



Practices, Challenges, and Impacts of Implementing the “SIASA DARA” Digital Information System in the Management of Islamic Boarding Schools

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Abstract: This study examines the practices, challenges, and impacts of implementing a digital information system in educational management at an Islamic boarding school in West Kotawaringin Regency. The background of this study stems from the need for Islamic educational institutions to transform and become more adaptable to technological advancements, despite various limitations such as manual administrative systems, inadequate infrastructure, and varying levels of human resource competence. The study employs a qualitative approach with a case study design to gain in-depth understanding through observation, interviews, and documentation. The findings indicate that the implementation of the “SIASA DARA” digital information system has improved administrative efficiency, strengthened institutional communication, and enhanced the quality of learning. Furthermore, students’ engagement in digital activities has fostered skill development while cultivating responsible character in technology use. Nevertheless, challenges persist regarding infrastructure and the optimal utilization of technology by educators. Overall, the integration of digital technology in Islamic boarding schools not only supports the modernization of governance but also remains aligned with Islamic values and relevant to educational needs in the digital age.

Keyword : Practices, Challenges, Impact, Implementation, Digital Information Systems, Islamic Boarding School Management

Abstrak: Penelitian ini mengkaji praktik, tantangan dan dampak penerapan system informasi digital dalam manajemen pendidikan di salah satu pondok pesantren di Kabupaten Kotawaringin Barat. Latar belakang penelitian ini berangkat dari tuntutan transformasi lembaga pendidikan Islam agar lebih adaptif terhadap perkembangan teknologi, di tengah berbagai keterbatasan seperti sistem administrasi yang masih manual, infrastruktur yang belum memadai, serta kompetensi sumber daya manusia yang beragam. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus untuk memperoleh pemahaman mendalam melalui observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa penerapan sistem informasi digital “SIASA DARA”, mampu meningkatkan efisiensi administrasi, memperkuat komunikasi kelembagaan dan memperbaiki kualitas pembelajaran. Selain itu, keterlibatan santri dalam aktivitas digital turut mendorong pengembangan keterampilan sekaligus pembentukan karakter yang bertanggung jawab dalam penggunaan teknologi. Meskipun demikian, masih terdapat kendala pada aspek infrastruktur

dan optimalisasi pemanfaatan teknologi oleh tenaga pendidik. Secara keseluruhan, integrasi teknologi digital di pesantren tidak hanya mendukung modernisasi tata kelola, tetapi juga tetap selaras dengan nilai-nilai keislaman serta relevan dengan kebutuhan pendidikan di era digital.

Kata kunci : Praktik, Tantangan, Dampak, Penerapan, Sistem Informasi Digital, Manajemen Pondok Pesantren

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Introduction

Advances in digital information technology have prompted educational institutions, including Islamic boarding schools, to transform their educational management systems and services to make them more effective, efficient, and responsive to the demands of the 21st century. The integration of technology is not limited to the use of devices and information systems; it also encompasses changes in organizational culture and managerial mindsets toward more professional, transparent, and accountable governance (Afendi, 2024). Over time, pesantren—which were once synonymous with traditional systems—have transformed into more complex educational institutions while continuing to blend spiritual values with modern management principles (Kaban et al., 2025). However, this adaptation process is not without its challenges, particularly in administrative management, which still tends to be manual and lacks integration, thereby affecting work efficiency and data accuracy (Fattachil 'Izza et al., 2025). On the other hand, communication—both internal and external—is often not well-structured, which can hinder coordination and participation among all relevant parties (Nisa, 2024). Another very important issue is that efforts to integrate technology into learning also face obstacles such as limited infrastructure, limited internet access, and educators' lack of competence in making optimal use of technology (Abidin et al., 2025). Therefore, adaptive strategic measures, the development of integrated information systems, the strengthening of effective communication channels, and the enhancement of human resource capacity are needed so that Islamic boarding schools can remain relevant and competitive amid the dynamic developments in digital technology (Oganda et al., 2026).

