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Literature Review

Managing Digital Library Services to Increase Access to Information

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Abstract

Along with the development of time and technology, currently library services have transformed and adapted to technology, one of the transformations is digital libraries. Digital libraries allow users to access various information sources anytime, anywhere, without time and location restrictions. The research method used in this research is a literature study method, this method is carried out by examining various literature studies needed in the research, data collection techniques using data such as journals, books, and web references. The results of this study reveal, to achieve effective management of digital library services can implement several things, namely: 1) Digital Collection Management, 2) Use of information management systems, 3) Interactive services for users. Then, the factors that support the success of digital library management include, reliable technology infrastructure, quality content and according to user needs, accessibility and easy-to-use interfaces, cooperation with other institutions such as universities or research institutions, and regular assessment and feedback to improve service quality. The impacts of digital library management on information access are: 1) Easier access to information, 2) Availability of Richer Materials, 3) Ease of Searching or Sorting, 4) Cooperation and interaction.

Keywords: Digital Library, Information Access, Technology

1. Introduction

Based on Law Number 43 of 2007 concerning libraries, libraries are institutions that manage collections of written works, printed works, and recorded works professionally with a standardised system to meet the educational, research, preservation, information and recreational needs of the users. Along with the development of time and technology, currently library services have transformed and adapted to technology, one of the transformations is digital libraries (Brophy, 2007). Digital libraries allow users to access various information sources anytime, anywhere, without time and location restrictions.

This is especially important in developing countries where physical access to traditional libraries is often limited. Digital library services have made information that was previously limited to certain locations accessible to more people, even in remote locations. As for previous research relevant to this research, namely, a scientific journal entitled 'The Importance of Information Technology in Improving Services in Libraries' the results of his research state that, The application of information technology in library development shows that, information technology provides extraordinary convenience to users to access information across borders (Zuhrah, 2011).

Furthermore, a scientific journal entitled 'Digital library development to facilitate access to information', the results of his research reveal that, Digital library development is needed to increase information accessibility and spread knowledge in the information society (Arum & Marfianti, 2021). Then the scientific journal entitled '' Digital Library Management'' reveals that, Accessing information

through digital libraries offers many benefits to users (Mulyadi, 2023). As for the benefits of digital libraries, including a high number of choices, instant access to educational content, and easier information retrieval (Baeza-Yates & Ribeiro-Neto, 1999). Users can access digital libraries anytime and anywhere as long as they are connected to the internet, eliminating the time and location restrictions that exist in conventional libraries (Kusumaningrum et al., 2024) Then, a scientific journal entitled 'Utilisation of Digital Libraries in Supporting the Teaching and Learning Process' the results of his research revealed that, digital libraries provide crucial benefits in the field of education because, digital libraries are used as a tool in the learning process (Batubara, 2013).

The novelty of this research lies in the development of a holistic digital library service management approach that emphasises digital collection management, use of information systems, and interactive services to enhance user experience. It also identifies success factors, such as reliable technological infrastructure, user-friendly interfaces, and inter-institutional collaboration, which have not been addressed in an integrated manner in previous studies. In addition, this research highlights the positive impact of digital libraries on information access, especially in developing countries, with a focus on increasing accessibility, availability of materials, and collaboration between users, thus making new contributions to digital literacy and library management in the modern era. This research aims to identify effective digital library management strategies, analyse their success factors, and evaluate their impact in improving access to information widely, efficiently, and without location or time constraints.

2. Methods

Research methods are scientific procedures, steps, or procedures in obtaining data for research purposes that have specific purposes and uses (Karunarathna et al., 2024). Research is a scientific activity that aims to obtain data which is then used for certain purposes. There are two research methodologies that are generally known, namely: Qualitative research, which is an approach in conducting research that is oriented towards natural phenomena or symptoms and Quantitative Methods, this method focuses on measurements, numbers, and statistics, the data obtained are numerical and can be analysed mathematically (Abdussamad & Rapanna, 2021). The research method used in this research is a literature study method, this method is carried out by examining various literature studies needed in research, data collection techniques using data such as journals, books, and web references.

