework will be taken up by library leaders and librarians to inform future empirical studies and statistical models. Toward this end, leaders should consider Sonnenwald's (2016: 5) approach of elaborating a focus and conducting research that aims to make an impact. The trap-gap framework does not dictate research foci, results, and impacts, but it has the potential to inform all of these. The framework, too, may be of use outside of the library environment, though such a claim, if correct, must be supported by thinkers and practitioners of non-library institutions.

Conclusion

At the end of *The Dysfunctional Library*, Henry et al. (2017: 184) conclude that "library leaders can help libraries and librarians move forward only if they are able to identify dysfunction, map out functional directions, and communicate solutions." In its broadest terms, the intention of the trap-gap framework is to encourage library leaders to, first, acknowledge

dysfunction; second, view it as something holding their library back from reaching a higher potential; and third, work towards organizational transformation. This article draws attention, as did Henry et al. (2017), to the critical state of libraries today and their current lack of effective organization and management, not to problematize libraries beyond repair, but to underscore the need for library leaders to willfully and critically recognize dysfunction with an intent to reduce and control it. Tackling dysfunction represents change, and change is hard for librarians and libraries. Nonetheless, the trap-gap framework offers library leaders a conceptual view of dysfunction and its reduction that, while not itself meant to be theory or empirical model, is designed to motivate library leaders toward developing emergent and creative ways of pulling their libraries out of the trap-gaps that prohibit effective functioning in modern global information environments.

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ORCID iD

Spencer Acadia https://orcid.org/0000-0001-9371-2418

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Author biography

Spencer Acadia has 10+ years of academic library experience, as well as several years of experience as professor of record in teaching courses in psychology and sociology. He is a standing committee member in the IFLA Knowledge Management Section and participates in the IFLA Digital Scholarship/Digital Humanities Special Interest Group. He is also an active member of the International Arctic Social Sciences Association (IASSA). His research interests include the social, cultural, and behavioral aspects of organizational knowledge and knowledge management; digital sociology and social informatics; and the roles of library and information science in Arctic cultural heritage. In addition to an MLS, he holds an MA in Psychology and a PhD in Sociology.

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Abstracts

قتطفات

From information, to data, to knowledge - Digital scholarship centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

للمعرفة الرقمية وأساليب البحث المشتركة بين التخصصات في المكتبات الأكاديمية والبحثية

تشنغ وانغ، شيوماو وانغ

جريدة الافلا، 46-1

مستخلص

يناقش المؤلفان في هذا المقال أوجه التشابه والتباين بين إدارة المعارف وعلم المكتبات. كما يقترحان ويعرضان الدور الناشئ للمكتبات الأكاديمية والبحثية بوصفها دوائر تكاملية للمعرفة الرقمية وأساليب البحث بين المؤسسات الأكاديمية، وهو الدور الذي يرى المؤلفان أنه سيحول أمناء المكتبات إلى متخصصين في مجال المعرفة. سيحاول المؤلفان الإجابة على أسئلة متعددة الأبعاد ومثيرة للجدل أو تشجيع إجراء المزيد من النقاش بشأنها، مثل: ما هي الاختلافات الجوهرية بين إدارة المعرفة وعلم المكتبات والمعلومات؟ هل ستتيح الوظائف أو الخدمات الناشئة، مثل مراكز المنح الرقمية وممارسات إدارة بيانات البحوث، للمكتبات الأكاديمية والبحثية أداء وظائف إدارة المعرفة بصورة كاملة؟ وهل سيساعد الدور الناشئ للمكتبات في النظام البيئي المعرفي على تحديد مقترح القيمة الجديد الخاص بها، بدءًا من نموذج الخدمة الذي يتمحور حول المجموعات إلى نموذج الخدمة الذي يركز على المعرفة؟ وكيف يمكن للمكتبات أن تضع مراكز المنح الرقمية القائمة على المكتبات في صورة دوائر رقمية متكاملة للتعلم والبحث على مستوى المؤسسة الرقمية؟

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

تطبيقات ابتكارية لإدارة المعرفة في إعادة التشكيل التنظيمي للمكتبات الأكاديمية

شياو لونغ

جريدة الافلا، 46-1

مستخلص

تتمحور وظائف المكتبة التقليدية حول المجموعات المكتبية واستخدامها. ويتضمن نظام إدارتها مصادر التزويد، والفهرسة، والإعارة والقراءة، والمراجع فيما يتعلق بفروع الإنتاج الفكري. من الناحية الوظيفية، فقد تطورت المكتبات حاليًا لتصبح مراكز لخدمة المعرفة، وموجهة نحو المعرفة، ملتزمة بتحقيق الابتكار المعرفي، وتركز على طلبات المستخدمين للمعرفة. وفي الوقت نفسه، تقوم إدارة المكتبات أيضًا بالتركيز تدريجياً على إدارة المعرفة. ومع ذلك، فيما يتعلق بالتطبيقات، تقتصر إدارة المعرفة بصورة أساسية على الخدمات المكتبية، ولكنها تفتقر إلى التطبيقات المبتكرة في مجال الإدارة الداخلية مثل تدفق الأعمال والإعدادات المؤسسية. تأخذ هذه المقالة مكتبة جامعة بكين، إحدى أكبر المكتبات الأكاديمية في الصين، كحالة دراسة لتقصي هذه المسألة.

Knowledge management in practice in academic libraries

إدارة المعرفة في الممارسة العملية في المكتبات الأكاديمية

ساندرا شروبشاير، جيني لين سيمينزا، ريجينا كوري

جريدة الافلا، 46-1

مستخلص

يشكل التقدم في مجال التعليم العالي إخلالاً بالعمليات العادية لأي مكتبة أكاديمية. يؤدي تقليص الميزانيات والابتكارات التكنولوجية والتغييرات في التوظيف إلى أن تقوم المؤسسات بإعادة النظر في الأعراف التقليدية ويمكن أيضًا أن يحفز ذلك المديرين على استخدام طرق تفكير جديدة لإدارة سير العمل ومعالجة المبادرات المؤسسية الناشئة. برزت إدارة المعرفة كطريقة للتفكير في تحديات الإدارة. يقدم المؤلفون مبادئ إدارة المعرفة الأساسية، ويحددون ويحللون ممارسات إدارة المعرفة في مكتبتين أكاديميتين.

وتجديد الخدمات بالإضافة إلى تمكين القطاعات الضعيفة وفقًا لجدول أعمال الأمم المتحدة 2030.

Determining the impact of knowledge sharing initiatives in international organisations: Case Studies

تحديد تأثير مبادرات تبادل المعرفة في المنظمات الدولية: دراسات حالة.

