Research Article

Transformation of Administration in Modern Islamic Boarding Schools (*Pondok Pesantren*) in Indonesia

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Article Info	Abstract
 	The transformation of administrative processes in modern Islamic boarding schools (*pondok pesantren*) has become increasingly essential in response to the rapid advancements in digital technology. This study aimed to examine the efficiency of administrative digitalization in modern *pesantren* located on Java Island. The study utilized a qualitative approach, using data collection methods such as in-depth interviews, observations, and document analysis. The results showed that administrative digitalization had significantly improved the operational efficiency of *pesantren*, particularly in areas such as data management, communication, and decision-making processes. The adoption of digital technology had streamlined administrative procedures, enhanced transparency, and increased the accuracy of data, while also reducing the administrative burden. Despite these benefits, the study identified several challenges, including limited technological infrastructure and resistance to change among administrative staff. In conclusion, this study suggested that administrative digitalization is a crucial step in supporting the modernization of *pesantren* and improving their overall operational efficiency. Recommendations are made for the development of more robust technological infrastructure and the provision of training for administrative staff to ensure the effective implementation of digital technology in daily operations.

INTRODUCTION

The development of digital technology in recent decades has had a significant impact on various sectors, including education. In this digital age, technology has played a key role in redefining the way we access, share, and manage information. In the education sector, digital technology has introduced Learning Management Systems (LMS) and other educational applications that enable broader access to information and more interactive learning methods, which differ from traditional approaches (Mukhsin, 2020; Yanto, 2023). This transformation has not only occurred in formal educational institutions such as schools and universities but has also extended to non-formal educational institutions like *pesantren*, which are one of the main pillars of Islamic education in Indonesia.

Pesantren plays a crucial role in educating the younger generation with strong religious and moral values. Since its establishment, *pesantren* has become a place not only for teaching religious knowledge but also for shaping the character and personality of the *santri*, molding them into individuals with noble morals and a sense

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of responsibility (Arief & Assya'bani, 2023). In the context of modern education, *pesantren* faces the challenge of maintaining its identity and core mission while remaining relevant to the advancements of the times.

One of the main strengths of *pesantren* is the holistic approach it applies, where spiritual, moral, and intellectual aspects are interconnected. This approach has become increasingly important in facing the digital age, where unlimited access to information and globalization can pose threats to traditional values (Yanto, 2023; Sarjito, 2023). To address these challenges, it is crucial for *pesantren* to integrate Islamic values with general education, so that graduates are not only knowledgeable in religious matters but also prepared to face global challenges (Oktavia, 2023; Majid et al., 2023).

The digitalization of administration in *pesantren* is a crucial step in improving operational efficiency and transparency. By adopting digital technology, *pesantren* can enhance data management, simplify communication among administrators, and improve accountability in decision-making (Anjarwati et al., 2023). The implementation of digital information systems, such as online registration and digital payments, has been proven to improve accessibility to education and administrative efficiency in *pesantren* (Yanto, 2023; Anwar, 2023).

Nevertheless, the digitalization process presents its own set of challenges. Numerous *pesantren* encounter difficulties related to inadequate technological infrastructure, insufficient digital competencies among administrative personnel, and resistance to change from various stakeholders (Arief & Assya'bani, 2023; Dinata et al., 2023). This indicates that while digitalization presents numerous opportunities to enhance efficiency and transparency, significant efforts remain to ensure that this technology is effectively integrated into the *pesantren* environment. Overcoming these barriers will require a comprehensive approach, including investing in infrastructure, training staff, and fostering a culture of openness to technological innovation.

There are several key challenges faced by *pesantren* in their digitalization efforts. First, the limitation of technological infrastructure. Many *pesantren*, especially those in rural areas, still struggle with limited or unstable internet access. This poses a significant obstacle to implementing digital information systems that require a reliable internet connection (Arief & Assya'bani, 2023). Second, the lack of digital skills among the staff and administrators of *pesantren*. Many administrative staff in *pesantren* are not accustomed to using digital technology in their daily tasks. Therefore, training and development of digital skills are crucial to ensure that they can effectively utilize this technology (Dinata et al., 2023). Third, resistance to change. As traditional educational institutions, *pesantren* often have established systems that have been in place for years. Introducing new technologies to replace these long-standing systems can face resistance from certain parties who are comfortable with the old ways of working (Arief & Assya'bani, 2023). Therefore, it is crucial to adopt an appropriate approach in introducing this new technology, taking into account the socio-cultural aspects and the values upheld by the *pesantren*.