The implementation of digital information systems is a key element in the management of Islamic boarding schools in the modern era, as it can drive an overall improvement in service quality (Sugiara et al., 2020) (Amin, 2024). The use of digital information systems in administration helps speed up data processing, reduce errors, and improve transparency and accountability in institutional management (Sugiara, Arjub, Rejeki, 2020). In addition, the digital information system also strengthens communication between administrators, teachers, students, and parents

by providing information more quickly and in a more structured manner (Sugiara at al., 2020). In terms of learning, the integration of technology enables the use of more interactive and flexible methods through the use of digital platforms, making the students' learning experience more relevant to the demands of the times (Jannah & Halid, 2026). Thus, the implementation of a digital information system not only improves operational efficiency but also increases the engagement of all stakeholders in the pesantren education ecosystem and enhances the quality of learning (Sugiara at al., 2020).

Research on the use of digital information technology in Islamic boarding schools was conducted in 2023 by Zahra Yuliani, Ahsanu Amala, Tasya Safira, and Khairunnisa Pratiwi, who studied four Islamic boarding schools: the Kauman Islamic Boarding School in Padang Panjang, the An Nuqthah Islamic Boarding School in Cipete, Tangerang, Ma'had Jami'ah Mathali'ul Falah Islamic Boarding School in Pati, Central Java, and Yanbu'ul Qur'an Remaja Islamic Boarding School in Kudus. They presented the results of their research, noting that the Kauman Islamic Boarding School has already implemented digitalization for teachers' fingerprint attendance, barcode-based book borrowing in the library, and has its own website. Meanwhile, at the An Nuqthah Islamic Boarding School, digitalization has been implemented for fingerprint-based teacher attendance tracking, barcode-based book borrowing in the library, and the school already has a website for registering and admitting new students, as well as for using laptops and computers to support student creativity. As for the implementation of digitalization at the Ma'had Jami'ah Mathali'ul Falah Islamic Boarding School in Pati, Central Java, laptops and computers are used to support the students' creativity, and the school already has its own website. Meanwhile, at the Yanbu'ul Qur'an Remaja Islamic Boarding School in Kudus, digitalization is implemented through the use of a website for the admission and registration of new students (Yuliani et al., 2023). A subsequent study was conducted by Muhammad Hafidz Khusnadin, Aria Septi Anggaira, and Rohimin Al 'Asror in 2025, which presented their findings regarding the positive impact of multimedia use on education, religious outreach, and the self-reliance of students at Islamic boarding schools in Central Lampung (Khusnadin et al., 2025). Next, Siti Badi'ah, Luthfi Salim, and Muhammad Candra Syahputra presented on how young Islamic scholars (kyai muda) at Islamic boarding schools in Lampung are adapting to the use of digital technology in the learning process and the utilization of information resources (Badi'ah et al., 2021).

Although these various studies have made important contributions to understanding the use of digital technology in pesantren settings, there are still several limitations. First, most studies focus on digitization as a tool for learning, multimedia, or the adaptation of pesantren leadership to technological developments; thus, they have not comprehensively examined the implementation

of digital information systems as instruments of institutional governance. Second, previous studies have mostly described the ways in which technology is utilized without providing an in-depth analysis of implementation practices, the challenges encountered during the implementation process, and the impact on the effectiveness of pesantren management. Third, research on locally developed digital information systems by Islamic boarding schools remains very limited, even though the organizational characteristics, culture, and needs of each boarding school differ, resulting in different models of digitization.

Given these limitations, this study aims to contribute by exploring the implementation practices of the “SIASA DARA” digital information system – which was developed independently by Islamic boarding schools – while analyzing the challenges of its implementation and its impact on the governance of Islamic boarding school education within the local context of West Kotawaringin Regency. Thus, this study not only enriches the literature on the digitization of Islamic boarding schools but also provides an empirical overview of how local information systems are implemented to support the transformation of Islamic education management.