ليندا ستودارت

جريدة الافلا، 46-1

مستخلص

لا نستطيع أن نشكك في أن المعرفة هي شريان الحياة بالنسبة للمنظمات الدولية وخاصة وكالات الأمم المتحدة المتخصصة. ومع ذلك، كان هناك القليل من الإجماع على أفضل الطرق لتبادل المعرفة، والاستفادة من الخبرة الدولية الواسعة وإتاحتها للجهات المكونة والشركاء لهذه المنظمات. ما هي استراتيجيتهم لإدارة المعرفة؟ هل لديهم استراتيجية واحدة؟ ما هو تأثيرها؟ ما هو دور الإدارة العليا في دعم تبادل المعرفة في هذه المنظمات الدولية؟ هذه هي الأسئلة التي تتناولها هذه الورقة من خلال تقييم ممارسات تبادل المعرفة الحالية في مؤسستين في جنيف بسويسرا وكلتاهما جزء من منظومة الأمم المتحدة.

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

إطار عمل للفجوة التنظيمية: عرض مفاهيمي للاختلال الوظيفي

سبنسر أكاديا

جريدة الافلا، 46-1

مستخلص

تقدم هذه المقالة إطارًا مفاهيميًا للاختلال الوظيفي بالمكتبات من خلال ربطها بتعريف 'الفجوات التنظيمية' التي تحدث عندما تتمسك المكتبات بعاداتها القديمة، والتي تؤدي بدورها إلى انقطاع في المعرفة التنظيمية الجديدة والكفاءة والاستراتيجية. وفقًا لإطار العمل التنظيمي للفجوة، يمكن لقادة المكتبات معالجة الثغرات من خلال مزج النظريات والأساليب من إدارة المعرفة والتعلم التنظيمي والسلوك التنظيمي والتطوير التنظيمي؛ دعم ثقافة جديدة للتعلم تعتمد على العناصر التفاعلية والأداء الاجتماعي للتشغيل والاستجواب والخيال؛ وتطبيق عمليات إصلاح جديدة للمعرفة والكفاءة ووضع الاستراتيجيات. تختتم المقالة بفرضية لإطار الفجوة التنظيمية للعمل اعتمادا على عدم وجود الاتصال التنظيمي كنموذج إلى جانب مزيد من التفكير في الأمور المتعلقة بتوظيف قادة المكتبات للإطار مثل ديناميكيات من القمة إلى القاعدة والأخلاقيات وكذلك البيئة الثقافية.

Problems of knowledge management practices in libraries and information centres of Bangladesh

مشاكل ممارسات إدارة المعرفة في المكتبات ومراكز المعلومات في بنغلاديش

محمد شريف الاسلام، محمد نزمول الاسلام، عبد الرزاق

جريدة الافلا، 46-1

مستخلص

الهدف الرئيسي من هذه الدراسة هو استكشاف أوجه القصور في ممارسات إدارة المعرفة الحالية لبعض المكتبات الأكاديمية والمكتبات الخاصة ومراكز المعلومات المختارة في بنغلاديش، من حيث أنشطة إدارة المعرفة وإدارة الموارد البشرية والأنشطة القائمة على ابتكار المعرفة واستخدام تكنولوجيا المعلومات والاتصالات كأداة لإدارة المعرفة. تم جمع البيانات من خلال مراجعة ما تم نشره في مجال إدارة المعرفة، وعمل استبيان لإجمالي ستة عشر مكتبة، تضُم خمس مكتبات جامعية حكومية، وأربع مكتبات جامعية خاصة، وست مكتبات خاصة، ومركز معلومات واحد. إن جوهر هذه الدراسة هو الممارسات الخاصة بإدارة المعرفة في مكتبات بنغلاديش التي بدأت بالفعل في تطبيق تلك الممارسات. أخيرًا، تقدم الدراسة بعض الاقتراحات لتطوير ممارسات إدارة المعرفة في إطار مراكز المعلومات للمكتبات في بنغلاديش.

City library network knowledge management for social cohesion: The case of Santa Coloma de Gramenet, Barcelona, Spain

إدارة المعرفة بشبكة مكتبة المدينة بهدف التماسك الاجتماعي: حالة سانتا كولوما دي غرامينيت، برشلونة، إسبانيا

دانييل غارسيا جيمينيز، لويس سولير ألسينا

جريدة الافلا، 46-1

مستخلص

توجد شبكة للمكتبات العامة الأربع في سانتا كولوما دي غرامينيت (كاتالونيا، إسبانيا). تنتمي كل مكتبة إلى المدينة، حيث يتم توفير المساعدات التقنية والتوجيه الاستراتيجي والدعم مالي من قِبَل حكومة المقاطعة، Diputació de Barcelona. تم بناء هذه المكتبات الأربع في فترات تاريخية مختلفة وتقع في أحياء ذات خلفيات اجتماعية غير متكافئة للغاية. قامت تلك المكتبات بموائمة خدماتها مع الاحتياجات المحلية والتطوير كشبكةٍ واحدة رغم وجود الاختلافات. تتطلب التحديات الحالية لمجتمع المعلومات مشروعًا لمكتبة المدينة لضمان التماسك الاجتماعي وتكافؤ الفرص. تحاول هذه المقالة شرح استراتيجية تحقيق تلك الأهداف، استنادًا إلى إدارة المعرفة والشبكات وورش العمل المستعرضة ودائرة الاتصالات المشتركة التي سمحت لشبكة المكتبات الحضرية حتى الآن بتوسيع

摘要

From information, to data, to knowledge - Digital scholarship centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

从情报到数据、再到知识——数字学术中心：高校图书馆和科研图书馆中新兴的跨学科数字知识与研究方法整合平台

Zheng Wang, Xuemao Wang

国际图联期刊, 46—1, 5—14

摘要

在本文中，两位作者将探讨知识管理与图书馆学的异同点；介绍高校图书馆与科研图书馆在整合学术机构的数字知识与研究方法上的新职能，在他们看来这将有助于图书馆员转型成为知识专业人员；尝试回答多层面的启发性问题，或激发深层探讨，例如：知识管理与图书馆情报学之间的关键区别是什么？数字学术中心或科研数据管理实践等新职能和服务是否可以帮助高校图书馆与科研图书馆更充分地开展知识管理工作？图书馆在知识创造生态系统中的新职能是否明确体现了从以馆藏为中心的服务模式向以知识为中心转型这一新的价值主张？图书馆应该如何定位内部数字学术中心，使之成为整个机构的数字学习、科研与知识创造的数字整合平台？

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

知识管理在高校图书馆组织架构调整中的创新应用

Long Xiao

国际图联期刊, 46—1, 15—24

摘要

传统图书馆的工作主要围绕着馆藏及其利用展开。其管理体系包括资源整合以及文献的编目、流通、阅读和查询。从职能上看，图书馆已经演变成为知识服务中心，以知识为导向，致力于实现知识创新，重点关注读者的知识需求。同时，图书馆管理工作的重心也逐渐转向知识管理。但是在应用方面，知识管理主要局限于图书馆服务，在业务流程和制度规定等内部管理工作上缺乏创新应用。本文以中国顶尖高校图书馆——北京大学图书馆为例，深入研究了这一问题。

