**SKILLS USED IN A RCHIVES AND PRESERVATION OF MATERIALS IN THE 21ST**

 **CENTURY LIBRARIES AND FOR LIBRARIANS IN THE DIGITAL AGE**

 BY

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**Abstract**

*This paper reviews the skills used in archives and preservation of materials in the 21st century libraries and for librarians in the digital age. Libraries and librarians must consider and comprehend numerous aspects of services that have emerged since the advent of information and communication technology (ICT). Librarians of this era are required to use digital tools to provide electronic service. Librarians should possess a diversity of internet skills. Amidst the skills is online skills and technology, which is a useful tool for identifying job titles, tasks, and talents (including technology knowledge).The paper highlighted the 21st century skills for archives and preservation in libraries and for librarians such as management systems, content curation, taxonomy creation, records preservation and management, competitive intelligence tracking, digital asset management, skills in scanning and filing digital formats, automated archival collections, management systems, encoded archival description (EAD), XML schemas and USMARC. The paper gave challenges of acquiring the skills such as inadequate training, non-challant attitude of librarians towards the utilization of modern technologies and lack of internet connectivity. The paper concluded that Librarians should want to grow by studying current skills that will allow them to compete with other librarians from around the world. The paper gave the way forward such as regular training and retooling especially with the changing in technology and vast growth of knowledge and the provision of superb internet.*

***Keywords****: USMARC, Taxonomy Creation, Content Curation, Competitive Intelligence and Encoded Archival*

**Introduction**

Librarians, as initially specified in the (UNESCO/IFLA Public Library Manifesto, 1994), should learn new skills and take on new tasks in order to provide technology-based information services Libraries and librarians must consider and comprehend numerous aspects of services that have emerged since the advent of information and communication technology (ICT). ICT (Information and Communication Technology) had transformed the method librarians operate and functioned, opening up new opportunities to assist their user communities. Librarians of this era are required to use digital tools to provide electronic services. (Baro and Godfrey, 2015).

Librarian is responsible for three types of work: choosing items for the library, organizing them so that they are unchallenging to find and use, and assisting people in obtaining materials or information that they require. Librarians should constantly expand their knowledge and improve their skills. (Kathleen, G., 2020)

**Archivists and Preservation Skills for Libraries and Librarians in the 21st century**

Both librarians and archivists require research, knowledge, organization, information technology and interpersonal skills to deliver their services effectively (American Library Association, 2017). Archivists and preservation librarians should understand by what means to use the progressively complex technology for conserving, providing access to online and a broader variety of print documents, and scanning. Librarians' knowledge and abilities is require to comprehend the specific instruments used in the field of archives and preservation, such as management systems, content curation, taxonomy creation, records preservation and management, competitive intelligence tracking, digital asset management, knowledge of scanning and filing digital formats, automated archival collections, management systems, encoded archival description (EAD), XML schemas, USMARC, and how to use SML editors.

Archivists, on the other hand, are expected to know how to use the increasingly sophisticated technologies involved in digitizing, preserving, and providing online access to a variety of print materials. (LibGig, 2023)

**Management System**: An example of management system is iARCH. It is an archival information management system specially designed to cater to the requirements of all types of modern archives, academic, corporate, historical, religious, museums and art galleries. IARCH is based on the prevalent international standard DACS (Describing Archives: A Content Standard), approved by the Society of American Archivists. IARCH provides special metadata formats for various types of materials like documents, manuscripts, artwork, music recordings, videos, interviews, photographs etc. Thus the skills assist in describing archived items for higher visibility and accessibility. IARCH Archival Management System (AMS) supports the digitization of physical archives to enable users to access them online. It provides features such as image and text recognition to automate the digitization process and improve the accuracy of the digitized content.

**Content Curation skill**: The content curation skill is a competency that assists the librarian on how to be able to place hands-on experience for spreading written documents such as news items, blog entries, and social media messages. Librarians often engage in digital content curation, they gather digital resources, databases and collections, ensuring easy access and navigation for library patrons, digitize and preserve their valuable documents, images, audio, and video files, cataloque and digitize their artistic creations, museum artifacts and jewelry designs. (Poja, 2024).

The benefits of content curation skills for archives and preservation for Librarians and Libraries include; Connect with influencers, sharing, curating, promoting content, encourages growth and engagement with readers in the libraries. Curating content is one of the most generous things librarians and libraries can do online for other creators. It helps to identify trends to create better content, curating relevant and high-quality content helps requires librarians to filter dozens of information, articles, and posts. This allows them to stay on top of the most popular and trending topics. The Content Curation tools and software include; Buzzsumo which assist the librarians find the most shared content on the web for specific topics in real-time, Twitter Lists – assist librarians categorize and organize their followers for easy engagement, pocket – helps librarians capture and collect all users information, images, articles, and videos in one place, Newsletter – sets up Gmail or any other email program to automatically label and sort libraries repository of useful content by date, scoop it – Collect and curate content to find things in organizing topics in a hub page.

