Journal of Education, Humaniora and Social Sciences (JEHSS) *ISSN 2622-3740 (Online)*
Vol 7, No. 2, November 2024: 424-431, *DOI: 10.34007/jehss.v7i2.2363*

Information Technology Integration Strategy in Public Library Services

Hazan[1)]* & Zulkifli Ayub[2)]

[1]Program Studi Perpustakaan dan Sains Informasi, Fakultas Sosial Humaniora, Universitas Cahaya Prima, Indonesia
[2]Program Studi Ilmu Administrasi Negara, Fakultas Sosial Humaniora, Universitas Cahaya Prima, Indonesia

Submitted: 18 September 2024; Reviewed: 19 September 2024; Accepted: 08 November 2024

*Corresponding Email: penerbit.cit@gmail.com

Abstract

This study aims to identify the integration strategy of information technology in public library services in Bone Regency. Using a qualitative and case study approach, this research explores how information technology is applied in library management and its impact on service quality. A purposive sampling technique was used to select 15 informants consisting of 5 librarians, 5 library users, and 5 relevant stakeholders. The results show that the use of information technology, such as online catalog systems and digital services, can improve the accessibility and efficiency of library services. Librarians in Bone Regency stated that technology helps them manage collections and serve users more quickly and accurately. Library users revealed that technology-based services make it easier for them to search for information and access reading materials remotely. However, some challenges, such as limited infrastructure and technical knowledge, still need to be overcome. This research highlights the importance of training and capacity building for librarians as well as increased investment in technology to maximize its benefits for public libraries in Bone Regency.

Keywords: Public library; Information technology; Library services, Technology integration; Case study

How to Cite*:* Hazan & Ayub, Z., (2024), Information Technology Integration Strategy in Public Library Services, *Journal of Education, Humaniora and Social Sciences (JEHSS), Vol 7, No. 2, 424-431*

INTRODUCTION

Public libraries play a crucial role in supporting literacy, education, and access to information in the community, especially in areas with limited infrastructure and access to technology. (Aiyeblehin et al., 2018). In recent decades, advances in information technology have triggered significant transformations in various sectors, including libraries. (Danbaki et al., 2020). The integration of information technology into library services has become an urgent need to respond to the challenges of the times, especially in the digital era that demands ease of access, speed, and efficiency. (Adetimirin, 2017; Muhamad et al., 2023). Libraries that once only provided physical access to books and information resources have now evolved into more dynamic information centers with a variety of digital services that can be accessed anytime and anywhere. (Danbaki et al., 2020; Rafi et al., 2019). This is driven by the increasing public need for up-to-date information and the ease of accessing various resources through the Internet and other digital platforms. (Rahmani, 2023).

Based on preliminary research in Bone Regency, it was noted that internet access is still limited, especially in rural areas which have much lower access compared to urban areas. Public libraries in these areas face a major challenge in providing relevant and accessible information services to the community. As such, libraries in Bone Regency are in a situation where the integration of information technology is not only a necessity but also a major challenge that must be overcome to improve the quality of services to the community. Information technology-based library services, such as online catalogs, digital lending services, and digital libraries that allow access to electronic collections, are expected to increase the relevance of libraries in this modern era, especially for younger generations who are more familiar with the technology.

Several previous studies have discussed the importance of implementing information technology in libraries as one of the strategies to expand access to information and improve management efficiency. For example, a study (Cobus, 2008) Found that using technology-based library management systems increases librarian productivity, simplifies collection management, and facilitates quick access for users. Another study (Aiyeblehin et al., 2018; Paola Picco, 2008; Rafi et al., 2019) Showed that digital libraries play an important role in providing access to education and information for remote communities, which were previously hard to reach by conventional services. These studies highlight that libraries that adapt to technology can bridge the information access gap and support community empowerment.

However, most of the existing research has been conducted in developed countries or areas with better technological infrastructure. Research in local contexts, especially in areas with limited technological infrastructure such as Bone Regency, in remote rural areas is still very limited. Yet, in this region, libraries play a vital role in providing access to information for people who have limited formal education and access to modern information resources. This difference in technological infrastructure is the underlying differentiating factor of this study from previous studies.