Knowledge management in practice in academic libraries

高校图书馆的知识管理实践

Sandra Shropshire (桑德拉·司罗普), Jenny Lynne Semenza (詹妮·琳恩·塞门扎), Regina Koury (雷吉娜·库里)

国际图联期刊, 46—1, 25—33

摘要

高等教育的发展颠覆了高校图书馆的常规运营。预算缩水、技术创新和人员变更等问题让这些机构开始思考传统工作中的问题，激励管理者利用新的思维方式管理工作流程、应对不断发展的组织计划。知识管理正是应对管理挑战的一种新思维。本文介绍了知识管理的基本原则，并以两所高校图书馆为例，进一步探索和分析知识管理实践。

Problems of knowledge management practices in libraries and information centres of Bangladesh

孟加拉国图书馆情报中心的知识管理工作中存在的问题

Md. Shariful Islam (穆罕默德·沙里夫·伊斯拉姆), Md. Nazmul Islam (穆罕默德·纳斯穆尔·伊斯拉姆), Abdur Razzak (阿卜杜·拉扎克)

国际图联期刊, 46—1, 34—51

摘要

本文的主要目的在于探索孟加拉国几所高校和专业图书馆情报中心在当前的知识管理实践中存在的不足，具体领域涵盖知识管理活动、人力资源

管理、基于知识创新的活动以及将信息通讯技术作为知识管理的工具。几位作者从目前关于知识管理的文献中获取数据，针对16所图书馆设计了系统的调查问卷，其中包含5所公立大学图书馆、4所私立大学图书馆、6所专业图书馆和一个情报中心。从研究结果来看，孟加拉国图书馆的知识管理工作刚刚起步。最后，本文为孟加拉国图书馆情报中心开展知识管理工作提供了几点建议。

City library network knowledge management for social cohesion : The case of Santa Coloma de Gramenet, Barcelona, Spain

通过城市图书馆网络的知识管理提高社会凝聚力：以西班牙巴塞罗那圣科洛马-德格拉马内特为例

Daniel Garcia Gimenez (丹尼尔·加西亚·吉梅内兹), Lluís Soler Alsina (路易斯·索雷·阿尔希那)

国际图联期刊, 46—1, 52—63

摘要

西班牙的圣科洛马-德格拉马内特有四家公共图书馆，形成了一个图书馆网络。它们隶属于市政府，但接受巴塞罗那省政府的技术援助、战略方向和财务支持。这四家图书馆成立于不同的历史时期，所处的环境背景也完全不同。它们按照当地需求调整服务内容，不断保持与时俱进。当前的信息社会挑战要求市政府针对图书馆开展项目，从而确保社会凝聚力和平等的机会。本文详细介绍了实现目标的战略，其基础在于知识管理、网络拓展、平行工作组以及共享通信网。到现在为止，这些要素帮助城市图书馆网络扩大了服务范围，并根据联合国《2030年可持续发展议程》为薄弱领域赋能。

Determining the impact of knowledge sharing initiatives in international organisations: Case studies

知识共享计划对国际组织的影响：案例研究

Linda Stoddart (琳达·斯图达特)

国际图联期刊, 46—1, 64—71

摘要

众所周知，知识是国际组织(尤其是联合国专业机构)的命脉。但各方对于如何最有效地共享知识、利用各国的专长并分享给各机构人员及合作伙伴仍然没有形成一致意见。各机构的知识管理战略是什么？它们是否制定了相关战略？这些战略产生了什么影响？高管人员在推动国际组织内部知识共享中起到了什么作用？本文通过研究瑞士日内瓦两家联合国机构的知识共享实践，对上述问题进行了解答。

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

组织困境缺口框架：图书馆运行失常的概念性研究

Spencer Acadia (斯宾塞·阿卡迪亚)

国际图联期刊, 46—1, 72—87

摘要

本文针对图书馆运行失常建立了一个概念框架，其中给这种失常取名为“困境缺口”，指的是图书馆由于依赖过时的工作方法而陷入困境，反过来导致新的知识、能力与战略中出现缺口的情况。根据“组织困境缺口框架”，图书馆领导可以综合运用知识管理、组织学习、组织行为和组织发展等领域的理论和方法，尝试弥补困境缺口；支持培养一种新的学习型文化，依赖于娱乐、思考和想象力等具有社会互动性和执行力的要素；采用革新的知识、能力与战略流程。本文最后从缺乏组织沟通的角度对“困境缺口”框架提出了假设，并进一步思考图书馆领导在利用这个框架的过程中出现的问题，例如自上而下的动态、职业道德与文化环境。

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Zheng Wang, Xuemao Wang

IFLA Journal, 46–1, 5–14

Résumé :

Dans cet essai, les auteurs traitent des similarités et des différences entre la gestion des connaissances et la bibliothéconomie. Ils proposent de formuler le nouveau rôle des bibliothèques universitaires et de recherche comme un moyen d'intégrer les connaissances numériques et les méthodes de recherche dans un cadre universitaire, rôle dont ils pensent qu'il va transformer les bibliothécaires en professionnels du savoir. Les auteurs tentent de répondre à des questions multidimensionnelles et polémiques, ou d'encourager un débat plus poussé à leur sujet, questions telles que : quelles sont les différences essentielles entre gestion des connaissances et bibliothéconomie ? Les fonctions ou services émergents, par exemple centres d'érudition numériques et pratiques de gestion de données de recherche, vont-ils permettre aux bibliothèques universitaires et de recherche de mieux remplir leur fonction en matière de gestion des connaissances ? Le rôle émergent des bibliothèques dans l'écosystème de création de connaissances va-t-il contribuer à définir leur nouvelle proposition de valeur, pour la faire passer d'un modèle centré sur les collections à un modèle de services centré sur les connaissances ? Comment les bibliothèques doivent-elles positionner les centres d'érudition numériques pour en faire des moyens organisationnels d'intégration de l'apprentissage numérique, de la recherche et de la création de savoir ?