**Taxonomy Creation**: A taxonomy is a hierarchical classification of terms that represent the concepts and topics in a domain of knowledge. Taxonomies skills are essential for library services, as they help organize, retrieve, and manage information resources. However, taxonomies are not static, and they need to be maintained and updated over time to reflect changes in the domain, user needs, and library standards. Taxonomy skill for archives and preservation is a state of identifying hierarchical relationship within a category. Taxonomies are useful for organizing information for both internal and external consumption. A taxonomy could involve just filling documents by year or could be a more complicated classification. Each taxonomy is designed to categorize items within just one dimension. Taxonomies could be difficult to define and in actual fact are define broadly by the classifier in most cases. A taxonomy of technology could be one in which technology is broken down into different components such as industrial technology, ICT, assistive technology and transportation technology as some examples. The taxonomy of technology in galleries, libraries, archives and museum (GLAMS) will look at the categories of technology used in these institutions currently and also speculate on what the taxonomies could be predictable in the future.

It is apparent that technology in many GLAMS are gradually going futuristic, and relying less on manual means, but making use of equipment that takes advantage of the newest technologies. Artificial intelligence, use of robotics, augmented, virtual and mixed reality is the norm. Assistive technology is not left out of the GLAMS as well. The trend is for these technologies to be used in greater numbers. (Adedoun, A.O., 2020)

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**Records preservation and Management**: The followingare some of the skills and competencies that records retention and disposition librarians and libraries need; knowledge of records management principles and standards, ability to analyze and evaluate records and skills in records management systems and tools. Records retention and disposition are essential aspects of records management skills, the discipline of creating, organizing, maintaining, and disposing of records in a systematic and efficient way. Records retention and disposition professionals are responsible for ensuring that records are kept for as long as they are needed, and that they are destroyed or transferred appropriately when they are no longer required.

Records retention and disposition librarian need to have a solid understanding of the principles and standards of records management, such as the life cycle of records, the value and classification of records, the legal and regulatory requirements for records retention and disposition, and the best practices and methodologies for records management. They need to be familiar with the records management policies and procedures of their libraries, as well as the relevant industry standards and frameworks, such as ISO 15489, ARMA, and NARA. They also need to keep up to date with the changes and trends in records management, such as the impact of digital transformation, cloud computing, and artificial intelligence.

Records retention and disposition librarians need to have skills in using records management systems and tools that support their work. They need to be able to use electronic records management systems (ERMS) or enterprise content management systems (ECMS) that enable them to create, capture, store, access, manage, and dispose of records in a secure and efficient way. They need to be able to use metadata, indexing, search, and retrieval tools that help them to locate and identify records. They also need to be able to use records management software, applications, or platforms that assist them in implementing retention and disposition policies and procedures, such as disposition automation, records inventory, records transfer, or records destruction. Particular concerns exist about the ability to access and read digital records over time, since the rapid pace of change in technology can make the software used to create the records obsolete, leaving the records unreadable. Electronic Tax Records are computer-based/non-paper versions of records required by tax agencies like the [Internal Revenue Service](https://en.wikipedia.org/wiki/Internal_Revenue_Service). For example, it is unclear if an [IRS](https://en.wikipedia.org/wiki/IRS) auditor would accept a [JPEG](https://en.wikipedia.org/wiki/JPEG), [PNG](https://en.wikipedia.org/wiki/Portable_Network_Graphics), or [PDF](https://en.wikipedia.org/wiki/Portable_Document_Format) format scanned copy of a purchase receipt for a deducted expense item. **(Caravaca, M. M.,May 2017).**

**Competitive Intelligence Tracking**: A typical competitive intelligence skill includes information and analysis from various disparate sources, including the news media, customer and competitor interviews, industry experts, trade shows and conferences, government records, and public filings. There is no established set of core competencies for competitive intelligence professionals, but following are some of the expected skills, based on an overview of CI job postings: An ability to search multiple relevant resources (e.g., proprietary databases, research and analyst reports, personal interviews, government data and reports, etc.), an ability to assess both domestic and international information sources for credibility, authority, and appropriateness for the specific research need, an ability to present information (both text and data) findings using multiple tools and techniques, especially through data visualization (Andrew, B. 2022)

**Digital Assets Management**: Digital Asset Management has to do with understanding about how to distribute, store, and organize digital content in a centralized location, librarians need to know how to efficiently acquire, classify, manage, and safeguard an organization's digital assets.