Based on this research gap, this study aims to explore the implementation practices of the “SIASA DARA” digital information system, identify the challenges faced during its implementation, and analyze its impact on the governance of Islamic boarding schools in West Kotawaringin Regency. Specifically, this study addresses two questions: (1) How is the “SIASA DARA” digital information system implemented in Islamic boarding school management? and (2) What are the challenges and impacts of implementing this system on Islamic boarding school management?

Methods

This study employs a qualitative approach using a case study design to gain an in-depth understanding of the implementation of digital information technology in the management system at an Islamic boarding school in West Kotawaringin Regency. The case study approach was chosen because it allows the researcher to explore the phenomenon comprehensively in a real-life context (Assyakurrohim et al., 2022), especially when the boundary between the phenomenon and its context is not clearly visible (Yin, n.d.). In addition, the qualitative approach provides an opportunity to gain a more comprehensive understanding of social reality, including the dynamics of interpersonal interactions, values, and the culture that has developed within the pesantren environment (Ardiansyah et al., 2023). This study was conducted over a two-week period in March 2026.

This study involved 10 informants, consisting of 2 IT administrators, 3 teachers (asatidz), and 5 students. Informants were selected using purposive sampling, specifically by choosing participants with knowledge and experience

related to the implementation of the "SIASA DARA" digital information system. The IT administrators were selected because they are responsible for the system's development and operations; the teachers were selected because they utilize the system for administrative and academic services; and the students were selected as users of the information system's services in educational activities within the pesantren. Data collection was conducted through several techniques, including direct observation of information technology implementation practices, in-depth interviews with the IT management team, and a review of documents in the form of digital photo archives held by the pesantren.

The data obtained from the interviews were analyzed using thematic analysis, as described by Braun and Clarke (2021). Data analysis was conducted in several stages. First, all interview transcripts were transcribed verbatim and cross-checked against the interview recordings to ensure the accuracy and completeness of the data. Second, the researcher read the entire transcript repeatedly to gain a comprehensive understanding, then performed open coding on information related to the research focus, such as the implementation practices of the "SIASA DARA" digital information system, its use in administrative and academic services, the challenges faced during implementation, and its impact on the governance of Islamic boarding schools. Third, codes with similar meanings were grouped into several categories. These categories were then analyzed to identify key themes representing the implementation practices, challenges, and impacts of the "SIASA DARA" digital information system. Themes were identified by comparing coding results from various data sources—namely, interviews, observations, and documentation—through a process of triangulation. A theme was established if it appeared consistently across various data sources and was directly related to the research objectives. This process was conducted to identify patterns, relationships among findings, and the underlying meaning of the implementation of the "SIASA DARA" digital information system in Islamic boarding school management, thereby yielding the main themes that form the basis for presenting the research findings.

To ensure the validity of the findings, this study employed triangulation techniques in terms of both sources and methods, thereby ensuring that the data obtained have a high level of credibility. Conceptually, this study is grounded in the deductive constructivist paradigm, which views the application of technology in the pesantren environment as a social process shaped by the interplay between the religious values embraced by the community and the demands of educational development in the modern era (Qomaruddin & Sa'diyah, 2024).

Results And Discussion

Results

Data analysis was conducted through a process of coding, categorization, and theme identification using thematic analysis. Based on the analysis of data obtained

through interviews, observations, and documentation, three main themes emerged that describe the implementation of the "SIASA DARA" digital information system in Islamic boarding school management. Each theme consists of several subthemes that represent patterns of findings that consistently emerged from various data sources. A summary of the themes and subthemes from the study is presented in Table 1.