3. Results and Discussion

3.1. Effective Management of Digital Library Services

Effective management of digital library services is essential in today's information age, where libraries are required to keep up with technological advances and fulfil evolving user expectations. This effectiveness can be achieved through the integrated implementation of marketing strategies, performance management, and technological innovation. In terms of marketing strategies, digital libraries utilise digital engagement by using social media and communication tools such as WhatsApp and Facebook to expand their reach and promote their services (Horsfall, 2020). In addition, a user-centred approach, which tailors services to customer needs, has been shown to increase library engagement and visibility (Acharya & Tippanna, 2023). Partnerships with local communities are also an important element in expanding the scope of services and building a sense of community around the library (Acharya & Tippanna, 2023).

A reliable library is one that has access to technology, meaning that its systems and management are technologically advanced and its collections are digital. In this case, in order to achieve effective management of digital library services, several methods can be implemented, such as: 1) Digital Collection Management, 2) Use of information management systems, 3) Interactive services for users. Based on literature analysis, one example of digital library management is the development of a library in digital form using an application known as E-Pustaka, (Ramadhan et al., 2024). This can be said to be effective because it can be accessed anywhere. Then, the use of information management systems in libraries can also help digital library management services effectively, one of the effective indicators is the existence of a computer-based information system software that can manage library services which include; member registration, book borrowing, returns, stock management, library catalogue services, as well as services to replace damage and loss (Soetedjo & Sidik, 2019).

Furthermore, interactive services for users can also be developed for the improvement of digital library management services to be effective, Digital library services should be interactive with their users because direct communication can improve the overall user experience. With interaction, users can immediately and easily get the help or information they need. It also makes it easier for them to find books, articles or other resources that suit their needs. In addition, interactive services provide an opportunity for libraries to customise suggestions based on each user's preferences, providing a more personalised and relevant experience.

From a performance management perspective, the use of tools such as the Balanced Scorecard helps align library initiatives with strategic goals. This approach emphasises on four main aspects, namely customer satisfaction, financial health, internal processes, and organisational learning (Owusu-Ansah & Takyi, 2017). In addition, libraries are also starting to adopt data-driven decisions by utilising analytics to assess service effectiveness as well as user satisfaction levels. This step is key in the continuous improvement process (Acharya & Tippanna, 2023).

In terms of technological innovation, digital libraries utilise modern techniques such as the Fuzzy C-Means (FCM) clustering algorithm. This algorithm supports more efficient data management and improves user experience through optimising resource allocation (Shi, 2022). However, challenges such as limited information and communication technology (ICT) infrastructure and lack of training for staff are still major obstacles in achieving effective management. Therefore, efforts to overcome these obstacles are crucial to ensure the sustainable development of digital library services (Horsfall, 2020). Users can also be more actively involved in the information search and utilise the various features available on the platform. Last but not least, interaction provides an opportunity for users to provide useful feedback to improve the service, as well as ensuring that any problems or obstacles faced by users are addressed quickly. All of this contributes to a more efficient and satisfying use of the digital library.

3.2. Factors that Support Successful Digital Library Management

Success in digital library management depends on several important elements. Firstly, a reliable technological infrastructure is required, as digital libraries rely heavily on well-functioning hardware and software. If the infrastructure is not sufficient enough, access to digital resources may be hampered. Hardware such as reliable servers and storage systems are essential to ensure digital collections can be accessed quickly and seamlessly (Sampathkumar, 2020). On the other hand, efficient software, such as library management systems (LMS), plays a key role in the organisation, retrieval and preservation of digital assets (Dhanamjaya & Picheswarao, 2018). A cyberinfrastructure integrated with advanced computing technologies is also essential to support large-scale data management and data analytics, which modern digital libraries require (Xu et al., 2019). In addition, user accessibility also requires attention, with fast network connectivity and intuitive user interfaces as key elements to enhance user

experience and enable them to access digital resources without interruption (Dhanamjaya & Picheswarao, 2018; Sampathkumar, 2020). While technology plays an important role, human elements, such as staff training and expertise, are also highly influential in the overall success of digital library implementation (Owens et al., 2018).