In addition, the challenges faced by public libraries in rural areas such as Bone Regency also include limited resources, a lack of training for librarians in the use of technology, and a community mindset that is not yet fully open to technology-based library services. Therefore, this research has a different focus, which is to explore in depth how public libraries in Bone Regency can integrate information technology in their services, despite limited infrastructure and resources. It will also explore the views of various stakeholders, including librarians, library users, and related parties, on the benefits, challenges, and long-term prospects of implementing information technology in the region's public libraries.

Public libraries play a crucial role in advancing literacy, education, and access to information, especially in areas with limited infrastructure. The rise of information technology in recent decades has driven significant transformations across various sectors, including libraries. For public libraries, especially those in regions like Bone Regency, integrating information technology has become imperative to meet modern demands for accessibility, speed, and efficiency. However, challenges persist, particularly in rural areas with limited internet access, hindering comprehensive, technology-based services to all community members.

This research addresses that gap by exploring how Bone Regency's public libraries can effectively integrate information technology despite these limitations. Our focus extends beyond

technological application to include the unique challenges in training and infrastructural support. Specifically, we examine internet accessibility disparities within Bone Regency, showing that rural areas lag behind urban counterparts—a factor contributing to the persistent barriers in accessing library services.

Using a qualitative case study approach, this research aims to provide a comprehensive analysis of the strategies and solutions public libraries can employ to overcome these obstacles, contributing essential insights to both the academic literature and practical policy considerations for library development in remote regions.

RESEARCH METHODS

This research uses a qualitative approach with a case study design to understand how public libraries in Bone Regency integrate information technology into their services. Case studies were chosen because they allow researchers to delve deeply into a particular phenomenon within a complex context, as well as explore the various perspectives of the informants involved.

The determination of informants was done through the purposive sampling technique, which allows researchers to select informants based on certain criteria relevant to this study. A total of 15 informants were interviewed, consisting of five librarians, five library users, and five related stakeholders. The librarians were selected based on their role in public library management and their involvement in the information technology integration process. Library users were selected to provide perspectives on their experiences in using technology-based library services, while stakeholders consisted of parties related to library policy and development in Bone Regency.

Data collection was conducted through in-depth interviews with all informants. The interviews were semi-structured, allowing flexibility in exploring relevant topics while maintaining a prepared framework of questions. The main topics covered included perceptions of the benefits of information technology in library services, challenges faced in the integration process, and expectations regarding the further development of public libraries.

In addition to interviews, direct observations were conducted at several public libraries in Bone Regency to gain a better understanding of the condition of the existing technology infrastructure and how technology-based services are implemented in daily operations. These observations also provided additional data on the interaction between librarians and users in the use of information technology in libraries.

The data analysis process was conducted through several systematic stages. First, the interview data was transcribed to facilitate further review and interpretation. After transcription, open coding was conducted, where the data was broken down into smaller, relevant units. This stage was followed by grouping the codes into themes from the data, thus providing deeper insights into patterns or relationships related to information technology integration in libraries.

The triangulation method was used to increase data validity by comparing information obtained from interviews, observations, and related documents, such as library reports and local government policies regarding library development. Validation was also done through member checking, where the informants confirmed the results of the interviews to ensure accurate interpretation and increase confidence in the research findings.

RESULT

The results show that the integration of information technology in Bone Regency public libraries has had a significant impact, both in improving access to information and the effectiveness of library services. However, there are some challenges that still need to be overcome regarding infrastructure, staff training, and user participation in utilizing technology-based services.

Application of Information Technology

The implementation of information technology in Bone Regency libraries has had a significant impact on service improvement, especially in the ease of access to collections and speed of service. One of the librarians explained that the use of the digital catalog system has made it easier for them to carry out their daily tasks. He said:

> "With the online catalog, we can find books requested by users faster, so service time can be accelerated. It also helps us keep track of books that are on loan or available." (interview, August 2024)

The digital system also brings positive changes in book management. A library user stated:

> "The online system is very helpful, especially for those of us who live far from the library. We can view and read without having to come in person." (interview, August 2024)

In addition, users also find it easier to track the status of books they are looking for.

