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INFORMATION ORGANIZATION AND KNOWLEDGE MANAGEMENT IN MODERN LIBRARIES- AN OVERVIEW

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ABSTRACT

Information organization and knowledge management are core areas of library and information science. In an age of exponential information growth, effective organization and management of information are essential for easy access, retrieval and utilization. Modern libraries are no longer passive repositories; they actively manage knowledge to support decision- making, research and innovation. Libraries are no longer confined to the traditional function of collecting and lending books. They have evolved into dynamic information and knowledge centers that support education, research, governance, healthcare and innovation. The emergence of KM has further transformed libraries into organization that not only manage recorded information but also capture, share and apply human knowledge and expertise.

Keyword: library and information science, education, research, governance, healthcare and innovation

1. INTRODUCTION

The concept and name--"Knowledge Management"--was started and popularized in the business world during the last decade of the 20th century. It was the business world that first recognizes the importance of knowledge in the "global economy" of the "knowledge age". In the new knowledge economy, the possession of relevant and strategic knowledge and its unceasing renewal enables businesses to gain competitive advantage. The applications of knowledge management have now spread to other organizations including government agencies, research and development departments, universities, and others.

The management of information has long been regarded as the domain of librarians and libraries. Librarians and information professionals are trained to be experts in information searching, selecting, acquiring, organizing, preserving, repackaging, disseminating, and serving. However, professionals in information technology and systems have also regarded information management as their domain because of the recent advances in information technology and systems which drive and underpin information management. One of the clearest evidences of this is that the positions of "Chief Information Officer" (CIO) in many organizations are generally held by information technologists instead of librarians. In fact, most of the work of CIOs has to do with developing and managing the IT infrastructure and systems, not the managing of information per se.

With the growing interest in knowledge management, many questions have been raised in the minds of librarians regarding: the difference between information and knowledge; between information management and knowledge management; who should be in charge of information and knowledge management; would librarians and information professionals with appropriate education and training in library and information science be most suitable for the position of "Chief Knowledge Officer" (CKO) in their organizations; and what libraries can do in implementing knowledge management.

In modern libraries, **Information Organization (IO)** and **Knowledge Management (KM)** have evolved from manual cataloging into sophisticated digital systems that manage both documented (explicit) and human-based (tacit) resources. These practices transform libraries from static storehouses into active knowledge hubs that support real-time research and learning.

Information Organization (IO) in Modern Libraries

Modern IO focuses on describing and providing access points to information sources for efficient retrieval.

- **Knowledge Organization Systems (KOS):** These encompass classification schemes (e.g., Dewey Decimal, Library of Congress), subject headings, and authority files.
- **Digital Standards:** Libraries now use advanced metadata schemas like **Dublin Core**, **METS**, and **RDA** to ensure digital objects are discoverable and interoperable.
- **Discovery Tools:** Integrated Online Public Access Catalogues (**OPAC**) and **WebOPAC** act as the primary user interfaces, incorporating Web 2.0 features like social tagging and faceted navigation to improve user experience.

Objectives of IO

The primary objective of **Information Organization (IO)** in libraries is to provide a systematic and logical structure for knowledge resources so that users can retrieve relevant information with maximum **speed, accuracy, and ease**. By creating a bridge between information creators and users, IO serves the following specific goals:

a) **Efficient Information Retrieval:** The fundamental goal is to ensure users can find and access specific resources (books, journals, digital files) without undue effort.

b) **Unique Identification:** Through "document description," libraries create unique records (surrogates) that allow each item to be unambiguously identified within a vast collection.

c) **Resource Discovery:** Beyond finding known items, IO aims to help users *discover* new, relevant materials through metadata, indexing, and faceted navigation.

d) **Preservation and Maintenance:** Proper organization facilitates the physical care and long-term availability of materials by ensuring they are handled and shelved correctly.

e) **Saving the User's Time:** Derived from **Ranganathan's Five Laws of Library Science**, a key objective is to minimize the time a patron spends searching, thereby increasing productivity.

f) **Facilitating Access to Diverse Collections:** Organizing materials by subject, author, or format allows users with varying needs—from casual readers to advanced researchers—to navigate complex information spaces effectively.

g) **Supporting Academic and Research Success:** In technical and academic settings, effective IO directly correlates with improved research output and academic performance by providing quick access to specialized data.