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

Application innovante de la gestion des connaissances dans la restructuration de l'organisation des bibliothèques universitaires

Long Xiao

IFLA Journal, 46–1, 15–24

Résumé :

Les fonctions des bibliothèques traditionnelles sont axées autour de leurs collections et des utilisations de ces collections. Leur gestion porte sur l'acquisition de ressources, le catalogage, la circulation, la lecture et les références en matière de courants littéraires. Sur le plan fonctionnel, les bibliothèques évoluent actuellement pour devenir des centres de services de connaissances orientés sur le savoir, qui visent à innover sur le plan des connaissances et tiennent compte des exigences des utilisateurs en la matière. Dans le même temps, la gestion bibliothécaire se recentre progressivement aussi sur la gestion des connaissances. Cependant, en matière d'application pratique, la gestion des connaissances se limite principalement aux services bibliothécaires mais manque d'applications innovantes pour la gestion interne, notamment en matière de processus opérationnels et contextes institutionnels. cet article prend pour exemple le cas de la bibliothèque universitaire de Pékin, l'une des principales bibliothèques universitaires chinoises, pour étudier cette question.

Knowledge management in practice in academic libraries

Gestion des connaissances dans la pratique au sein des bibliothèques universitaires

Sandra Shropshire, Jenny Lynne Semenza, Regina Koury

IFLA Journal, 46–1, 25–33

Résumé :

L'évolution de l'enseignement supérieur montre un bouleversement du fonctionnement normal des bibliothèques universitaires. Réduction des budgets, innovations technologiques et modifications des effectifs poussent toutes les organisations à remettre en question leurs usages traditionnels et peuvent inciter les dirigeants à utiliser de nouvelles façons de penser pour gérer les tâches et tenir compte des changements en matière d'initiatives institutionnelles. La gestion des connaissances s'est avérée être l'une de ces nouvelles façons d'envisager les défis de gestion. Les auteurs présentent les principes fondamentaux de la gestion des connaissances pour ensuite identifier et analyser les pratiques de deux bibliothèques universitaires dans ce cadre.

Problems of knowledge management practices in libraries and information centres of Bangladesh

Problèmes des pratiques de gestion des connaissances dans des bibliothèques et centres d'information au Bangladesh

Md. Shariful Islam, Md. Nazmul Islam, Abdur Razzak

IFLA Journal, 46–1, 34–51

Résumé :

Cette étude a pour principal objectif d'examiner les lacunes des pratiques actuelles de gestion des connaissances de certaines bibliothèques universitaires et spécialisées et de centres d'information sélectionnés au Bangladesh en termes d'activités de gestion des connaissances, de gestion des ressources humaines, d'activités basées sur l'innovation en matière de connaissances et d'utilisation des TIC comme outil de gestion des connaissances. Les données ont été rassemblées en examinant la littérature existante consacrée à la gestion des connaissances, et un questionnaire structuré a été conçu pour seize bibliothèques au total, y compris cinq bibliothèques universitaires publiques, quatre bibliothèques universitaires privées, six bibliothèques spécialisées et un centre d'information. L'étude établit essentiellement que la pratique de gestion des connaissances n'en est qu'à ses débuts dans les bibliothèques au Bangladesh. Enfin, elle fait quelques suggestions pour développer les pratiques de gestion des connaissances dans les bibliothèques et centres d'information au Bangladesh.

City library network knowledge management for social cohesion : The case of Santa Coloma de Gramenet, Barcelona, Spain

Gestion des connaissances dans un réseau de bibliothèques municipales pour favoriser la cohésion sociale : le cas de Santa Coloma de Gramenet, Barcelone, Espagne

Daniel Garcia Gimenez, Lluís Soler Alsina

IFLA Journal, 46–1, 52–63

Résumé :
Santa Coloma de Gramenet (Catalogne, Espagne) possède un réseau de quatre bibliothèques publiques. Chaque bibliothèque appartient à la municipalité, le gouvernement provincial (Diputació de Barcelona) offrant un soutien technique, une orientation stratégique et une assistance financière. Ces quatre bibliothèques ont été construites à différentes époques et sont situées dans des quartiers socialement très différents. Elles ont adapté leurs services aux besoins locaux et en tant que réseau, se sont développées en tenant compte de ces différences. Les défis actuels de la société en matière d'information nécessitent un projet de bibliothèques municipales afin d'assurer la cohésion sociale et l'égalité des chances. Cet article s'efforce d'expliquer la stratégie pour atteindre ces objectifs, stratégie qui se base sur la gestion des connaissances et la mise en réseau, sur des ateliers transversaux et sur un circuit partagé de communication qui a permis jusqu'ici à ce réseau de bibliothèques municipales d'étendre et de renouveler ses services ainsi que de dynamiser des secteurs vulnérables, conformément au Programme 2030 des Nations Unies.

Determining the impact of knowledge sharing initiatives in international organisations: Case studies

Déterminer l'impact des initiatives de partage des connaissances au sein des organisations internationales : études de cas

Linda Stoddart

IFLA Journal, 46–1, 64–71

Résumé :

Personne ne conteste le fait que les connaissances sont absolument essentielles pour les organisations internationales, et en particulier pour les agences spécialisées des Nations Unies. Cependant, il n'y a pas vraiment de consensus en ce qui concerne les meilleures méthodes pour partager les connaissances et tirer parti de la vaste expertise internationale, afin de la mettre à disposition des membres et partenaires de ces organisations. Quelle est leur stratégie en matière de gestion des connaissances ? En ont-ils une ? Quel impact a-t-elle ? Quel est le rôle des cadres dirigeants pour encourager le partage des connaissances au sein de ces organisations internationales ? Ce sont les questions abordées dans cet article et examinées à la lueur des évaluations des pratiques actuelles de partage des connaissances au sein de deux institutions établies à Genève en Suisse, et qui font toutes deux partie du système des Nations Unies.

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

Le cadre organisationnel dit du « piège-fossé » : une vision conceptuelle du dysfonctionnement des bibliothèques

Spencer Acadia

IFLA Journal, 46–1, 72–87

Résumé :

Cet article offre un cadre conceptuel au dysfonctionnement des bibliothèques en le définissant comme un « piège-fossé » qui se manifeste lorsque les bibliothèques se retrouvent dans une impasse à force de compter sur leurs habitudes et coutumes dépassées, lesquelles à leur tour entraînent des discontinuités à l'égard des nouvelles connaissances, compétences et stratégies organisationnelles. Selon ce cadre conceptuel d'organisation, les dirigeants des bibliothèques peuvent remédier à ce type de piège-fossé en mêlant des théories et des méthodes issues de la gestion des connaissances ainsi que de l'apprentissage, du comportement et du développement organisationnels ; en soutenant une nouvelle culture d'apprentissage basée sur les éléments socialement interactifs et performatifs du jeu, du questionnement et de l'imagination ; et en appliquant de nouveaux procédés remaniés d'apprentissage, de compétence et d'élaboration de stratégies. L'article conclut avec un examen hypothétique du cadre conceptuel des « pièges-fossés » prenant pour exemple le manque de communication au sein des organisations, ainsi qu'avec une réflexion plus poussée sur les problèmes en rapport avec l'utilité de ce cadre pour les dirigeants des bibliothèques, par exemple en ce qui concerne la dynamique descendante, l'éthique et l'environnement culturel.

