The Role of Technological Innovation in Enhancing Islamic Education Management in the Digital Era

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ABSTRACT

The rapid development of digital technology has brought significant changes to the management of Islamic education, particularly in enhancing administrative efficiency, teaching quality, and stakeholder communication. This study aims to analyze how technological innovations can be applied to improve various aspects of Islamic education management and to identify the challenges and solutions involved. Employing a literature review method, the research draws on recent journal articles, books, and reports related to Islamic education and digital transformation. The results show that the use of digital-based Learning Management Systems (LMS) and Management Information Systems (MIS) has improved administrative and learning outcomes. Nevertheless, disparities in internet access and availability of devices remain pressing issues. The study concludes that comprehensive strategies, including infrastructure development, educator training, and multi-stakeholder collaboration, are essential to ensure the successful and equitable implementation of technology in Islamic education management.
Keywords: Slamic Education Management, Technology Integration, Digital Learning.

ABSTRAK

Perkembangan teknologi digital yang pesat telah membawa perubahan signifikan dalam manajemen pendidikan Islam, khususnya dalam meningkatkan efisiensi administrasi, kualitas pembelajaran, dan komunikasi antar pemangku kepentingan. Penelitian ini bertujuan untuk menganalisis bagaimana inovasi teknologi dapat diterapkan untuk meningkatkan berbagai aspek manajemen pendidikan Islam serta mengidentifikasi tantangan dan solusi yang menyertainya. Dengan menggunakan metode studi pustaka, penelitian ini mengkaji artikel jurnal, buku, dan laporan terkini yang relevan dengan pendidikan Islam dan transformasi digital. Hasil penelitian menunjukkan bahwa penggunaan Learning Management System (LMS) dan Sistem Informasi Manajemen (SIM) berbasis digital telah meningkatkan efektivitas administrasi dan mutu pembelajaran. Namun, kesenjangan akses internet dan ketersediaan perangkat masih menjadi isu utama. Studi ini menyimpulkan bahwa strategi menyeluruh, termasuk pengembangan infrastruktur, pelatihan pendidik, dan kolaborasi multipihak, sangat diperlukan untuk memastikan keberhasilan dan pemerataan implementasi teknologi dalam manajemen pendidikan Islam.
Kata Kunci: Manajemen Pendidikan Islam, Integrasi Teknologi, Pembelajaran Digital.

INTRODUCTION

The rapid advancement of the digital era has significantly transformed the landscape of education, including the management of Islamic education. Information and Communication Technology (ICT) has become a vital component in supporting the efficiency and effectiveness of educational operations. Islamic education management, which traditionally relied on conventional methods, is now facing increasing demands to adopt technological innovations to remain relevant and competitive. In this context, the integration of technology is not merely an option but a necessity for Islamic educational institutions to thrive in today's globalized world (Sindi Septia Hasnida et al., 2023).

Islamic educational institutions such as madrasahs and pesantrens have begun integrating technology into their administrative systems, teaching processes, and human resource management. Digital-based Management Information Systems (MIS), online learning platforms like Google Classroom, and virtual communication tools demonstrate a growing shift toward technology-based educational management (Ayu Era Wardhani et al., 2025). Nevertheless, these implementations still encounter considerable obstacles, including limited infrastructure in remote areas, low digital literacy among educators, and resistance to change within some Islamic educational settings (Sunaji, 2025).

Previous studies have revealed that the integration of technology in education can lead to enhanced learning quality, more efficient administrative decision-making, and greater student engagement (Muh Ibnu Sholeh & Nur Efendi, 2023). Tools such as Learning Management Systems (LMS) allow students to access course materials anytime, while enabling teachers to provide timely feedback. In administrative functions, technology facilitates transparency, accountability, and streamlined reporting. Despite these advantages, many Islamic schools are still unable to fully harness these technological potentials due to disparities in resources and access (Siringoringo & Alfaridzi, 2024).

On the other hand, concerns persist that over-reliance on technology may undermine the spiritual and moral dimensions that are central to Islamic education. As such, a balanced and integrative approach is needed—one that combines technological capabilities with Islamic values centered on faith and ethics. This calls for the development of technological innovations that are not only efficient but also contextually appropriate and aligned with the philosophical foundations of Islamic education (Nurhidayatullah, 2024).

In addition to ideological and cultural challenges, a significant issue lies in the technological gap between institutions in urban areas and those in remote or disadvantaged regions. Limited internet connectivity, lack of adequate devices, and insufficient training for educators are among the primary barriers to comprehensive digital transformation in Islamic education (Salsabila et al., 2025). Therefore, sustainable strategies are essential to address these issues, including cross-sector collaboration, infrastructure development, and human resource capacity-building in digital technology.

