EXPLORING TOMORROWS LIBRARY: TECH INNOVATIONS FOR MODERN USERS

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Abstract: This article examines the significance of technology in various contexts. It outlines methods for delivering, disclosing, utilizing, informing, and storing information, as well as how to select, receive, assess, organize, maintain, and manage data within the realms of educational and commercial studies in library and information science (LIS). The libraries referenced here utilize the available technological resources. Modern students are increasingly engaged with physical materials, including paper, cardboard, microfilm, and various recording media, and must learn to navigate these in conjunction with emerging technologies. This article highlights the integration of new technologies within the library setting to enhance its relevance and utility.

Keywords: Future technology, Innovative technologies, Robots, Big data, Artificial intelligence

1.0 Introduction

The primary aim of libraries is to ensure equitable access to information for all citizens. Librarians should lead the integration of new technologies that facilitate research and allow for more time dedicated to assisting patrons. The adoption of innovative technologies is transforming library services. Today, libraries are increasingly recognized for their physical spaces and the opportunities they provide to the community, including educational support, access to modern technologies, and assistance for local businesses, among other services. Libraries of various types have the capacity to deliver significant value by enhancing access to cutting-edge technology. It is essential for libraries to assert their presence in society and to confront misconceptions held by the public regarding their role. A library is often regarded as a repository of knowledge. In dictionaries, a library is defined as "a building or room containing a collection of books." Numerous public libraries are maintained by local professionals across the region. Libraries offer invaluable services to society and play a crucial role in fostering knowledge development. Many individuals in the community enjoy reading but cannot afford to buy books due to their high prices. By becoming library members, these individuals can borrow important books. This article explores a variety of innovative technologies that can be implemented in libraries, emphasizing their relevance and the advantages they can provide. Are you also interested in current technology trends in libraries? From digital storytelling and virtual

reality to kinetic bikes and RFID technology, John Garland examines how libraries are leveraging technology to enhance services for their patrons today.

2.0 Components of implement at the library of the future

2.1. Big data

With the rapid pace of technological progress, individuals are generating unprecedented amounts of data through their everyday activities. This surge in data presents a significant opportunity for librarians, who possess the expertise to effectively store and analyze extensive datasets. How can libraries leverage big data? By gaining deeper insights into user behavior, big data can enhance overall library operations. In her article discussing the application of big data in libraries, Ginny Mies highlights that "libraries can utilize essential customer intelligence to better engage with patrons, strengthen community ties, and remain relevant and adaptable to changing environments." The full article is available for further reading. Additionally, libraries can harness big data to tailor user experiences by providing content and resources that align with individual preferences. However, it is crucial for libraries to address the privacy concerns associated with accessing personal data.

2.2. Artificial Intelligence

The presence of Siri and Alexa on numerous devices has made artificial intelligence a commonplace aspect of our daily lives, moving it beyond the realm of futuristic technology. Kristin Whitehair highlights in her article on Public Libraries Online that while many AI applications aim to provide information to users, this can create the perception that AI poses a threat to libraries. However, she also points out that "the intelligence is artificial, not human," emphasizing that libraries have the unique ability to connect individuals not only to information but also to one another, a capability that AI lacks. Integrating intelligent features into library applications presents a valuable opportunity to analyze user behavior patterns and tailor services to meet their needs.

2.3. Blockchain technology

Blockchain technology has emerged as a prominent topic of discussion over the past year, particularly as Bitcoin continues to gain influence. This technology functions as a decentralized database that records pseudonymized digital transactions, making them accessible to all participants within the network. As such, it offers a novel approach to data collection and storage. In an article for EdSurge, Sue Alman, an educator specializing in emerging technologies, emphasizes that blockchain could facilitate the development of an advanced metadata system for libraries, track digital-first sale rights and ownership, connect networks of libraries and universities, and even support community-driven borrowing and skill-sharing initiatives.

2.4. Internet of Things

As internet connectivity has evolved into a fundamental requirement rather than a mere luxury, the Internet of Things (IoT) is garnering increasing attention. Similar to Radio-Frequency Identification (RFID) technology, IoT encompasses the capability to connect everyday devices and facilitate data exchange among them. However, in the case of IoT, this data transfer occurs

via the Internet. A recent article on the American Library Association website emphasizes numerous "opportunities for library applications," ranging from tracking room usage and program attendance to monitoring humidity levels for special collections, among others. Consequently, libraries can enhance user experiences by expanding their services and collections. An illustrative example mentioned in the article is the Hillsboro Public Library in Oregon, which has implemented the Book-O-Mat, a self-service kiosk that is monitored from the main library to track usage, identify trends, and provide recommendations.