Librarians should be able to configures, operates, maintains and monitors media data management systems. They should also be able to manage internal access to the organization’s content and often works independently on computer-based systems to catalogue content and provide access to users. Any organization with a DAM needs a DAM librarian, whether they have a dedicated full-time resource or incorporates the responsibilities into an existing role; they need a DAM librarian with a specific skillset to optimize their DAM continuously, so it remains an effective tool. Ideal skills to look for in a librarian would include: Strong knowledge of DAM systems, metadata standards, databases, and rights management, strong knowledge of the users (contributors) and LOBs that are using the DAM (of course new hires will need to learn the key player sand develop their knowledge over time), familiarity with data governance principles and rights management, strong critical thinking and problem-solving skills, with great attention to detail, the ability to adapt to a fast-paced and dynamic environment, strong organizational and project management skills with the ability to prioritize tasks and work independently and interest or experience in UI/UX design. (Daniel, H. & Duncan, M., 2019)

**Scanning and Filling Digital Formats:** A document scanner requires a variety of technical skills, these include; data entry, computer database management, and the ability to operate specific software and hardware. The Librarians will also need to have experience with office equipment, such as scanners and fax machines. On the other hand, soft skills are also important. The librarians and libraries will need to have direct supervision, so they can manage their time effectively and work independently. They will also need to have a keen eye for image quality and the ability to perform quality control. They will also need to be able to understand the information and how it is organized, so it can put it in the right place

Document scanners need a range of hard skills to excel in their role. These include proficiency in computer databases, image quality control, and electronic formats like PDFs and digital images. They must also be adept at using office equipment such as fax machines and scanners to digitize documents. Data entry is the process of entering data into a database or computer system. Document scanners use data entry to prepare checks for deposit, file invoices, and keep truck logs. They also scan documents into computer systems, index information, and complete data entry forms. Document scanners have received awards for their data entry skills and have assisted other departments with data entry tasks.

**Automated Archival Collections**

Automation should be viewed as a tool to facilitate daily operations and planning in a records and archives institution.  If implemented well, automation can increase staff efficiency, perform routine tasks automatically and analyse data more quickly than could be done manually. (Jenny, B. 2016)

**Encoded Archival Description (EAD):** This is a competency on how to develop strategies and tactics for evaluating, organizing, managing, describing, and preserving digital archives, as well as how to integrate technologies, tools, media and software, within existing functions for preserving, capturing, evaluating, and making digital collections accessible to the public. In order to increase the accessibility of archive material it is necessary for librarians and libraries to understand how to identify its context and content. EAD is now used around the world by archives, libraries, museums, national libraries and historical societies. Through a standardized system for encoding the descriptions of archival finding aids, EAD allows users to locate primary sources that are geographically remote. At its highest level, an EAD finding aid includes control information about the description as well as a description of the collection itself. EAD3 was revised in 2018 to address concerns relating to the ease of access to archival descriptions and its ability to interface with other systems. (Jodi, A. 2016)

**XML Schemas**: XML Schema Definition (XSD) is an XM- based language that defines the structure, content, and semantics of XML documents. It provides a means to define custom data types, elements, and attributes, and enforce rules to validate an XML document against a schema. An XML schema definition (XSD), is a framework document that defines the rules and constraints of XML documents. An XSD formally describes the elements in an XML document and can be used to validate the contents of the XML document to make sure that it adheres to the rules of the XSD. Extensible Markup Language (XML) is a markup language that provides rules to define any data. Unlike other programming languages, XML cannot perform computing operations by itself instead; any programming language or software can be implemented for structured data management.

XML (Extensible Markup Language) skill is used to describe data. The XML standard is a flexible way to create information formats and electronically share structured data via the public internet, as well as via corporate networks. XML stores data in plain text format. This provides a software- and hardware-independent way of storing, transporting, and sharing data. XML also makes it easier to expand or upgrade to new operating systems, new applications, or new browsers, without losing data.

**Challenges of Archives and Preservation Skills**

1. Irregularities in organizing training, lack of opportunities for librarians to attend programs and unfavorable working conditions is among the problems that can be encountered for librarians and libraries in acquiring the modern skills in the digital age.
2. Non-challant attitude of librarians towards the utilization of modern technologies. Nonchalant attitude when utilizing computer-based applications is one of the factors that hinders online-oriented skills, librarians are usually comfortable with their current positions and do not see the necessity to upgrade and embrace newer competencies especially with the advent of new technologies that promote functional global library practices.
3. Lack of superb internet connectivity for librarians which assist the librarians in utilizing the skills acquired.

**Conclusion**

Librarians should also be encouraged to attend refresher courses, seminars, symposia, and workshops, which provide them with more skills that will impact them with skills used in archives and preservation of materials in the 21st century libraries for librarians in the digital age for improved services and expose them to modern abilities, as a result, increase their technical competency and efficiency.

**The Way Forward**

1. Librarians should be trained and retool to address the difficulty of technical know-how related new technologies. Librarians should have knowledge of the modern skills for archives and preservation in the 21st century. To constantly embrace new technology, a comprehensive technical training and skill enhancement policy should be designed.
2. Librarians should overcome their fear of new technology by embracing latest technologies in library operations in order to provide better services in the twenty-first century.
3. Librarians are expected to have excellent infrastructure, consistent internet access, and internet apps that allow them to use computer-based applications.

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