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INFORMATION TECHNOLOGY INTERVENTION IN LIBRARY AND INFORMATION SERVICES

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ABSTRACT

Rapid growth in the number of electronic resources and in the complexity of managing e-collections has posed for libraries, and traces the progress in developing tools and setting standards to address such challenges. Libraries across the world are adopting cloud computing to make library services more streamlined and cost-efficient. The best-integrated library software and LMS software have started using the Internet of Things (IoT) to transfer data without human intervention. Artificial intelligence (AI) is one of the promising technologies, which will revolutionize the library services and its management in the present information age. Collaboration combined with attentiveness among vendors and customers to industry initiatives and standards can lead to a system design that responds to the demanding and rapidly changing requirements of the e-resource world and builds on the available software infrastructure at libraries. The purpose of this research paper is to discuss the application and prospects of information technology interventions in libraries.

KEYWORDS: *RFID, Cloud Computing, Internet Of Things, Digital Libraries, Moodle, Artificial Intelligence.*

INTRODUCTION:

The three main objectives of a library are to promote literacy, disseminate useful daily information to the people and encourage lifelong learning through its reading materials and resources. Electronic resources refer to e-journals, e-books, online databases, and other materials in digital formats, which are accessible electronically. Particular emphasis is given to the work of the Digital Library Federation Electronic Resource Management Initiative (DLF ERMI) to develop ERM systems not only for managing e-collections throughout their life cycle but also for aiding collection-development decision making.

The RFID-based library management system is relatively new technology used to track inventory and strengthen library theft detection systems. Likewise Artificial intelligence (AI), cloud computing are the promising technologies, which will revolutionize the library services and its management in the present information age. AI can enhance the library experience for the users and library professionals with innovation and smart decisions. Different aspects of technology interventions are discussed in the following paragraphs.

1. Electronic Resource Management

e-Resource Management Software employed by libraries to trace the collection, access, authorization, maintenance, usage, evaluation, reservation, and selection of a library's electronic information resources.[Sadeh,2005]

Particular emphasis is given to the work of the Digital Library Federation Electronic Resource Management Initiative (DLF ERMI) to develop ERM systems not only for managing e-collections throughout their life cycle but also for aiding collection-development decision making. The integration of such systems in existing library environments and the mechanisms that make such integration possible are highlighted. Finally, the paper describes the collaborative process through which one vendor, Ex Libris, designed its ERM system, Verde.

2. RFID Implementation

Radio Frequency identification (RFID) tags is the latest fast growing technology to be used in library for minimizing the theft of documents and as an access control systems. RFID systems moves beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, including easier and faster charge and discharge, inventorying, and materials handling. RFID is a combination of radio-frequency-based technology and microchip technology [Sumi& Kumar, 2007]. The information contained on inbuilt microchips in the tags affixed to library materials is read using radio frequency technology regardless of item orientation or alignment and distance from the item. The tags can be read at a distance of up to two feet by each of two parallel exit sensors. The devices used for circulation are usually called "readers" while the ones used at building exits are usually called "sensors".

The RFID-based library management system is relatively new technology used to track inventory and strengthen library theft detection systems. This technology enhances the security of libraries and increases their efficiency by streamlining the processes and reducing human dependence. For the users, RFID accelerates the borrowing and return procedures. Hence, RFID saves time and reduces library costs.

3. Cloud Computing

This library management system plays a significant role in building digital libraries or repositories. Cloud computing also ensures optimal use of library resources, infrastructure, human resources, etc. Moreover, the technology is also used for library automation and quick data search. Additionally, in a digital library, cloud computing ensures that third-party services can manage servers, carry out upgrades, and create data backups.

4. Internet of Things (IoT)

Libraries use IoT to control inventory, prevent theft, and identify users. It also helps in improving the quality and speed of circulation desk activities. Moreover, IoT expedites reservation of books, fire detection in the library and its prevention, and streamline e-Library services.

5. Big Data and Data Visualization

Big Data and Data Visualization is the method of displaying a large volume of data through charts, graphs, maps, and other visual forms. This makes the info more natural for the human mind to grasp and makes it easier to spot trends, patterns, and outliers within large data sets. This technology is helping digital libraries become more globalized while accessing a vast amount of data. It makes the libraries more easily accessible to readers who can find a plethora of information at their fingertips.