On the other hand, digitalization also offers various opportunities for *pesantren*. First, with digitalization, *pesantren* can improve operational efficiency. Administrative processes that typically consume time and effort, such as new student (*santri*) registration, financial management, and reporting, can be carried out more quickly and accurately with the aid of digital technology (Anjarwati et al., 2023). Second, digitalization can also assist *pesantren* in preserving and maintaining traditional values. By utilizing digital technology, *pesantren* can document and store religious teachings and traditional values in a digital format that is more easily accessible and disseminated to the younger generation (Majid et al., 2023). This can help *pesantren* preserve their traditions and teachings amidst the forces of globalization and modernization. Third, digitalization can also aid *pesantren* in enhancing the quality of education. With access to a wider range of digital educational resources, students can learn not only from traditional textbooks but also from various digital sources such as educational videos, e-books, and academic articles (Oktavia, 2023). This can help them develop the knowledge and skills needed to confront global challenges.

To optimize the use of digital technology, *pesantren* need to develop effective strategies. This includes providing training for both staff and *santri* on using digital systems, as well as developing management systems that can support the sustainability and independence of the *pesantren* (Oktavia, 2023; Majid et al., 2023). Thus, digitalization will not only enhance operational efficiency but also help *pesantren* preserve the traditional values that form the foundation of their education (Arief & Assya'bani, 2023).

In addition, it is crucial for *pesantren* to collaborate with various stakeholders, including the government, non-governmental organizations, and the private sector, to secure technical and financial support for the digitalization process. Through effective collaboration, *pesantren* can overcome existing challenges and leverage the opportunities offered by digital technology to enhance the quality of their education (Anwar, 2023; Dinata et al., 2023).

METHOD

This study utilized a qualitative approach to explore social phenomena in the context of digitalization within *pesantren*. A qualitative approach was chosen for its ability to provide an in-depth understanding of individual and group experiences and perspectives within complex situations. In the context of *pesantren* digitalization, this approach is highly relevant to comprehending how these long-established traditional educational institutions respond to and adopt digital technology in their administrative processes (Valtakoski, 2019; Setyoko et al., 2016).

A qualitative approach enables researcher to delve deeply into social phenomena that cannot be adequately explained through statistical data. This method offers flexibility in data collection and analysis, which is crucial for studies focusing on social and cultural changes. Researcher can employ in-depth interviews, direct observations, and document analysis to obtain rich and comprehensive data (Andreeva et al., 2019; Chandra, 2023). In this study, the qualitative approach was utilized to explore how digitalization is implemented in *pesantren* and its impact on operational efficiency and educational quality.

The study was conducted at *pesantren* that has successfully integrated digital technology into its administration. This location was chosen due to the pesantren's success in combining digital technology with traditional educational practices, providing valuable insights into the challenges and opportunities encountered (Wahyudi, 2023; Marlina, 2023). The study subjects included *pesantren* administrators, students (*santri*), and administrative staff directly involved in the digitalization process. By understanding their experiences, the study aimed to identify factors influencing the success or failure of digitalization in *pesantren* (Belk, 2017; Karim et al., 2021).

The data collection techniques used in this study included in-depth interviews, direct observations, and document analysis. In-depth interviews were conducted to obtain information about the experiences and perceptions of *pesantren* administrators, *santri*, and administrative staff regarding digitalization. This technique allowed the researcher to explore aspects that might not emerge through other approaches (Sharp, 2021; Kumbara, 2023). Direct observation at the study site provided a deeper understanding of how digitalization was implemented in daily practices. This technique also helped the researcher comprehend the intrenal dynamics of the *pesantren* and the interactions among those involved in the digitalization process (Thakur, 2023; Butina, 2015). Moreover, document analysis process was carried out to complement the data gathered from interviews and observations, offering a more comprehensive overview of the policies and practices related to digitalization in the *pesantren* (Utomo et al., 2020; Yuda, 2023).