Table 1. Research Themes and Subthemes

Theme	Subtheme	Data Sources
Practices of Implementing the "SIASA DARA" Digital Information System	Availability of information technology infrastructure and facilities	Observation, Documentation, IT Team
	Implementation of SIASA DARA in Islamic boarding school administration	IT Team, Teachers, Documentation
	Utilization of SIASA DARA in academic services	Teachers, IT Team, Students
	Utilization of SIASA DARA as a communication and information platform	IT Team, Teachers, Students
Challenges in Implementing the "SIASA DARA" Digital Information System	Limitations of information technology infrastructure	IT Team, Observation
	Digital competence of educators	Teachers, IT Team
	User adaptation to the system and digital device usage policies	Teachers, Students, IT Team
Impacts of Implementing the "SIASA DARA" Digital Information System	Improved administrative efficiency	IT Team, Teachers
	Enhanced quality of academic services	Teachers, Students
	Improved communication with students' parents	IT Team, Teachers
	Enhanced transparency in financial management	IT Team, Documentation

	Strengthened students' digital literacy and digital skills	Students, Teachers, Observation
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Practical Application of the "SIASA DARA" Digital Information System in Islamic Boarding School Management

The research findings indicate that Islamic boarding schools have implemented the "SIASA DARA" digital information system as part of their efforts to support more integrated educational governance. Based on observations, the system's implementation is supported by the availability of various information technology facilities, such as computer labs connected to the internet, a multimedia center, and the "SIASA DARA" application, which is used for various administrative and academic services. Documentation also shows that the system has been utilized for managing student data, providing information services, handling academic administration, and facilitating communication between the boarding schools and students' guardians.

Availability of Information Technology Infrastructure and Facilities

Based on the results of the observations, Islamic boarding schools have provided various facilities to support the implementation of digital information systems. These facilities include computer labs equipped with internet access, multimedia rooms, and devices to support information technology-based learning. The availability of these facilities serves as the foundation for supporting the implementation of "SIASA DARA" in various boarding school management activities.

One of the IT managers explained that the boarding school is gradually developing its digital infrastructure to support both administrative and educational needs.

"The Islamic boarding school has a computer lab, a multimedia center, and the SIASA DARA application, which is used to assist with administrative management and provide information services to students and their guardians." (IT-1)

The findings of the observation also show that the computer lab is used not only as a means of teaching information technology to students but also as a venue for various multimedia-based activities. This is supported by documentation showing the lab's use in both learning activities and digital skills training.

One teacher noted that the availability of information technology facilities makes it easier to support the learning process and academic administration.

"With the availability of computer and information systems labs, the administrative processes related to learning have become more organized, while technology-based learning activities can be carried out more effectively." (Teacher-2)

A similar view was also expressed by one of the students, who has experienced the benefits of digital facilities in supporting the learning process.

" We can use the computer lab when taking information technology classes or participating in multimedia activities, which makes it easier to understand the practical material." (Santri-3)

Implementation of SIASA DARA in Islamic Boarding School Management

The interview results show that "SIASA DARA" has been utilized in various aspects of pesantren management. This system is used to support the management of student data, faculty data, academic administration, new student admissions, financial management, information dissemination, and student permit services. The integration of these various services enables a more centralized approach to information management.

The IT manager explained that the system was developed in accordance with the pesantren's operational needs so that it could integrate various services into a single application.

" We use SIASA DARA as a hub for managing student data, academic administration, payments, activity information, and services for parents." (IT-2)

The teacher also noted that the system helps speed up access to academic and administrative information that was previously handled manually.

" Academic information has become more accessible because most of the data is already available in the system, allowing administrative tasks to be completed more quickly." (Teacher-1)

In addition, the students said that the system makes it easier for them to obtain information about the activities and services provided by the Islamic boarding school.

" It's easier for us to keep track of event schedules, announcements, and other information shared through the system, so we don't have to rely solely on in-person communication." (Santri-1)

The findings indicate that the implementation of "SIASA DARA" has become an integral part of administrative management and educational services at Islamic boarding schools. The use of the system not only supports the institution's internal activities but also facilitates the dissemination of information to teachers, students, and parents in a more integrated manner.