Zusammenfassung

From information, to data, to knowledge - Digital scholarship centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

Von Informationen über Daten zum Wissen – Digitale Stipendienzentren: Ein aufstrebender transdisziplinärer Integrator für digitales Wissen und Forschungsmethoden in wissenschaftlichen und Forschungsbibliotheken

Zheng Wang, Xuemao Wang

IFLA Journal, 46–1, 5–14

Abstrakt:

In diesem Aufsatz diskutieren die Autoren die Gemeinsamkeiten und Unterschiede von Wissensmanagement (KM) und dem Bibliothekswesen. Sie befürworten und beschreiben die sich abzeichnende Rolle der akademischen und Forschungsbibliotheken als Integratoren von digitalem Wissen und Forschungsmethoden in akademischen Unternehmen – eine Rolle, von der sie denken, dass sie Bibliothekare zu Wissensexperten machen wird. Die Autoren versuchen, mehrdimensionale und provokante Fragen zu beantworten oder zur weiteren Diskussion anzuregen, z. B: Was sind die kritischen Unterschiede zwischen KM und LIS? Werden neu entstehende Funktionen oder Dienste (wie digitale Stipendienzentren und Praktiken zum Forschungsdatenmanagement) es wissenschaftlichen und Forschungsbibliotheken ermöglichen, die Funktionen von KM umfassender zu erfüllen? Wird die sich abzeichnende Rolle der Bibliotheken im Ökosystem der Wissensschaffung dazu beitragen, ihr neues Wertangebot zu definieren, also von einem sammlungszentrierten zu einem wissenszentrierten Dienstleistungsmodell? Wie sollten Bibliotheken bibliotheksbasierte digitale Stipendienzentren als digitale Integratoren für unternehmensweites digitales Lernen, Forschen und die Schaffung von Wissen positionieren?

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

Innovative Anwendung von Wissensmanagement bei der organisatorischen Umstrukturierung von wissenschaftlichen Bibliotheken

Long Xiao

IFLA Journal, 46–1, 15–24

Abstrakt:

Die Funktionen einer traditionellen Bibliothek richten sich vor allem auf die Sammlung und Nutzung der Bibliothek. Das Managementsystem einer solchen Bibliothek umfasst die Ressourcenbeschaffung, Katalogisierung, Verbreitung, Lektüre und einen Bezugsrahmen in Bezug auf die Literaturströme. In ihrer Funktion haben sich die Bibliotheken heute zu Wissens-Service-Zentren entwickelt, die sich dem Wissen verschrieben haben, die auf eine Wissensinnovation abzielen und die sich an den Wissensanforderungen der Nutzer orientieren. Inzwischen konzentriert sich auch das Bibliotheksmanagement allmählich wieder auf das Wissensmanagement. In Bezug auf die Anwendungen ist das Wissensmanagement jedoch hauptsächlich auf Bibliotheksdienste beschränkt; es fehlen allerdings innovative Anwendungen im internen Management

wie Geschäftsabläufe und institutionelle Rahmenbedingungen. Dieser Artikel nimmt die Universitätsbibliothek von Peking, eine der besten akademischen Bibliotheken in China, als Fallstudie, um dieses Thema zu untersuchen.

Knowledge management in practice in academic libraries

Wissensmanagement in der Praxis wissenschaftlicher Bibliotheken

Sandra Shropshire, Jenny Lynne Semenza, Regina Koury

IFLA Journal, 46–1, 25–33

Abstrakt:

Die Entwicklungen im Hochschulbereich stellen Störungen im normalen Betrieb einer wissenschaftlichen Bibliothek dar. Immer beschränktere Budgets, technologische Neuheiten und Änderungen in der Personalbesetzung führen dazu, dass Einrichtungen traditionelle Handlungsweisen in Frage stellen und können Manager dazu bewegen, neue Denkweisen zur Steuerung von Arbeitsabläufen und zum Umgang mit den sich entwickelnden institutionellen Initiativen zu nutzen. Das Wissensmanagement (KM) hat sich als ein solcher Denkansatz in Hinsicht auf die Herausforderungen beim Management herausgebildet. Die Autoren stellen grundlegende KM-Prinzipien vor und identifizieren und analysieren die Vorgehensweisen beim KM an zwei wissenschaftlichen Bibliotheken.

Problems of knowledge management practices in libraries and information centres of Bangladesh

Probleme des Wissensmanagements in Bibliotheken und Informationszentren in Bangladesch

Doktor der Medizin Shariful Islam, Doktor der Medizin Nazmul Islam, Abdur Razzak

IFLA Journal, 46–1, 34–51

Abstrakt:

Das Hauptziel der Studie ist es, die Defizite in der bestehenden Praxis beim Wissensmanagement (KM) einiger ausgewählter akademischer und spezieller Bibliotheken sowie einiger Informationszentren in Bangladesch in Bezug auf Wissensmanagement-Aktivitäten, Personalmanagement, auf Wissensinnovationen beruhende Aktivitäten und die Nutzung der Informations- und Kommunikationstechnologie als Werkzeug für das KM zu untersuchen. Die Daten wurden durch die Durchsicht der vorhandenen Literatur über das KM und einen strukturierten Fragebogen für insgesamt sechzehn Bibliotheken, darunter fünf öffentliche Universitätsbibliotheken, vier private Universitätsbibliotheken, sechs Spezialbibliotheken und ein Informationszentrum, erhoben. In der Studie wird letztendlich das Fazit gezogen, dass die KM-Praxis in den Bibliotheken von Bangladesch gerade erst begonnen hat. Schließlich bietet die Studie einige Anregungen für die Entwicklung von KM-Praktiken im Kontext der LICs von Bangladesch.

City library network knowledge management for social cohesion

Wissensmanagement im Netzwerk der Stadtbibliothek für den sozialen Zusammenhalt: Der Fall von Santa Coloma de Gramenet, Barcelona, Spanien

Daniel Garcia Gimenez, Lluís Soler Alsina

IFLA Journal, 46–1, 52–63

Abstrakt:

In Santa Coloma de Gramenet (Katalonien, Spanien) gibt es ein Netzwerk von vier öffentlichen Bibliotheken. Jede Bibliothek gehört der Stadt, mit technischer Hilfe, strategischer Ausrichtung und finanzieller Unterstützung durch die Provinzregierung, Diputació de Barcelona. Diese vier Bibliotheken wurden in verschiedenen historischen Epochen gebaut und befinden sich in Vierteln mit sehr ungleichem sozialem Hintergrund. Sie haben ihr Leistungsangebot auf die lokalen Bedürfnisse abgestimmt und sich als Netzwerk vor dem Hintergrund dieser Unterschiede entwickelt. Die aktuellen Herausforderungen der Informationsgesellschaft erfordern ein Stadtbibliotheksprojekt, um den sozialen Zusammenhalt und die Chancengleichheit zu gewährleisten. Dieser Artikel versucht, die Strategie zur Erreichung dieser Ziele zu erläutern, die auf Wissensmanagement und Vernetzung, transversalen Workshops und einem gemeinsamen Kommunikationskreislauf fußt, der es diesem städtischen Bibliotheksnetzwerk bisher ermöglicht hat, das Leistungsangebot zu erweitern und zu erneuern sowie gefährdete Sektoren im Einklang mit der Agenda der Vereinten Nationen für 2030 zu stärken.