> "Now I can know when a book needs to be searched just through the app, so I don't have to worry about searching anymore." (interview, August 2024)

Nonetheless, some librarians admit that they face challenges in implementing this technology, mainly due to a lack of knowledge. One librarian revealed:

> "The knowledge we have is only the basics. We are still learning to understand all the features of the technology being used." (interview, August 2024)

This problem often causes some features, such as user data management and integration with other digital platforms, to be continuously developed. On the other hand, infrastructure issues, especially internet connection, are also a major obstacle, especially in libraries located in remote areas. A librarian at a rural branch said:

> "The internet here is often slow, and that makes the online system unusable. Eventually, we have to go back to the manual way, which obviously slows down the process." (interview, August 2024)

These infrastructure limitations prevent some libraries from fully utilizing the benefits of existing technology. These challenges show that the application of information technology in library services continues to evolve. Although it has brought many conveniences, it is important to improve the training of librarians and improve supporting infrastructure, such as the Internet network, so that all features can be used to their full potential.

User Satisfaction

The implementation of information technology in Bone Regency libraries has had a varied impact on user satisfaction. Most users find the new system to be a significant convenience and efficiency in library services. One user enthusiastically expressed,

> 'This online system makes it easier for me. In the past, I had to come directly to the library to borrow books, but now I can do it from home. It saves me a lot of time, especially amid my busy work and family life.' (interview, August 2024)

Another recognized advantage is the ease of accessing the book collection. Another user adds,

> "I find the digital catalog system very helpful. I can search and find the books I need without having to spend time searching the library shelves. It makes it easier for me to get the books needed for my research quickly and efficiently.' (interview, August 2024)

However, while there was a lot of positive feedback, some users reported problems that hampered their experience with the library's information technology. One user mentioned,

> "I often have difficulty accessing the system due to slow internet network issues. Sometimes I have to try several times before I can finally log in. This is very frustrating, especially when I am trying to access urgent research materials.' (interview, August 2024)

This problem is exacerbated by recurring technical glitches. Another user revealed, 'Often the system has glitches that make it impossible for me to process loans or search for books. When I encounter this problem, I have to contact the library staff, which can be time-consuming and disruptive to my schedule.' This experience shows that while the implementation of technology brings many benefits, there are shortcomings in the stability and reliability of the system that need to be addressed.

Overall, while the implementation of information technology in Bone Regency libraries has brought benefits in terms of efficiency and accessibility of services, there are still significant challenges. With regards to the internet network, improvements in this area are expected to optimize information technology and ensure that all users can make the best use of library services.

Infrastructure Support

Information technology infrastructure support in Bone Regency libraries still faces significant obstacles, which hinder the maximum utilization of technology throughout the region. One of the main problems identified is the quality of the internet network, especially in remote areas. Based on interviews with several librarians working in rural libraries, they expressed difficulties in using information technology due to unstable internet networks. A librarian in a remote area explained,

> "We have computers in the library, but we often have problems because the internet is very slow. The computers often cannot be used effectively due to poor internet connection, which makes it difficult for us to serve visitors and manage the digital catalog." (interview, August 2024)

This problem is exacerbated by limitations in terms of equipment and facilities. Another librarian adds,

> "Although we have received some computer equipment from the government, the lack of support to improve the quality of the internet network is very hampering. We cannot utilize information technology optimally when the internet network is constantly interrupted. This hampers our ability to provide good services to the community." (interview, August 2024)

In addition, relevant stakeholders also recognized the challenges in improving information technology infrastructure in libraries. In an interview with one of the stakeholders involved in infrastructure development, they stated,

> "We keep trying to improve the information technology facilities in the library, but the limited budget is one of the main obstacles. Despite efforts to improve the internet network and update equipment, the limited budget is often a big obstacle in achieving the desired results." (interview, August 2024)

Stakeholders also noted that while steps have been taken to improve infrastructure, these improvements have not always been evenly distributed across Bone Regency.

> "We have prioritized certain areas for infrastructure improvements, but there are still many remote areas that have not received adequate updates. This creates an imbalance in the quality of services provided," (interview, August 2024).

Overall, information technology infrastructure issues, particularly related to weak internet networks, are a major obstacle in ensuring that all libraries in Bone Regency can utilize

information technology effectively. More coordinated efforts are needed to overcome this challenge and improve the quality of library services across the region.

The results show that implementing information technology in Bone Regency libraries has had a positive impact, especially in terms of easy access to information and increased service efficiency. However, the study also found some significant challenges, mainly related to limited staff knowledge and inadequate infrastructure issues in some areas. One of the main challenges librarians face is limited knowledge and skills in operating new technology systems. Some librarians revealed that they only have a basic understanding of the technological features being implemented, which often limits their ability to support users fully. For example, when users experience technical problems accessing digital catalogs or online lending services, librarians who need more technological mastery often find it difficult to provide fast and appropriate assistance. This limitation impacts services that tend to be slower, which can reduce user satisfaction, especially for users who need fast and efficient access.