2. LIBRARIES AS INFORMATION ORGANIZATION (IO)

Libraries act as the quintessential infrastructure for **Information Organisation**, serving as the systematic link between vast data universes and the specific needs of the user. By employing standardized **Knowledge Organization Systems (KOS)**—such as the Dewey Decimal Classification and Library of Congress Subject Headings—libraries transform chaotic information into a structured, searchable landscape. This organizational role extends beyond physical shelving to the digital realm, where librarians utilize complex **metadata schemas** like Dublin Core and BIBFRAME to ensure that electronic resources are discoverable and interoperable. Through these rigorous processes of **cataloguing, indexing, and classification**, libraries provide the necessary "surrogates" for information, allowing users to navigate millions of records with precision and uniquely identifying resources to prevent data loss or retrieval failure.

Transformation in the digital environment

In the digital environment, the transformation of libraries has shifted the focus from managing physical containers to facilitating seamless access to fluid, networked data. This evolution is marked by the transition from traditional

MARC records to Linked Open Data and BIBFRAME, which allow library resources to be discoverable by global search engines rather than being locked in isolated catalogues. Modern libraries now utilize **cloud-based Library Service Platforms (LSPs)** like Ex Libris Alma to manage a hybrid mix of print, electronic, and open-access materials through a single interface. Furthermore, the rise of **Artificial Intelligence** and Machine Learning has automated metadata generation and enhanced user experiences through Semantic Search and predictive recommendation engines. Consequently, the library's role has transformed into a **digital knowledge hub**, where the focus is no longer just on storage, but on the active curation and long-term **digital preservation** of institutional and global intelligence.

3. KNOWLEDGE MANAGEMENT: CONCEPT AND EVOLUTION

As early as 1965, Peter Drucker already pointed out that “knowledge” would replace land, labor, capital, machines, etc. to become the chief source of production.5 His foresight did not get much attention back then. It was not until 1991 when Ikujiro Nonaka raised the concept of “tacit” knowledge and “explicit” knowledge as well as the theory of “spiral of knowledge” in the Harvard Business Review that the time of “knowledge-based competition” finally came. In his latest book, Building Organizational Intelligence: a Knowledge Management.

“In today’s movement towards knowledge management, organizations are trying to best leverage their knowledge internally in the organization and externally to their customers and stakeholders. They are trying to capitalize on their **organizational intelligence** to maintain their competitive edge.”

“The thrust of knowledge management is to create a process of valuing the organization’s intangible assets in order to best leverage knowledge internally and externally. Knowledge management, therefore, deals with creating, securing, capturing, coordinating, combining, retrieving, and distributing knowledge. The idea is to create a knowledge sharing environment whereby **sharing knowledge is power** as opposed to the old adage that, simply, **knowledge is power**.”

4. KNOWLEDGE MANAGEMENT IN LIBRARIES

While the business world is changing in the new knowledge economy and digital age, libraries of all types are undergoing drastic changes also. The new role of libraries in the 21st

century needs to be as a learning and knowledge center for their users as well as the intellectual commons for their respective communities where, to borrow the phrase from the Keystone Principles, "people and ideas interact in both the real and virtual environments to expand learning and facilitate the creation of new knowledge.".

As a learning organization, libraries should provide a strong leadership in knowledge management. Unlike those business organizations whose goal for knowledge management is for competitive advantage, most public, academic, and research libraries, with the exception of company libraries (which may be known or called corporate libraries, special libraries, or knowledge centers), have a different orientation and value. Instead of competition, internal use only, and little sharing of knowledge with others outside, the most important mission of public, academic, and research libraries is to expand the access of knowledge for their users. Charged by this mission, libraries should aim their knowledge management goal high. Below are examples of what libraries can do to improve their knowledge management in all of the key areas of library services.

4.1 Resources sharing and networking

Libraries have had a long tradition of resources sharing and networking. These have been greatly expanded by the rapid development of computer, telecommunication, networking, and digital technologies since the 1960s. In the U.S. it is very common for libraries to be a member of several consortia at the same time for various types of cooperative work and resources sharing. The best examples of these are the OCLC Online Computer Library Center and OhioLINK (Ohio Library and Information Network).

4.2 User services

The utmost goal of knowledge management is to provide users with a variety of quality services in order to improve the communication, use and creation of knowledge. As much as possible these services should be tailored to the interest and needs of each user. Information about each user can be obtained by analyzing the records of user registration, surveys, circulation and interlibrary loans, frequently asked reference questions, and the use of e-journal and digital resources, etc. User satisfaction and needs should be collected through periodic users' surveys. The findings should be used for the planning and redesign of library services. It is very important, however, that user's privacy should always be protected.