Secondly, the presence of quality content that meets the needs of users is vital. A digital library needs to have an extensive, diverse and regularly updated collection to fulfil the desires of diverse users. This includes books, journals, articles and other easily accessible resources. The variety of formats on offer, be it print or electronic resources, allows digital libraries to cater to the preferences of a diverse range of user (Haliso & Aina, 2012; Mayank & Patel, 2010). Collection development should be driven by user needs assessments and usage statistics, so as to ensure the relevance and adequacy of available resources (Mayank & Patel, 2010; Venkadesan & Jagannath, 2004). On the other hand, with the rapid development of technology, digital libraries must also constantly update their collections to keep them up to date with the latest information and research. In addition, the remote access provided by digital libraries increases the ease with which users can access resources from different locations, ensuring the availability of information whenever it is needed (Mayank & Patel, 2010; Sampathkumar, 2020). Despite the importance of digital libraries, traditional libraries still play a crucial role in preserving printed materials and providing a physical space for community engagement. By balancing both formats, user experience and satisfaction can be optimised.

Furthermore, accessibility and an easy-to-use interface are also very important. Users should feel comfortable when searching and retrieving the required information. The importance of accessibility and user-friendly interfaces in digital libraries cannot be overstated, as they significantly enhance the user experience and ensure fair access to information. A well-designed interface, supported by training and collaboration, can greatly improve the usability of digital library services. Technologies such as AI-supported assistive tools, like text-to-speech systems and navigation aids, play a crucial role in empowering users with disabilities, enhancing their autonomy and participation in library services (Chauhan, 2024). Moreover, applying user-centered design principles creates an intuitive and easily navigable interface, especially for individuals with visual impairments (Kiambati et al., 2024). Training on assistive technology is essential to ensure users can effectively engage with digital library resources, leading to a more fulfilling experience (Kiambati et al., 2024). Continuous support should also be provided to help users navigate the digital systems and access the information they need (Rohmiyati et al., 2024). In addition, collaborations with other institutions such as universities or research institutes can enrich collections and expand the reach of digital libraries. Finally, it is important to conduct regular assessment and feedback in order to improve service quality, identify weaknesses, and ensure that the digital library can continue to adapt to the needs of its users.

3.3. The Impact of Digital Library Management on Access to Information

Digital libraries offer a significant increase in accessibility by providing global information resources that can be accessed anytime and anywhere, supporting distance learning and enriching the classroom experience for students (Kibithe & Naibei, 2023). In addition, improved information retrieval is also achieved through the integration of advanced search algorithms and metadata management that streamline the information retrieval process, making it more efficient (Talikoti, 2024). User-centred design further enhances usability, ensuring ease of navigation and search for relevant information (Kibithe & Naibei, 2023).

Reporting from kumparan.com, there are several impacts of digital library management on access to information, including: 1) Easier access to information, allowing users to access various sources of information online from anywhere and anytime, as long as they are connected to the internet, 2) Richer

Material Availability, digital libraries are able to store a much larger amount of data compared to physical libraries. This allows them to manage more diverse collections, including books, journals, articles, and other resources, 3) Ease of Searching or Sorting, digital libraries are usually equipped with sophisticated search technology. Users can utilise keywords, filters, and more in-depth search options to find related content more efficiently, 4) Collaboration and interaction between users, digital libraries usually provide various collaborative facilities, such as forums for discussion, chat rooms, or virtual communities. Effective digital library management can certainly have a positive impact on users (Xu & Du, 2018).

However, digital libraries are also faced with challenges, including the digital divide, limited digital literacy, and issues related to copyright and sustainability (Yunita et al., 2024). Continuous professional development for librarians is essential to address these challenges and improve user engagement (Talikoti, 2024). Therefore, while digital libraries greatly improve access to information, existing challenges need to be addressed to maximise their potential in the future.

4. Conclusion

From the discussion above, it can be concluded that, to achieve effective management of digital library services, several things can be implemented, including: 1) Digital Collection Management, 2) Use of information management systems, 3) Interactive services for users. Then, the factors that support the success of digital library management include, reliable technology infrastructure, quality content and according to user needs, accessibility and easy-to-use interfaces, cooperation with other institutions such as universities or research institutions, and regular assessment and feedback to improve service quality. The impacts of digital library management on information access are: 1) Easier access to information, 2) Richer Material Availability, 3) Ease of Search or Sorting, 4) Cooperation and interaction between users.

To improve digital library management, it is necessary to update digital collections, optimise information systems, and provide interactive services. It is also important to strengthen technological infrastructure, provide quality content according to user needs, and ensure user-friendly interfaces. Cooperation with other institutions and periodic evaluation will improve the quality of services and facilitate access to information.

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