Based on the above context, this study aims to comprehensively analyze how technological innovations can be implemented in various aspects of Islamic education management in the digital era. Specifically, this research seeks to identify the main challenges hindering technology integration and to offer practical recommendations for Islamic education managers. The ultimate goal is to optimize technology utilization in order to develop an effective, adaptive, and high-performing Islamic education system that meets the demands of the modern world.

METHODS

This study employs a literature review method to collect and analyze information from various relevant sources concerning the application of technological innovations in Islamic education management in the digital era (Ardiansyah et al., 2023). The research uses qualitative data obtained from journal articles, books, research reports, and policy documents that address the integration of technology in both general and Islamic education contexts. The literature selection focuses on sources published within the last five years to ensure relevance and up-to-date insights (Habib & Muslihun, 2022). The selected literature is categorized according to key themes, such as the use of technology in educational administration, digital-based teaching, and its impact on educational quality. Thematic analysis is then conducted to identify patterns and challenges in technology integration across Islamic educational institutions. In addition, comparative analysis of different findings is used to validate the data and identify innovative solutions. This method is expected to produce a comprehensive understanding of how technology can enhance Islamic education management and provide actionable recommendations for optimizing its use in the digital era.

RESULTS AND DISCUSSION
Application of Digital-Based Learning Management Systems

The implementation of digital-based Learning Management Systems (LMS) in Islamic educational institutions has had a significant impact on the quality of teaching. Research conducted in several madrasahs and pesantrens shows that digital technology allows students to access learning materials flexibly and enhances interaction between teachers and students. For example, the implementation of LMS enables students to complete assignments and take exams online, which not only makes learning more efficient but also facilitates faster feedback from teachers. However, despite the adoption of these systems in many institutions, challenges related to the readiness of technology infrastructure in remote areas still persist. Data from studies in several regions of Indonesia indicate that 50% of Islamic educational institutions in remote areas face difficulties in accessing adequate devices and internet connectivity. This highlights a significant access gap that needs to be addressed in order for technology in Islamic education to be optimally implemented(Aulia Herawati et al., 2025).

On the other hand, some Islamic institutions that have successfully implemented LMS report a significant improvement in the quality of learning.

Research findings show that madrasahs adopting LMS have improved their understanding of the materials provided. The use of technology also reduces reliance on conventional teaching methods that are limited by time and space. With a digital-based system, students can study independently outside of formal lesson hours, enhancing learning flexibility (Zamzani et al., 2020).

Effectiveness of Educational Administration Management

Technology has also made a significant contribution to the efficiency of administrative management in Islamic educational institutions. Prior to the implementation of technology, managing student data, financial reports, and lesson schedules often took a long time and was prone to errors. The implementation of Management Information Systems (MIS) in administrative management has proven to greatly enhance efficiency and effectiveness. According to a study by (Devi, 2021), the implementation of MIS during the COVID-19 pandemic allowed for faster and more structured administration. Previously, student data management, scheduling, financial reporting, and other administrative tasks often took a long time and were prone to mistakes, especially in manual systems that were widely used in many Islamic educational institutions. However, with the implementation of digital MIS, administrative processes have become more efficient, reducing the time required for administrative tasks. This allows more time for administrative staff to focus on other strategic tasks, such as planning and managing more effective educational activities.

Additionally, MIS allows for real-time data management, increasing transparency and accountability in managing budgets and other resources. As noted by Sonia (Sonia, 2020), the implementation of MIS at MAN 2 Ponorogo has facilitated the management of administration digitally, from student admissions to school financial management. With MIS, financial reports and academic data can be accessed quickly and more accurately, reducing the potential for errors that are often encountered in manual systems.

Improvement in Learning Quality through Technology

The use of technology in Islamic education, such as interactive videos, Quran and Hadith learning applications, and virtual classrooms, has proven to enhance the quality of learning. Based on findings from (Kusumaningtyas et al., 2020), the use of technologies such as Google Meet, Wordwall and Google Classroom has made Islamic education more interactive and engaging(Kahfi et al., 2025). Technology also allows students to access learning materials outside of formal lesson hours, providing learning flexibility and supporting broader access to religious knowledge. The implementation of digital media-based learning systems enables more dynamic teaching that can be tailored to the characteristics of Generation Z, who are more familiar with technology.