The qualitative data analysis in this study was conducted in three stages: data reduction, data presentation, and conclusion drawing. Data reduction involved selecting and simplifying the collected data to retain only the most relevant and important information for further analysis (Valtakoski, 2019; Setyoko et al., 2016). Data presentation was carried out by organizing the data into comprehensible formats, such as tables or descriptive narratives, to facilitate the identification of patterns or emerging themes (Andreeva et al., 2019;

Chandra, 2023). Finally, conclusion drawing involved interpreting the analyzed data and deriving conclusions based on the findings. This process was iterative to ensure that the conclusions were well-supported by robust evidence (Rulinawaty, 2023; Karim et al., 2021).

To ensure the validity and reliability of the data, the researcher employed data triangulation techniques. Data triangulation involved using various data sources and collection methods to gain a comprehensive perspective and minimize bias (Sharp, 2021; Kumbara, 2023). In this study, triangulation was achieved by combining interviews, observations, and document analysis. By comparing findings from different sources, the researcher identified consistencies and variations in the data, which not only enhanced the validity and reliability of the results but also added depth to the analysis (Thakur, 2023; Butina, 2015).

RESULTS AND DISCUSSION
Implementation of Administrative Digitalization in *Pondok Pesantren*

The implementation of administrative digitalization in *pondok pesantren* requires a fundamental shift in daily operations that involves more than just adopting new technologies. The use of school management software has become a central element in managing student data, finances, and academic activities, offering a level of structure and efficiency that was difficult to achieve with manual systems (Wahyudi, 2020). Furthermore, the integration of digital communication platforms plays a crucial role in breaking communication barriers among various stakeholders in the *pesantren*, enabling the swift and accurate dissemination of information (Amir, 2019). However, the success of this digital transformation heavily depends on the readiness of human resources, particularly in mastering technology. Intensive training programs designed to enhance the digital skills of administrative staff and *santri* are therefore essential. These training programs aim not only to introduce new technologies but also to develop the adaptability needed to thrive in an ever-evolving environment (Hasan, 2021).

This demonstrates that administrative digitalization in *pondok pesantren* not only enhances operational efficiency but also significantly strengthens *santri* engagement in various aspects of *pesantren* life. With easier and faster access to academic and non-academic information, *santri* become more proactive in participating in the activities organized by the *pesantren*. Digital platforms enable *santri* to access class schedules, view exam results, and obtain other critical information more efficiently, thereby encouraging greater involvement in learning processes and extracurricular activities (Suhendi & Sholeh, 2021; Zubair & Karim, 2019). Moreover, digitalization creates opportunities for *santri* to participate in administrative tasks, such as registering for extracurricular activities and submitting applications online. This involvement helps them develop crucial digital skills that will be beneficial for their future (Murniati, 2020).

Overall, the findings highlight the critical importance of administrative digitalization as a strategic approach to enhance operational efficiency and foster greater *santri* engagement within the *pesantren* environment. Despite the challenges associated with implementing this technology—such as adapting to new systems and the need for comprehensive training—the benefits far outweigh these obstacles, offering significant and transformative advantages that enhance both operational processes and the overall educational experience (Yusof & Aina, 2021). Digitalization not only enables *pesantren* to operate with greater transparency and effectiveness but also provides a richer learning experience for *santri*. Therefore, administrative digitalization is not merely a necessity but also a critical strategy for maintaining the relevance of *pesantren* in the digital age. Consequently, *pesantren* that have not yet adopted digital technology in their administration are advised to seriously consider this step, ensuring the preparation of adequate infrastructure and providing comprehensive training for staff and students to guarantee the successful implementation of technology (Murniati, 2020; Yusof & Aina, 2021; Suhendi & Sholeh, 2021).

Impact of Digitalization on Operational Efficiency

The discussion on the impact of digitalization on operational efficiency in *pesantren* indicates that the implementation of digital technology has made a significant contribution to improving management quality and decision-making speed. Prior to digitalization, the manual systems used for data management often led to various issues, such as inaccuracies in record-keeping, data loss, and delays in processing critical information for strategic decision-making (Suhendi & Sholeh, 2021). The slow and unorganized processes became major barriers to *pesantren* operations, especially when immediate processing and communication of information were required. However, with the adoption of digital systems, data can now be accessed in real-time, enabling *pesantren* administrators to make faster, more informed decisions based on accurate and up-to-date information. This transformation not only accelerates administrative processes but also increases trust in the overall management system of the *pesantren* (Zubair & Karim, 2019).