Determining the impact of knowledge sharing initiatives in international organisations: Case studies

Bestimmung der Auswirkungen von Initiativen zum Wissensaustausch in internationalen Organisationen: Fallstudien

Linda Stoddart

IFLA Journal, 46–1, 64–71

Abstrakt:

Es ist unbestritten, dass Wissen das Lebenselixier internationaler Organisationen und insbesondere der Sonderorganisationen der Vereinten Nationen (UN) ist. Es besteht jedoch nur ein geringer Konsens über die besten Methoden, um Wissen miteinander auszutauschen, das umfangreiche internationale Fachwissen zu nutzen und es den Beteiligten und Partnern dieser Organisationen zur Verfügung zu stellen. Wie lautet ihre Strategie für das Wissensmanagement? Haben sie überhaupt eine? Welche Auswirkungen hat sie? Welche Rolle spielt die Unternehmensleitung bei der Förderung des Wissensaustauschs in diesen internationalen Organisationen? Diese Fragen werden in diesem Papier durch den Blickwinkel einer Bewertung der aktuellen Praktiken für den Wissensaustausch in zwei Institutionen in Genf (Schweiz) behandelt, die beide ein Teil des Systems der Vereinten Nationen sind.

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

Das Organizational Trap-Gap Framework: eine konzeptionelle Sicht auf die negativen Einflussfaktoren einer Bibliothek

Spencer Acadia

IFLA Journal, 46–1, 72–87

Abstrakt:

Dieser Artikel bietet einen konzeptionellen Rahmen für die negativen Einflussfaktoren von Bibliotheken, indem er sie in Form von „Fallen“ definiert, die entstehen, wenn Bibliotheken im Vertrauen auf ihre veralteten, überkommenen Gewohnheiten stecken bleiben, die wiederum zu Diskontinuitäten in neuem organisatorischen Wissen, Kompetenz und Strategie führen. Gemäß dem Organizational Trap-Gap Framework können Bibliotheksleiter diese sogenannten Fallenlücken angehen, indem sie Theorien und Methoden aus Wissensmanagement, organisatorischem Lernen, Organisationsverhalten und Organisationsentwicklung miteinander verknüpfen, eine neue Lernkultur fördern, die sich auf die sozial interaktiven und performativen Elemente Spiel, Befragung und Imagination stützt, und neue, reformierte Prozesse des Wissens, der Kompetenz und der Strategiebildung anwenden. Der Artikel schließt mit einer hypothetischen Betrachtung des Trap-Gap-Frameworks am Beispiel mangelnder organisatorischer Kommunikation sowie mit weiteren Überlegungen zu relevanten Themen im Zusammenhang mit dem Nutzen des Frameworks für Bibliotheksleiter wie Top-Down-Dynamik, Ethik und kulturelles Umfeld.

Аннотация

From information, to data, to knowledge - Digital scholarship centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

От информации - к данным, к знаниям. Цифровые стипендиальные центры: Формирование интегратора междисциплинарных цифровых знаний и методов исследования в академических и научно-технических библиотеках

Женг Ванг, Сюэмао Ванг

IFLA Journal, 46–1, 5–14

Аннотация:

В настоящем очерке авторы обсуждают сходства и различия между управлением знаниями и библиотечным делом. Они выдвигают и четко формулируют идею исполнения академическими и научно-техническими библиотеками роли интеграторов цифровых знаний и методов исследования среди образовательных учреждений; роли, которая, как они полагают, приведет к трансформации библиотекарей в профессионалов сферы знаний. Авторы пытаются ответить на следующие многоплановые и провокационные вопросы, либо способствовать их дальнейшему обсуждению: Каковы принципиальные различия между управлением знаниями и библиотековедением и наукой об информации? Позволит ли возникновение функций или услуг, таких как цифровые стипендиальные центры и методы управления научными данными, академическим и научно-техническим библиотекам более полно выполнять функции управления знаниями? Поможет ли возникающая сейчас роль библиотек в экосистеме формирования знаний объяснить новые преимущества модели обслуживания, основанной на знаниях, перед моделью, основанной на коллекционировании? Как библиотекам

следует позиционировать цифровые стипендиальные центры при библиотеках, чтобы те выполняли роль цифровых интеграторов для цифрового обучения, исследований и формирования знаний в масштабе организации?

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

Инновационное применение управления знаниями при реорганизации академических библиотек

Лонг Сяо

IFLA Journal, 46–1, 15–24

Аннотация:

Традиционно функции библиотеки зиждутся на создании библиотечных фондов и их использовании. Ее система управления включает в себя приобретение ресурсов, каталогизацию, выдачу, чтение и упоминание в контексте литературных течений. В функциональном плане библиотеки в настоящее время эволюционировали в центры обслуживания знаний; они ориентированы на знания, активно стремятся к внедрению инноваций в области знаний и сфокусированы на потребностях пользователя в знаниях. В то же время управление библиотеками также постепенно переориентируется на управление знаниями. Однако с точки зрения применения, управление знаниями главным образом ограничено библиотечными услугами, при этом ему недостает новаторских приемов во внутреннем управлении, например, в бизнес-процессах и институциональных механизмах. В данной статье для рассмотрения вышеозначенного вопроса в качестве практического примера используется Библиотека Пекинского университета, одна из лучших академических библиотек Китая.

Knowledge management in practice in academic libraries

Практика применения управления знаниями в академических библиотеках

Сандра Шропшир, Дженни Линн Семенза, Регина Каури

IFLA Journal, 46–1, 25–33

Аннотация:

Перемены в системе высшего образования вносят неразбериху в привычный порядок работы академической библиотеки. Сокращение бюджетов, технологические новшества, а также изменение кадровой политики требуют от организации ставить под сомнение традиционные устои и могут подвигнуть руководство к применению новых способов мышления для управления рабочим процессом и взаимодействия с возникающими организационными инициативами. Управление знаниями возникло как один из таких способов размышления о проблемах управления. Авторы представляют основные принципы управления знаниями, а также дают определение и проводят анализ методов управления знаниями в двух академических библиотеках.