Challenges in Implementing the "SIASA DARA" Information System in Islamic Boarding School Management

The research findings indicate that the implementation of the "SIASA DARA" digital information system has generally gone well. However, this study identified several challenges that still exist in the implementation process, namely limitations in information technology infrastructure, educators' digital competencies, and users' adaptation to the system and policies regarding the use of digital devices.

Based on the results of observations and interviews, infrastructure limitations remain one of the obstacles to the development of digital information systems in Islamic boarding schools. Although computer labs and other supporting facilities are already available, the number of devices and the range of information technology resources still need to be expanded to meet the needs of all users.

One of the IT administrators explained:

"... The challenges we face stem primarily from limitations in equipment and supporting facilities, so we have not yet been able to develop the system to its full potential." (IT-1)

The results of the observations also show that the use of technological facilities is carried out on a rotating basis according to a schedule set by the Islamic boarding school.

The study also found that educators' ability to utilize all features of the digital information system is not yet uniform. Some teachers have already adopted SIASA DARA for administrative and academic services, while others still require guidance to make the most of the system.

One teacher stated:

"... We still need to get used to some of the features, so training and guidance are still needed." (teacher-2)

This finding is supported by a statement from an IT manager who noted that system optimization depends not only on the available technology, but also on the readiness of human resources to operate it.

Other challenges relate to users' adaptation to digital information systems and the pesantren's policies regarding the use of digital devices. Based on the interview results, the pesantren enforces a rule prohibiting students from bringing cell phones into the dormitory as part of its discipline program. Nevertheless, access to technology is still facilitated through computer labs and devices provided by the pesantren.

One student revealed:

"... We do not bring cell phones to the dormitory, so when we use SIASA DARA or other digital services, we do so on computers provided by the Islamic boarding school." (Santri-4)

In line with this, the IT manager explained that the policy does not hinder the implementation of digital information systems because the Islamic boarding schools have already provided alternative facilities that can be utilized for both learning activities and administrative services. Thus, the challenges in implementing SIASA DARA are not only related to technical aspects but also concern human resource readiness, infrastructure availability, and adaptation to policies in effect within the Islamic boarding school environment.

The Impact of Implementing the "SIASA DARA" Digital Information System on Islamic Boarding School Management

The research findings indicate that the implementation of the "SIASA DARA" digital information system has had a positive impact on the management of Islamic boarding schools. Based on the data analysis, these impacts include increased administrative efficiency, improved quality of academic services and communication, greater transparency in financial management, and enhanced digital literacy among students.

Based on the interview results, the implementation of "SIASA DARA" has helped streamline administrative management at Islamic boarding schools by integrating data on students, teaching staff, and various other administrative services into a single system. The IT manager explained that data entry and retrieval processes are now faster than when they were still done manually.

" With SIASA DARA, managing student data, academic administration, and various other services becomes easier because all data is integrated into a single system." (IT-2)

A teacher also noted that the system helps speed up the completion of academic administrative tasks, making work more efficient.

The research findings show that "SIASA DARA" facilitates the dissemination of academic information to teachers, students, and parents. Information regarding class schedules, student progress, announcements, and boarding school activities can be accessed more quickly, making communication more effective.

One student said:

" It's easier for us to get information about events and announcements, so we no longer have to wait for them to be communicated in person." (Santri-2)

These findings are also supported by observational results showing that the dissemination of information has made use of digital media in a more structured manner.

The interview results show that digital information systems help support the financial administration of Islamic boarding schools. The recording of infaq (tuition) payments and other financial transactions is carried out through the system, which facilitates monitoring and reduces recording errors.

One of the IT managers explained:

" Through SIASA DARA, payment and financial administration data are better organized, making it easier for administrators to monitor them." (IT-1)

In addition to impacting administrative management, the implementation of "SIASA DARA" also promotes the development of digital literacy among students. Based on observations and interviews, students not only utilize technological facilities in their learning activities but are also involved in multimedia management and digital content production for various boarding school activities.