In addition to improvements in data management, digitalization has also had a positive impact on communication flows within *pesantren*. Before digitalization, communication between administrators, teaching staff, and *santri* often faced barriers, especially when using traditional methods such as direct communication or letter-based correspondence, which took significant time (Murniati, 2020). With digital platforms, communication among parties has become more efficient and effective. Information can be disseminated quickly and simultaneously to all involved parties, reducing the possibility of miscommunication and accelerating responses to various operational and academic needs (Yusof & Aina, 2021). Ultimately, this contributes to an enhancement in the quality of educational services at *pesantren*, as all parties can focus on their core tasks without being distracted by administrative issues that were previously frequent (Rahman, 2022).

Comparison Before and After Digitalization

The comparison between the condition before and after digitalization in *pesantren* reveals a significant transformation in operational efficiency and management quality. Before digitalization, the manual management of data often encountered various issues such as document loss, incomplete records, and delays in administrative processes, all of which negatively impacted operational efficiency (Suhendi & Sholeh, 2021). Manual data is also susceptible to physical damage, leading to difficulties in maintaining the order and accuracy of information essential for making informed decisions (Zubair & Karim, 2019). However, after the implementation of digitalization, data management became much more structured and efficient, allowing for easier and faster access by authorized personnel. The speed and accuracy of information generated by digital systems enable more responsive decision-making based on valid data, making the *pesantren* operations more effective (Murniati, 2020). Additionally, digitalization improved the transparency of financial management and other resources, which is crucial for building trust among *santri*, parents, and other stakeholders (Yusof & Aina, 2021; Rahman, 2022).

Challenges in Administrative Digitalization

The process of administrative digitalization in *pesantren*, although offering numerous advantages, also presents complex challenges that need to be addressed to ensure its successful implementation. One of the main technical challenges is limited infrastructure, particularly in *pesantren* located in remote areas. These limitations include insufficient internet access as well as a lack of hardware and software necessary to support digitalization (Setyawan & Wijayanti, 2020). Furthermore, low digital literacy among administrative staff is also a significant obstacle. Many staff members are not accustomed to new technologies, requiring time and intensive training to reach the required competence in using digital systems (Mahfud, 2021). Non-technical challenges, such as resistance to change, are also critical. Concerns that digitalization may threaten the traditional values and practices established in *pesantren* often lead to resistance from administrators or teaching staff who feel that the use of modern technology could diminish the essence of traditional Islamic education (Amiruddin, 2019). To overcome these challenges, an inclusive approach that is sensitive to local values is

needed, ensuring that the digitalization process is well-received without causing cultural conflicts (Wardani & Kurniawan, 2021).

Reactions and Adaptations of Administrative Staff to Digitalization

The reactions of administrative staff to digitalization within *pesantren* reveal a broad spectrum, ranging from enthusiasm to resistance. For staff members who are already familiar with technology, the transition to a digital system is seen as an opportunity to expedite and simplify administrative tasks. These individuals embrace digitalization as a tool to enhance efficiency and improve the quality of their work. In contrast, for staff who are less skilled in using technology, digitalization often appears as an intimidating challenge. These individuals may feel overwhelmed by new technologies and struggle to adapt to rapid changes. In some cases, concerns that technology might replace human roles in the administrative process, along with the reduction of personal interactions vital to *pesantren* education, further strengthen resistance to digitalization (Basri, 2019; Munir, 2020).

To address these challenges, *pesantren* must implement a comprehensive and sustainable strategy. One crucial step is providing ongoing training designed to enhance the digital skills of administrative staff. The training should be tailored to accommodate various levels of understanding and staff needs, helping them feel more confident and competent in using new technologies. In addition to training, the development of adequate technological infrastructure is key to supporting the digitalization process. *Pesantren* must ensure stable internet access and that the hardware used meets the necessary standards for running digital systems effectively. With proper infrastructure, *pesantren* can minimize technical barriers and ensure the smooth progression of digitalization efforts (Rahmat, 2021; Widodo & Putri, 2020).