Problems of knowledge management practices in libraries and information centres of Bangladesh

Проблемы в сфере управления знаниями в библиотеках и информационных центрах Бангладеш

Мд. Шарифул Ислам, Мд. Назмул Ислам, Абдур Раззак

IFLA Journal, 46–1, 34–51

Аннотация:

Главная цель настоящего исследования заключается в рассмотрении несовершенства современных методов управления знаниями в некоторых избранных академических и специальных библиотеках, а также информационных центрах Бангладеш в сферах: мер по управлению знаниями, управления людскими ресурсами, инновационной деятельности в сфере знаний, а также использования информационно-коммуникационных технологий в качестве инструмента управления знаниями. Сбор данных проводился путем анализа существующей документации, относящейся к управлению данными, а также с помощью структурированной анкеты, разработанной для шестнадцати библиотек, в число которых вошли: пять библиотек государственных университетов, четыре библиотеки частных университетов, шесть специальных библиотек и один информационный центр. Суть данного исследования состоит в том, что процесс использования управления знаниями в библиотеках Бангладеш только начался. В заключение приводятся некоторые рекомендации относительно развития методов управления знаниями в контексте библиотечных информационных центров в Бангладеш.

City library network knowledge management for social cohesion : The case of Santa Coloma de Gramenet, Barcelona, Spain

Управление знаниями в городской библиотечной сети для обеспечения социального единства: Пример Санта-Колома-де-Граменет, Барселона, Испания

Даниель Гарсия Хименес, Льюис Солер Алсина

IFLA Journal, 46–1, 52–63

Аннотация:

В Санта-Колома-де-Граменет (Каталония, Испания) существует сеть из четырех публичных библиотек. Каждая из библиотек принадлежит городу, при этом техническое обеспечение, стратегическое управление и финансовое обеспечение предоставляются правительством провинции, Провинциальным советом Барселоны. Эти четыре библиотеки были построены в различные исторические периоды, они расположены в районах с существенно различающимся социальным контекстом. Они подстраивали свои услуги с учетом локальных запросов и, будучи объединены в сеть, работали над преодолением вышеназванных различий. Проблемы современного информационного общества требуют реализации библиотечного проекта в городском масштабе, направленного на обеспечение социального единства и равных возможностей. В данной статье предпринята попытка разъяснить стратегию достижения указанных целей при помощи управления знаниями и установления контактов, смешанных совещаний по обмену опытом, а также использования общих каналов связи, которая к текущему моменту позволила этой городской библиотечной сети расширить и обновить свои услуги, а также усилить уязвимые участки в соответствии с Повесткой дня ООН на период до 2030 года.

Determining the impact of knowledge sharing initiatives in international organisations: Case studie

Определение воздействия инициатив, направленных на обмен знаниями, в международных организациях: Исследование на конкретных примерах

Линда Стоддарт

IFLA Journal, 46–1, 64–71

Аннотация:

Никто не оспаривает тот факт, что знания являются источником жизненной силы международных организаций, и в особенности - специализированных учреждений Организации Объединенных Наций (ООН). При этом отсутствует единое понимание того, какие методы являются наиболее действенными для обмена знаниями, эффективного использования обширного международного опыта и обеспечения доступа к нему для участников и партнеров данных организаций. Какова их стратегия управления знаниями? Есть ли она у них? Какое влияние она имеет? Какова роль высшего руководства в отстаивании необходимости обмена знаниями в данных международных организациях? Эти вопросы рассматриваются в данной статье сквозь призму оценки текущих методов обмена знаниями в двух учреждениях, входящих в состав системы ООН, расположенных в Женеве, Швейцария.

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

Модель организационной ловушки отсталости: Концептуальный взгляд на системный кризис в библиотеке

Спенсер Акадия

IFLA Journal, 46–1, 72–87

Аннотация:

В данной статье предлагается концептуальная модель системного кризиса в библиотеке, объясняемая таким явлением как ‘ловушка отсталости", которое наблюдается, когда библиотеки начинают буксовать, поскольку опираются на свои устаревшие, изжившие себя методы, что, в свою очередь, приводит к пробелам в новых организационных знаниях, компетентности и стратегии. Согласно модели организационной ловушки отсталости, руководство библиотеки может противодействовать таким ловушкам путем комбинирования теорий и приемов управления знаниями, организационного опыта, организационного поведения и организационного развития, путем поддержки новой культуры обучения, основанной на социально интерактивных и перформативных элементах игры, вопрошания и воображения, а также путем внедрения новых, реформированных процессов познания, профессиональной подготовки и выработки стратегии. В завершение статьи приводится гипотетическое рассмотрение модели организационной ловушки, где в качестве

примера взят недостаток организационной коммуникации, с последующим рассуждением об актуальных проблемах, связанных с использованием руководством библиотеки такой модели как динамика ‘сверху вниз", а также с этикой и культурной средой.

Resúmenes

From information, to data, to knowledge - Digital scholarship centers: An emerging transdisciplinary digital knowledge and research methods integrator in academic and research libraries

De la información a los datos y al conocimiento - Centros de erudición digital: un integrador emergente de conocimientos digitales interdisciplinares y métodos de investigación en las bibliotecas universitarias y de investigación

Zheng Wang, Xuemao Wang

IFLA Journal, 46–1, 5–14

Resumen:

En este trabajo, los autores analizan las similitudes y las diferencias entre la gestión del conocimiento y la biblioteconomía. Propondrán y articularán el papel emergente de las bibliotecas universitarias y de investigación como integradoras de conocimientos digitales y métodos de investigación entre las iniciativas de carácter académico, un papel que creen que convertirá a los bibliotecarios en profesionales del conocimiento. Los autores tratarán de estimular el debate con preguntas provocadoras y multidimensionales, como: ¿Cuáles son las principales diferencias entre la gestión del conocimiento (GC) y la biblioteconomía y documentación (ByD)? ¿Las funciones o servicios emergentes, como los centros de erudición digital y las prácticas de gestión de datos de investigación, permitirán a las bibliotecas universitarias y de investigación desempeñar las funciones propias de la gestión de conocimientos? ¿Contribuirá la función emergente de las bibliotecas en el ecosistema de creación de conocimientos a definir su nueva propuesta de valor, pasando de un modelo basado en los fondos bibliográficos a un modelo de servicio basado en los conocimientos? ¿Cómo deben posicionar las bibliotecas los centros de erudición digital basados en bibliotecas para convertirse en integradores digitales del aprendizaje digital, la investigación y la creación de conocimientos en las empresas?