4.3 Human resources management

Libraries should also encourage the transfer of knowledge and experience from experienced staff to new staff members. A mentoring system should be in place to help newcomers to learn from experienced library staff. Informal seminars and brownbag sessions where staff can interact and exchange "**lessons learned**", "**best practices**" and other specific experience and knowledge should be scheduled at regular intervals and at convenient times. Special interest groups and chat rooms can be created through intranet. Since many valuable experiences have been accumulated over time, libraries should pay attention to favorable working conditions and environment, which will contribute to better staff retention.

5. TOOLS AND TECHNOLOGIES SUPPORTING KM IN LIBRARIES

Modern libraries employ a diverse array of tools and technologies to facilitate the four core processes of Knowledge Management (KM): discovery, capture, sharing, and application. These tools are broadly categorized into Information Technology (IT) based systems and non-IT mechanisms.

5.1 Core Library KM Systems

- **Integrated Library Systems (ILS/LMS):** Modern systems like Koha (open-source), Alma, and Sirsi Dynix Symphony automate traditional activities while providing advanced OPACs (Online Public Access Catalogues) for knowledge discovery.
- **Institutional Repositories (IR):** Used to capture and preserve an institution's intellectual output (research, lecture notes, datasets). Popular software includes:
- **DSpace:** A widely used open-source digital asset management tool.
- **Greenstone:** Suited for building and distributing digital library collections.
- **EPrints:** Focused on open-access research repositories.
- **CMS:** Tools like Drupal, WordPress, and Omeka manage digital content and exhibitions with rich metadata.
- **DMS:** Platforms such as Alfresco and OpenKM provide secure storage, versioning, and retrieval of internal documentation.

5.2 Collaboration and Tacit Knowledge Sharing

Libraries use groupware and social platforms to capture human-based (tacit) knowledge and foster Communities of Practice.

- **Intranets & Wikis:** Microsoft SharePoint and Confluence serve as internal knowledge hubs. MediaWiki is often used to build collaborative library manuals.
- **Communication Tools:** Platforms like Slack, Microsoft Teams, and video conferencing (Zoom, Skype) support real-time expert interactions and virtual reference services.
- **Expertise Locators:** Tools such as LinkedIn or internal "Who's Who" directories help connect staff with specific knowledge needs to subject matter experts.

5.3 Emerging Technologies (2025-2026 Trends)

- **Artificial Intelligence (AI):** AI assistants like Read AI and Glean connect scattered data across meetings, emails, and documents into unified personal knowledge graphs.
- **Data Analytics:** Data Mining (e.g., Weka) and warehousing are used to identify usage patterns and guide decision-making.
- **Immersive Learning:** Technologies like Augmented Reality (AR) and Knowledge Graphs are beginning to redefine how users engage with library resources.

6. CHALLENGES OF INFORMATION ORGANIZATION AND KNOWLEDGE MANAGEMENT

While Information Organization (IO) and Knowledge Management (KM) are two sides of the same coin, they face distinct challenges. IO is primarily concerned with **describing and structuring objects**, while KM is focused on **leveraging human expertise and organizational wisdom**.

Here are the specific challenges categorized by their impact on the library ecosystem:

6.1. The Complexity of Modern Information Organization (IO)

As resources move from physical shelves to the cloud, the "logic" of organizing them becomes significantly more difficult.

- **The "Granularity" Problem:** Traditionally, libraries cataloged books. Now, they must organize "micro-content"—individual articles, datasets, images, and video clips. Deciding how deeply to describe these items without overwhelming the system is a constant struggle.
- **Metadata Evolution:** Older records often use legacy formats (like **MARC 21**) that don't play well with modern web standards (like **Linked Data** or **Schema.org**). Migrating millions of records to newer frameworks like **BIBFRAME** is technically exhaustive and expensive.
- **Subjectivity and Bias:** Traditional classification systems (like the Dewey Decimal System) have been criticized for Western-centric or outdated biases. Modern IO faces the challenge of "decolonizing" the catalog to ensure inclusive and neutral access points.

6.2. The Fluidity of Knowledge Management (KM)

KM deals with the "living" knowledge of the library staff and patrons, which is far harder to pin down than a book.

- **Capturing "Tacit" Knowledge:** The most valuable knowledge—such as a veteran librarian's intuition for navigating a complex archive—is often never written down. Creating a system that captures this "know-how" before a staff member retires is a major hurdle.
- **The "Value" Paradox:** KM is often viewed as an "invisible" service. Unlike a new book collection or a renovated building, the ROI (Return on Investment) of a KM system is hard to measure, making it difficult to justify budget allocations to stakeholders.
- **Content Decay:** Knowledge becomes obsolete quickly. Without a rigorous "weeding" process for internal intranets and wikis, KM systems become cluttered with outdated manuals and procedures, leading to a loss of trust from the users.