Furthermore, in a study conducted by (Hasibuan et al., 2022) in Aceh Singkil, the use of online learning media through applications such as Google Classroom and Google Meet allowed teachers to deliver more engaging and beneficial learning materials. The results of this service indicated that after training, 85% of teachers felt

more confident using technology in their teaching, and the trainees expressed that online learning was very helpful in overcoming physical limitations in the classroom. As a result, learning became more effective and interactive, with students not only connecting with the material but also engaging in discussions and collaborations online, which facilitated better mastery of the material.

Infrastructure Challenges in Remote Areas

The limited educational infrastructure in remote areas poses one of the major challenges to the implementation of technology in Islamic education in Indonesia. A study by (Salsabila et al., 2025) identifies that remote areas often face difficulties in accessing education due to limited physical facilities such as adequate school buildings, libraries, and laboratories. Coupled with transportation issues, many children in remote areas struggle to attend school daily, contributing to higher dropout rates compared to urban areas.

Moreover, limited access to the internet and adequate technology further exacerbates the situation. According to a study by (Sari & Riansi, 2024), uneven internet access in Indonesia hampers the implementation of digital-based learning in remote areas. Many schools in these areas lack the facilities to fully utilize e-learning platforms or Google Classroom. The use of technology for distance learning in remote regions is highly restricted due to weak internet connections and inadequate devices. The government, through the Internet Desa program, is attempting to address this challenge by providing satellite-based internet access, but many areas are still not fully reached by this program.

One solution proposed in the study by (Salsabila et al., 2025) is the development of basic infrastructure such as roads, electricity networks, and more equitable internet access in remote areas. Additionally, collaboration between the government, the private sector, and communities is crucial to ensure adequate funding for the development of educational facilities and the support of digital education programs. Involvement from the private sector in financing the development of school facilities and providing educational devices can help reduce educational disparities between remote and urban areas.

Discussion

The results of this study show that the implementation of technology in Islamic education in remote areas faces various challenges and opportunities. The application of Management Information Systems (MIS) and digital learning platforms such as Google Classroom and Moodle has helped improve the quality of administration and learning, although limited internet access in these areas remains a significant barrier. This is in line with research by (Salsabila et al., 2025), which shows that remote areas often face infrastructure limitations, both in terms of internet access and technology devices. Without adequate access, the use of technology in digital learning becomes less optimal. However, initiatives such as the Internet Desa program introduced by the government are attempting to solve this issue by

providing satellite-based internet access in some remote areas. This program helps improve connectivity between students and learning materials despite limitations.

In addition, the success of technology implementation in learning heavily depends on human resource readiness, especially in terms of digital competencies. Research by (Kusumaningtyas et al., 2020) shows that training for educators and educational managers is essential to enhance their digital competencies so that technology can be maximally utilized. Without adequate training, educators will struggle to integrate digital media in a way that meets the needs of students in remote areas. The success of administrative management using MIS and the use of digital technology in teaching also depends on the participation of all stakeholders, including the government, society, and the private sector, in supporting educational infrastructure(Lu'lu' Syuroiyah Nadliroh et al., 2025).

The limitations of educational infrastructure in remote areas are also closely related to the socio-economic problems within the community. Many families in remote areas cannot afford to send their children to school, especially for transportation and learning materials. Therefore, education scholarships and corporate social responsibility (CSR) programs from the private sector are important solutions to address educational disparities in these areas. Research shows that educational aid programs such as the Program Indonesia Pintar (PIP) provide financial support to families in need, but much remains to be done to increase government involvement in ensuring more equitable access to education throughout Indonesia.

Thus, this study shows that despite significant challenges related to limited infrastructure, human resources, and technology access, the use of digital technology in Islamic education offers great potential to improve the quality of learning and administrative management. Collaboration between the government, educational institutions, the private sector, and society is essential to create more sustainable and equitable long-term solutions to provide quality education access in remote areas.

CONCLUSION

The implementation of technology in Islamic education management holds great potential to enhance the quality of learning, administrative processes, and communication among teachers, students, and parents; however, it continues to face significant challenges, particularly in remote areas with inadequate infrastructure and low digital literacy among educators. Although tools such as Management Information Systems (MIS) and digital learning platforms can improve efficiency and effectiveness, the lack of access to devices and reliable internet remains a key barrier. Addressing these challenges requires systematic efforts, including the development of infrastructure like satellite-based internet, provision of affordable digital devices, and continuous training for educators to improve technological competence. Furthermore, strong collaboration between the government, private sector, and local communities is essential to ensure equitable access to quality Islamic education and to build a system that is resilient and adaptive to ongoing digital transformations.

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