6. Artificial Intelligence

Artificial intelligence (AI) is one of the promising technologies, which will revolutionize the library services and its management in the present information age. Users have the convenience to explore the world of knowledge at their finger tips with speed and choice. AI can enhance the library experience for the users and library professionals with innovation and smart decisions. Hence, libraries shall have to function in tandem with AI in coming years. Hence the knowledge if Ai is very essential to library users as well as professionals.

The literature review indicated that there is significant prospects in implementing AI in library services in developing countries, with potential benefits such as improved access to information, increased efficiency, productivity and enhanced end user experience (Barsha, and Munshi) [2024]. The paper outlined several challenges, including dearth of infrastructure, the shortage of skilled personnel, and absence of data privacy regulations, digital divide, the cost consideration, their problems and obstacles in implementing AI-based solutions. Emphasis should be on partnerships between libraries and technology firms, investment in infrastructure and resources, capacity building for library staff and the development of regulatory frameworks to protect user data.

As far as recommendations are concerned, it should be practical and can be used by library managers, policymakers and technology firms to support the implementation of AI-based solutions.

Rifqah et. al. [2022] discussed that Artificial intelligence (AI) is among the latest digital transformation (DT) technological trends the university library can use to provide library users with alternative educational services. AI can harbour intelligent decisions for retrieving and sharing information for learning and research. According to author the adoption rate of AI by the university libraries is found to be low.

The research developed an artificial intelligence library services innovative conceptual framework (AI-LSICF) to provide new insight into how AI technology can be used to deliver value-added innovative library services to achieve digital transformation which will also encourage library and information professionals to adopt AI to complement effective service delivery. In practice, AI-LSICF can transform from traditional brands into a customer-driven organization which will awaken librarians and information professionals to catch up with digital transformation in this age of revolution. This will motivate library professionals to take advantage of AI's potential towards competitive advantage.

Artificial intelligence (AI) uses the power of a robot or a computer that tries to do tasks that humans usually do. The most common application of AI in a library is the chatbots that receive directional questions from users and resolve them. They can alert the user about their book submission due date, direct a user to the relevant library segment, and automatically schedule appointments.

7. Mobile-Based Library Services

The three main objectives of a library are to promote literacy, disseminate useful daily information to the people and encourage lifelong learning through its reading materials and resources. Mobile libraries bring resources outside of the library's fixed location to users who otherwise might not get an opportunity to profit from them.

With the help of mobile services like SMS and WhatsApp, libraries can produce new services and provide faster access to their collection. It also includes a learning management system (LMS), a software application that provides the framework that handles all aspects of the learning process and tracks your training content.

An example of the best LMS software is Moodle. The OPAC mobile application is a classic example of mobile-based library services. The platform is operated by SLIM Software's and aims at converting conventional libraries to digital libraries.

8. Intelligent Library Search & Federated Search

Federated search and Intelligent Library Search are techniques to retrieve information from many different content locations with only one query and one search interface with federated search. The technology complements main libraries in retrieving information quickly and makes indexing seamless. Libraries also use this technology for descriptive cataloging, subject indexing, database searching, and collection development.

9. Academic Integrity and Plagiarism

Any discussion about current trends in library systems will be incomplete without mentioning academic integrity and plagiarism. Plagiarism is using another's ideas, words, theories, illustrations or graphics, opinions, or facts without giving credit. For students, copying others' work damages the intellectual integrity of their academic experience. Therefore, avoiding plagiarism has become the need of the hour.

CONCLUSION:

Technology has undoubtedly made our lives much simpler. A library is no more the same it was a decade ago. Modern-day school and corporate library software ensure that you get the latest technologies in library systems right at your fingertips.Artificial intelligence (AI),IoT, Mobile based library services, cloud computing are the promising technologies, which will revolutionize the library services and its management in the present information age. Emphasis shall be given to partnerships between libraries and technology firms, investment in infrastructure and resources, capacity building for library staff and the development of regulatory frameworks to protect user data.

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