6.3. Cross-Cutting Technological Challenges

- **Interoperability:** Libraries use multiple platforms (e.g., an ILS for books, a DSpace for research, and Slack for communication). These tools often don't "talk" to each other, creating **knowledge silos** where information is trapped in one department.
- **Semantic Search Expectations:** Users now expect Google-like search capabilities. Building a library system that understands the *intent* and *context* of a query (semantic search) rather than just matching keywords requires sophisticated AI that many libraries cannot yet afford.
- **Digital Preservation:** Ensuring that organized digital knowledge remains accessible 20 or 50 years from now is a massive challenge. File formats change, hardware becomes obsolete, and digital "bit rot" can destroy unmanaged data.

6.4. Legal and Ethical Hurdles

- **Copyright and Licensing:** Organizing and sharing knowledge often hits the wall of "Restrictive Licensing." Libraries may have the knowledge but lack the legal right to share it across platforms or with external partners.
- **Privacy vs. Personalization:** To provide a better experience, KM systems often track user behavior to offer recommendations. Balancing this with strict library ethics regarding patron privacy and data protection (like GDPR) is a delicate act.

Challenge Type	Information Organization (IO) Focus	Knowledge Management (KM) Focus
Primary Goal	Discovery and Retrieval	Innovation and Sharing
Major Hurdle	Metadata standards and data migration	Cultural resistance and "knowledge hoarding"
Risk	Information is unfindable (Lost in the system)	Information is lost to time (Brain drain)

7. ROLES OF INFORMATION ORGANIZATION (IO) AND KNOWLEDGE MANAGEMENT (KM)

The role of librarians has shifted from being "custodians of books" to becoming knowledge managers and digital curators who facilitate real-time access to information and foster organizational learning. In the dual frameworks of Information Organization (IO) and Knowledge Management (KM), their responsibilities are both technical and social.

a. **Metadata Specialists:** They develop and apply metadata standards (e.g., Dublin Core, MARC) to describe digital and physical resources, making them searchable across platforms.

b. **System Architects:** Librarians collaborate with IT teams to design Integrated Library Systems (ILS) and Online Public Access Catalogues (OPAC) that integrate internal and external data sources.

c. **Information Evaluators:** They assess the quality and reliability of vast online data, filtering "bad" information from credible sources for their users.

d. **Digital Preservationists:** They ensure long-term access to knowledge by managing digital archives and executing migration strategies to prevent data loss due to technology obsolescence.

e. **Knowledge Navigators:** They guide users through complex "information malls," using expertise to identify and retrieve exact requirements from global knowledge streams.

f. **Tacit Knowledge Facilitators:** They establish Communities of Practice, mentoring programs, and "brownbag" sessions to capture the "brain power" of staff before they retire or leave.

g. **Strategic Leaders:** Senior librarians often act as Chief Knowledge Officers (CKOs), aligning the library's knowledge assets with the parent organization's strategic goals.

h. **Culture Enablers:** They work to shift organizational culture from a hoarding mindset to one of open sharing, often through internal intranets or collaborative platforms like wikis.

i. **Liaisons & Collaborators:** Librarians serve as the link between faculty, students, and researchers, supporting resource-based learning and independent research.

8. ESSENTIAL SKILLS FOR MODERN LIBRARIANS

To fulfill these roles, modern professionals require a mix of traditional and emerging competencies:

- **IT Literacy:** Proficiency in data mining, web technologies, and database management.
- Analytical Thinking: Ability to conduct "knowledge audits" to find gaps in an organization's intelligence.
- **Interpersonal Skills:** Negotiating with external vendors for digital subscriptions and building rapport across departments.
- **Teaching & Instructional Design:** Instructing users in information literacy to create independent, critical thinkers.

9. CONCLUSION

Modern libraries have transitioned from static repositories of physical media to dynamic ecosystems where Information Organization and Knowledge Management function as the vital infrastructure for innovation. By integrating advanced metadata standards, automated systems, and artificial intelligence, libraries ensure that vast quantities of explicit data remain discoverable and interoperable. Simultaneously, the human-centric focus of KM allows these institutions to capture irreplaceable tacit knowledge, fostering a culture of continuous learning and strategic collaboration. Despite challenges like cultural resistance, funding gaps, and technical legacy issues, the proactive role of the librarian as a knowledge navigator remains essential in bridging the gap between information overload and meaningful insight. Ultimately, the synergy between structured organization and fluid knowledge sharing ensures that libraries remain indispensable hubs of intellectual capital in the digital age.

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