In addition, the staff's limited knowledge of managing user data and integrating technology systems with other digital platforms is also an obstacle to optimizing library services. Some librarians revealed that manual recording processes often occur when digital systems experience problems, potentially reducing data efficiency and accuracy. On the user side, the challenges faced are closely related to the quality of the internet network in rural areas, which is slower than in urban areas. Users in areas with less stable internet connections often need help accessing digital catalogs or other technology-based services. This affects their experience of using library services and limits their access to the resources they need for education and research. These infrastructure limitations lead to disparities in service access between users in rural and urban areas.

Overall, these challenges contribute to the effective implementation of information technology in Bone District libraries. With more limited staff knowledge and uneven infrastructure quality, the effectiveness of technology implementation still needs to overcome various barriers to achieve more inclusive and optimized library services.

DISCUSSION

The implementation of information technology in Bone Regency libraries faces several challenges and opportunities relating to technology application, user satisfaction, and infrastructure support. Overall, despite significant progress in the application of technology, several key issues need to be addressed to improve the effectiveness and satisfaction of library services.

The use of information technology in libraries, such as online catalog systems and digital lending services, has accelerated service processes and made collection management easier. Previous research has shown that digital catalog systems not only assist librarians in book searches but also improve library operational efficiency (Okechukwu et al., 2024; Rafi et al., 2019). This is in line with the findings in Bone Regency, where librarians reported that the new technology has accelerated the book search process. However, challenges arose about the use of the online library; some users felt that they were not fully aware of the utilization of technological features. Lack of training is a significant barrier to the optimal utilization of technology (Yeh & Walter, 2016), which was also evidenced by the interviews in Bone Regency.

User satisfaction with information technology in libraries varies. Many users appreciate the convenience provided by the online system, which allows them to access library services from home without the need to physically visit. This finding is consistent with previous research, which suggests that efficient information systems can increase user satisfaction (Kernaghan & Gunraj, 2004; Rafi et al., 2020; Smith, 2010). However, not all users had a positive experience; some experienced problems with internet speed due to being in remote areas which hindered their access. This reflects the results of another study, which identified that poor network quality can affect users' experience of using library technology (Buck, 2016; Danbaki et al., 2020; Pillai et al., 2014).

Infrastructure support, specifically related to the quality of the internet network, is a major issue in the implementation of information technology in Bone Regency. Interviews with librarians showed that despite the presence of computer devices, weak internet networks in remote areas hinder the effective utilization of technology. Previous research has also highlighted that budget

constraints and inadequate infrastructure support can hinder the improvement of technology facilities (Almendarez, 2013; Cahaya et al., 2022; Mislia et al., 2021; Tomasik et al., 2021; Yusriadi et al., 2022). These findings suggest that the quality and success of information technology implementation is highly dependent on adequate infrastructure support and sufficient budget.

Overall, the results of this study indicate that although information technology has brought significant progress in Bone Regency libraries, more attention is needed in terms of improving the quality of the internet network. These measures are important to optimize the use of information technology and improve library services to the community.

CONCLUSION

Implementing information technology in Bone Regency libraries has brought significant progress, especially regarding service speed and collection management efficiency. The online catalog system, for example, has made it easier for librarians to search for books and track collections, which aligns with previous research that shows the increased operational efficiency of libraries with digital systems.

However, challenges remain, particularly in terms of library staff's limited knowledge and the uneven quality of internet networks, especially in rural areas. These factors are still obstacles to achieving optimal and equitable services throughout the region. Based on user feedback, technology-based services have been well received by most users who benefit from faster and easier access to library collections. Many users expressed that the online system makes it easier to find reading materials without coming directly to the library, which is very helpful during their busy activities. However, users in areas with less stable internet connections revealed that they often needed help accessing this service, reducing their experience's convenience and effectiveness.

Overall, the quality of technology-based library services in Bone Regency still has room for improvement. Increased training for library staff to improve their technical skills and improved internet infrastructure are needed to make the service more equitably accessible. By addressing these challenges, libraries can provide more inclusive and adequate services to the entire community, regardless of their geographical location.