2.5. Library bookmark apps

In his article featured on the "eBook friendly" website, Piotr Kowalczyk highlights several emerging technologies that may shape the future. He discusses an intriguing device developed by the Chinese design firm Toout, which functions as a conventional bookmark while also incorporating additional features to enhance the user's experience in locating books. Although this tool is currently in the conceptual stage, it has the potential to provide users with directions to the desired book and to monitor their lending activities in a more engaging manner. Many users still face challenges when trying to find books within libraries, making a solution that offers guidance to locate them a groundbreaking advancement in addressing this issue.

2.6. User-focused interfaces and application

One of the promising directions for library services is the enhancement of personalized interactions between the system and its users. This could manifest in various forms, such as interactive games projected onto the floor for children, digital exhibitions displayed on screens, or large screens within libraries that provide diverse information and encourage users to discover specific books. Additionally, simple setups that allow users to take selfies can also enhance the digital experience. A notable example is the State Library of Queensland's recent initiative called "Unstacked," which offers a novel approach to digitally visualizing the library's collection. In an interview with Princh, Jane Cowell elaborates on this innovative project, stating that "Unstacked" is designed to continuously update based on real-time user searches within the library catalog. She notes that "there is amazing content that is hidden in the collection, but unless a user is specifically searching for it, this content remains hidden." This visual representation of the library's items is user-curated and constantly refreshed, with the aim of encouraging users to explore the collection more extensively.

2.7. Augmented reality

A ugmented reality is gaining significant attention in the technology sector, sparking interest in its application across various fields, including healthcare and gaming. Libraries could also benefit from this innovative technology by merging the digital and physical realms. A notable example is SolUS, a UK-based company that provides digital solutions for libraries, transforming user interaction with library services. Their augmented reality app, Mythical Maze, has been utilized in summer reading initiatives throughout the UK, assisting children in enhancing their reading abilities during the summer break. Additionally, Piotr's blog highlights an intriguing image-based augmented reality application called librARi, which enables users to

locate books through AR interactions. The app's design focuses on identifying books within physical spaces and uncovering related titles.

2.8. Digital interfaces for printed books

The integration of physical and digital realms is a much-anticipated advancement, particularly concerning tangible items. The convenience of 'copy' and 'find' features in e-books, along with the ability to highlight key excerpts in documents, is widely appreciated. Fujitsu has developed a prototype called FingerLink, which offers digital capabilities for printed books (view the showcase video here). This innovative device recognizes users' fingers and their interactions, transforming the printed page into an interactive touchscreen. Users can select desired sections, converting them into a digital format for further processing.

2.9. Driverless cars

Driverless cars often appear to be a concept straight out of the science fiction films of our youth. However, Ida Joiner, author of the newly released book "Emerging Library Technology," suggests that autonomous vehicles could hold significant value for libraries in the future. Librarians will be crucial in providing resources for individuals interested in learning about driverless technology and pursuing careers in this field. Libraries have the potential to partner with educational institutions, businesses, and workforce development agencies that are advancing this technology, offering users various opportunities such as internships, mentorship programs for students, and hosting career fairs or workshops focused on the subject.

2.10. Drones

The emergence of small flying devices that can be operated remotely is becoming a significant trend in the field of science today. These devices, often referred to as drones, present a variety of opportunities for innovation and education. Libraries can greatly enhance their offerings by integrating this technology into their services. One way they can do this is by expanding their collections to include the latest drone technology, allowing patrons to access these devices for research and exploration. Additionally, organizing workshops focused on drone construction and operation can provide valuable hands-on experience for users. These educational programs can foster a community of learners who are interested in technology and science, enhancing the library's role as a hub for knowledge and skills development. By embracing the use of drones, libraries not only expand their resources but also create an engaging environment where users can acquire new abilities that may benefit them both personally and professionally. Ultimately, incorporating drones into library programs can lead to increased patron engagement and satisfaction, as well as a wider appreciation for the advancements in technology.

3.0 Conclusion

The dynamics between researchers and libraries have evolved significantly due to the revolution in innovative technologies. A librarian has pointed out that a new, "invisible" category of technology should be more extensively utilized by libraries to facilitate quicker and easier access to materials for researchers. The lack of direct interaction with researchers highlights the gap between their needs and the resources available in libraries. In response, many libraries are actively seeking strategies to better engage with researchers. Numerous university libraries

continue to provide training on research information management systems for both librarians and researchers. The demand for these services is growing rapidly. Embracing this change, libraries should leverage emerging technologies to enhance their intermediary role. Additionally, drones could be employed for various library functions, such as content creation, data collection, or, as noted by Piotr in his article, delivering materials to users who are unable to visit the library due to disabilities or distance. While this may seem far-fetched, book delivery is already being implemented outside of libraries. For instance, the Australian startup Flirtey has successfully demonstrated a book delivery service for a rental company called Zookal. Although this service may seem excessive for libraries, it is worth considering in an age where users increasingly expect convenience and accessibility. There are significant technological advancements underway that could greatly enhance the user experience at local libraries.

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