In addition to training and infrastructure development, collaboration with other educational institutions, both domestically and internationally, is also crucial to support the implementation of digitalization. Through partnership programs or staff exchanges, *pesantren* can learn from the experiences of institutions that have successfully implemented digitalization in their systems. This collaboration can also help *pesantren* overcome resource limitations, such as technological infrastructure and staff expertise, by sharing facilities and knowledge. For example, *pesantren* could partner with universities offering programs related to information technology to provide training for their administrative staff. Furthermore, partnerships with technology companies can provide access to the necessary software and hardware to support the digitalization process, allowing *pesantren* to fully leverage technology in managing their administrative operations (Yusuf & Hidayat, 2018; Salim, 2019).

Solution and Recommendation

Solutions and recommendations for enhancing the success of digitalization in *pesantren* should begin by strengthening leadership at the management level. Visionary and proactive leadership is critical in guiding this change, especially in the context of *pesantren*, which may have unique social and cultural dynamics. *Pesantren* leaders must have a deep understanding of technology and how it can be integrated into the operations and education within the *pesantren*. Moreover, they should be able to motivate and inspire both staff and *santri* to embrace change, overcome resistance, and utilize technology as a tool to enhance operational effectiveness and efficiency (Setiawan, 2021; Wardani, 2020). Strong leadership will also help guide *pesantren* in developing a long-term vision that includes digitalization as a core pillar in institutional development.

The development of policies that support the digitalization process is also crucial for ensuring long-term success. These policies should include guidelines for the use of technology, covering aspects such as staff and *santri* training, as well as strict standards for data security and privacy. Given the rapid advancement of technology, these policies must be flexible and capable of adapting to changes on the ground. A comprehensive policy framework will ensure that all stakeholders have a clear understanding of their roles in the digitalization process, thereby minimizing potential risks, such as data breaches or misuse of technology (Mustofa, 2019;

Rahmawati, 2021). Moreover, such policies will support the efficient and effective progression of digitalization, maximizing the benefits for both the *pesantren* and its community.

In the long term, the digitalization of administration in *pesantren* is expected to have a significant positive impact on the quality of education provided to *santri*. Through digitalization, *pesantren* can manage resources more efficiently, increase transparency in financial management, and open opportunities for innovation in teaching methods and institutional management. This will not only enhance public trust in *pesantren* but also strengthen their position as educational institutions that are relevant and adaptive to the times (Handoko, 2020; Suryadi, 2020). Therefore, digitalization becomes not just a tool for improving operational efficiency, but also a catalyst for broader transformation in the educational system of *pesantren*.

Overall, the digitalization of administration in *pesantren* is a strategic step that, despite various challenges, holds great potential to improve the quality and efficiency of education within these institutions. Challenges such as resistance to change, limited infrastructure, and lack of digital skills among staff must be addressed through a comprehensive and inclusive approach. This approach includes strengthening leadership, developing supportive policies, and collaborating with various stakeholders to ensure that the digitalization process runs smoothly and yields significant positive outcomes. With the right strategy, digitalization can be a key driver in the modernization of pesantren, making them more efficient, relevant, and prepared to face future challenges (Nugroho, 2019; Firdaus, 2020).

CONCLUSION

The digitalization of administration in *pesantren* has proven to enhance the efficiency and effectiveness of management, as well as strengthen *santri* engagement in the educational process. With the advent of digital technology, data and financial management have become faster, more accurate, and transparent, facilitating decision-making and improving the accountability of *pesantren* administrators. However, digitalization also presents challenges that need to be addressed, particularly in maintaining traditional values and adapting to technology. Therefore, it is crucial for *pesantren* to develop a sound strategy in implementing digitalization, enabling them to leverage available opportunities without compromising their core identity and mission.

RECOMMENDATION

Pesantren administrators are encouraged to continually develop digital infrastructure and provide adequate training for administrative staff and *santri*. Intensive socialization and training are crucial to overcoming resistance to change and ensuring that all parties can use technology effectively. In addition, *pesantren* are also advised to establish collaborations with other educational institutions and relevant stakeholders to share resources and experiences in the digitalization process. Further study is needed to explore the long-term impact of digitalization on the quality of education and management in *pesantren*, as well as to identify effective strategies for addressing emerging challenges.

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