ACKNOWLEDGEMENTS

This research was funded by the Directorate General of Higher Education, Research and Technology of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia through the novice lecturer research scheme. The authors are also grateful to the Institute for Research and Community Service of Universitas Cahaya Prima for its support.

REFERENCES

Adetimirin, A. (2017). Why and how of technology integration for services in university libraries?

Aiyeblehin, J. A., Onyam, I. D., & Akpom, C. C. (2018). Creating makerspaces in Nigerian public libraries as a strategy for attaining national integration and development. International Journal of Knowledge Content Development & Technology, 8(4), 19–31.

Almendarez, L. (2013). Human Capital Theory: Implications for Educational Development in Belize and the Caribbean. Caribbean Quarterly, 59(3–4), 21–33. https://doi.org/10.1080/00086495.2013.11672495

Buck, W. (2016). Organizational integration, strategic planning, and staff assessment in publicly funded libraries. Public Services Quarterly, 12(4), 277–289.

Cahaya, A., Yusriadi, Y., & Gheisari, A. (2022). Transformation of the Education Sector during the COVID-19 Pandemic in Indonesia. Education Research International, 2022. https://doi.org/10.1155/2022/8561759

Cobus, L. (2008). Integrating information literacy into the education of public health professionals: roles for librarians and the library. Journal of the Medical Library Association: JMLA, 96(1), 28.

Danbaki, C. A., Gado, D. S. M., Mohammed, G. S., Agbenu, D., & Ikegwuiro, P. U. (2020). Library and Social Integration. Asian Research Journal of Arts & Social Sciences, 12(2), 14–20.

Kernaghan, K., & Gunraj, J. (2004). Integrating information technology into public administration: Conceptual and practical considerations. Canadian Public Administration, 47(4), 525–546.

Mislia, M., Alim, A., Usuf, E., Tamsah, H., & Yusriadi, Y. (2021). The effect of training and education and teacher certification allowances on teachers. Cypriot Journal of Educational Sciences, 16(4), 1368–1383. https://doi.org/10.18844/cjes.v16i4.5986

Muhamad, N., Huda, M., Hashim, A., Tabrani, Z. A., & Maárif, M. A. (2023). Managing technology integration for teaching strategy: public school educators' beliefs and practices. International Conference on Information and Communication Technology for Competitive Strategies, 385–400.

Okechukwu, N. N., Charity, O. K., & Jacinta, C. C. (2024). Integrating Cultural Diversity and Inclusion in the Acquisition of Library Resources and Services for Sustainable Development of Public Libraries. The Progress: A Journal of Multidisciplinary Studies, 5(2), 34–47.

Paola Picco, M. A. (2008). Multicultural libraries' services and social integration: The case of public libraries in Montreal Canada. Public Library Quarterly, 27(1), 41–56.

Pillai, A. K. R., Pundir, A. K., & Ganapathy, L. (2014). Improving information technology infrastructure library service delivery using an integrated lean six sigma framework: A case study in a software application support scenario. Journal of Software Engineering and Applications, 7(06), 483.

Rafi, M., JianMing, Z., & Ahmad, K. (2019). Technology integration for students' information and digital literacy education in academic libraries. Information Discovery and Delivery, 47(4), 203–217.

Rafi, M., JianMing, Z., & Ahmad, K. (2020). Digital resources integration under the knowledge management model: an analysis based on the structural equation model. Information Discovery and Delivery, 48(4), 237–253.

Rahmani, M. (2023). Exploring the Integration of AI in Public Library Services. AI and Tech in Behavioral and Social Sciences, 1(4), 33–39.

Smith, D. (2010). Making the case for the leadership role of school librarians in technology integration. Library Hi Tech, 28(4), 617–631.

Tomasik, M. J., Helbling, L. A., & Moser, U. (2021). Educational gains of in-person vs. distance learning in primary and secondary schools: A natural experiment during the COVID-19 pandemic school closures in Switzerland. International Journal of Psychology, 56(4), 566–576. https://doi.org/https://doi.org/10.1002/ijop.12728

Yeh, S.-T., & Walter, Z. (2016). Critical success factors for integrated library system implementation in academic libraries: A qualitative study. Information Technology and Libraries, 35(3), 27–42.

Yusriadi, Y., Makkulawu Panyiwi Kessi, A., Awaluddin, M., & Sarabani, L. (2022). E-Learning-Based Education Resilience in Indonesia. Education Research International, 2022. https://doi.org/10.1155/2022/7774702