Innovative Application of Knowledge Management in Organizational Restructuring of Academic Libraries

Aplicación innovadora de la gestión del conocimiento en la reestructuración organizativa de las bibliotecas universitarias

Long Xiao

IFLA Journal, 46–1, 15–24

Resumen:

Las funciones de una biblioteca tradicional se centran en los fondos bibliográficos y su utilización. Su sistema de gestión consta de adquisición de recursos, catalogación, préstamo, lectura y consulta. Desde el punto de vista funcional, las bibliotecas han evolucionado para convertirse en centros de servicios de conocimiento, orientadas a los conocimientos, comprometidas con la innovación y centradas en las demandas de los usuarios. Mientras tanto, la gestión bibliotecaria también se va centrando gradualmente en la gestión del conocimiento. Sin embargo, en términos de aplicaciones, la gestión del conocimiento se limita básicamente a los servicios bibliotecarios, pero carece de aplicaciones innovadoras en términos de gestión interna, como flujo de negocio y marco institucional. Este artículo toma la Biblioteca de la Universidad de Pekín, una de las principales bibliotecas universitarias de China, como ejemplo para analizar este asunto.

Knowledge management in practice in academic libraries

La gestión del conocimiento en la práctica en las bibliotecas universitarias

Sandra Shropshire, Jenny Lynne Semenza, Regina Koury

IFLA Journal, 46–1, 25–33

Resumen:

Los avances en el ámbito de la educación superior conllevan alteraciones en las operaciones normales de una biblioteca universitaria. La reducción de los presupuestos, las innovaciones tecnológicas y los

cambios en la plantilla hacen que las organizaciones se cuestionen las costumbres tradicionales y pueden impulsar a los gestores a utilizar nuevas formas de pensar para gestionar el flujo de trabajo y abordar las iniciativas institucionales. La gestión del conocimiento (GC) ha surgido como esa nueva forma de pensar en los retos relacionados con la gestión. Los autores presentan los principios básicos de la GC, e identifican y analizan las prácticas de GC en dos bibliotecas universitarias.

Problems of knowledge management practices in libraries and information centres of Bangladesh

Problemas aparejados a las prácticas de gestión del conocimiento en bibliotecas y centros de documentación de Bangladesh

Md. Shariful Islam, Md. Nazmul Islam, Abdur Razzak

IFLA Journal, 46–1, 34–51

Resumen:

El objetivo principal del estudio es analizar los inconvenientes de las prácticas actuales de gestión del conocimiento que llevan a cabo algunos centros de documentación y bibliotecas universitarias y especiales de Bangladesh en términos de actividades de gestión del conocimiento, gestión de recursos humanos, actividades basadas en la innovación del conocimiento y el uso de TIC como herramienta para la GC. Los datos se recopilaron a través de la revisión de la bibliografía existente sobre la GC y un cuestionario estructurado diseñado para un total de dieciséis bibliotecas, entre ellas cinco bibliotecas universitarias públicas, cuatro bibliotecas universitarias privadas, seis bibliotecas especiales y un centro de documentación. El estudio se centra en el hecho de que la práctica de la gestión del conocimiento está en sus albores en las bibliotecas de Bangladesh. Por último, el estudio ofrece algunas sugerencias para el desarrollo de prácticas de GC en el contexto de las bibliotecas y los centros de documentación.

City library network knowledge management for social cohesion : The case of Santa Coloma de Gramenet, Barcelona, Spain

Gestión del conocimiento en la red de bibliotecas municipales como cohesionador social: el caso de Santa Coloma de Gramenet, Barcelona, España

Daniel García Giménez, Lluís Soler Alsina

IFLA Journal, 46–1, 52–63

Resumen:

En Santa Coloma de Gramenet (Cataluña, España) hay una red de cuatro bibliotecas municipales. Todas las bibliotecas pertenecen al Ayuntamiento y cuentan con asistencia técnica, orientación estratégica y apoyo económico del gobierno provincial, la Diputació de Barcelona. Estas cuatro bibliotecas se construyeron en distintos períodos históricos y están ubicadas en barrios con contextos sociales muy distintos. Han adaptado sus servicios a las necesidades locales y se han evolucionado en función de estas diferencias. Los retos de la sociedad de la información actual exigen un proyecto de bibliotecas municipales que garantice la cohesión social y la igualdad de oportunidades. En este artículo se explica la estrategia seguida para conseguir estos objetivos, sobre la base de la gestión del conocimiento y el sistema de red, los talleres transversales y un circuito de comunicación compartido que hasta el momento ha permitido que la red de bibliotecas amplíe y renueve sus servicios, además de empoderar a los sectores vulnerables conforme a la Agenda 2030 de las Naciones Unidas.

Determining the impact of knowledge sharing initiatives in international organisations: Case studies

Determinación del impacto de las iniciativas de conocimiento compartido en organizaciones internacionales: estudios de casos

Linda Stoddart

IFLA Journal, 46–1, 64–71

Resumen:

Nadie duda de que el conocimiento es la savia de las organizaciones internacionales, y especialmente de las agencias especializadas de las Naciones Unidas (ONU). Sin embargo, apenas existe consenso sobre los mejores métodos para compartir los conocimientos, aprovechar la especialización internacional y ponerla al servicio de los integrantes y los socios de esas organizaciones. ¿Cuál es su estrategia para gestionar los conocimientos? ¿Disponen de alguna? ¿Qué impacto tiene? ¿Cuál es el papel del personal de dirección en la defensa del intercambio de conocimientos en estas organizaciones internacionales? Estas son las preguntas que se abordan en este documento a través de las evaluaciones de las prácticas actuales de conocimiento compartido en dos instituciones ubicadas

en Ginebra (Suiza) que forman parte del sistema de las Naciones Unidas.

The Organizational Trap-Gap Framework: A conceptual view of library dysfunction

El marco organizativo Trap-Gap: una visión conceptual de las disfunciones en la biblioteca

Spencer Acadia

IFLA Journal, 46–1, 72–87

Resumen:

En este artículo se ofrece un marco conceptual de las disfunciones en la biblioteca mediante su definición en términos de las brechas que se producen cuando las bibliotecas se estancan debido a sus hábitos obsoletos que, a su vez, provocan discontinuidades en su estrategia, competencia y conocimientos organizativos nuevos. Según el marco organizativo Trap-Gap, los responsables de las bibliotecas pueden abordar estas brechas mediante la fusión de teorías y métodos procedentes de los ámbitos de la gestión del conocimiento, el aprendizaje organizativo, la conducta organizativa y el desarrollo organizativo; la promoción de una nueva cultura de aprendizaje basada en los elementos socialmente interactivos y performativos del juego, la interpelación y la imaginación; y la aplicación de nuevos procesos de aprendizaje, competencia y elaboración de estrategias. El artículo concluye con una consideración hipotética del marco Trap-Gap, utilizando la ausencia de comunicación organizativa como ejemplo, y plantea una reflexión sobre cuestiones pertinentes relacionadas con la utilidad del marco de los responsables de bibliotecas, como dinámicas descendentes, ética y entorno cultural.