One teacher noted that students' involvement in various digital activities provides a more contextual learning experience while enhancing their skills in utilizing information technology.

Overall, the research findings indicate that the implementation of the "SIASA DARA" digital information system not only improves the effectiveness of administrative management but also strengthens academic services, institutional communication, financial management transparency, and the development of students' digital competencies.

Discussion

Practical Application of the "SIASA DARA" Digital Information System in Islamic Boarding School Management

The research findings indicate that one Islamic boarding school in West Kotawaringin Regency has transformed its institutional management through the use of digital information technology. The integration of this technology is part of the boarding school's strategy to improve management effectiveness, educational services, and the quality of communication among various parties within the boarding school community. Based on interviews with the IT team, the use of information technology is understood not only as an administrative necessity but also as a way for the boarding school to adapt to the ever-evolving digital era (Jannah & Halid, 2026).

One example of the implementation of digitalization in Islamic boarding schools is the provision of adequate information technology facilities. Pesantren have established computer labs connected to the internet to support student learning and the development of digital literacy. The existence of these facilities demonstrates the institutions' awareness that technological proficiency is a crucial skill students must possess in the context of modern societal development. This indicates that the use of information technology in pesantren can serve as both a learning tool and a means to strengthen students' digital skills more effectively (Khusnadin et al., 2025).

In addition to computer labs, the pesantren also has various other supporting facilities, including a multimedia center and a digital information system developed in-house under the name "SIASA DARA." The presence of these facilities demonstrates that the pesantren is not merely focused on the basic use of technology but has actively worked to build a more integrated digital management system. With these resources, students not only gain technology-based learning experiences but also have the opportunity to develop practical skills in multimedia and information technology (Khusnadin et al., 2025).

The implementation of digital technology in Islamic boarding schools is also evident in the use of computer labs as a learning tool for students pursuing formal education in information technology. These labs are used for various learning activities, such as photo editing, video editing, and other forms of multimedia

creativity. These findings indicate that Islamic boarding schools have made efforts to integrate technological skills into the educational process so that students not only gain religious knowledge but also practical skills relevant to the needs of the modern era (Afendi, 2024).

In addition, the boarding school's multimedia facilities are utilized as a means of publishing and disseminating information to the general public through various social media platforms, such as YouTube, Instagram, TikTok, Facebook, and WhatsApp. This use of social media reflects a shift in the boarding school's communication patterns—from a previously more conventional approach to one that is more open and adaptive to developments in digital media. Interestingly, students are also directly involved in the digital content production process, particularly in broadcasting activities for various boarding school events such as anniversary celebrations and graduation ceremonies. This involvement provides students with opportunities to develop their creativity, communication skills, and practical experience in the field of digital media (Virskya et al., 2025).

Another key finding of this study is the existence of the "SIASA DARA" digital information system, which serves as one of the pesantren's flagship innovations in supporting institutional governance. This system functions as an integrated data management and information service hub, thereby streamlining various administrative processes at the pesantren. Through this application, administrators can access data on students, educators, and other administrative needs more quickly, accurately, and systematically. This demonstrates that digitization has helped improve work efficiency and the quality of administrative management at Islamic boarding schools (Fattachil 'Izza et al., 2025).

The use of "SIASA DARA" is not limited to administrative aspects but also encompasses academic services and information communication. This system is used for the online registration of new students, the dissemination of information on grades, class schedules, student progress, and educational activities within the pesantren. As a result, parents can access information about their children's educational progress more easily and quickly without having to visit the pesantren in person (Sugiara, Arjub, Rejeki, 2020).

In terms of financial management, the "SIASA DARA" app also makes a significant contribution. This system helps ensure that the recording of infaq payments (SPP), financial administration, and various other transactions are conducted in a more transparent and structured manner. The digitization of financial management not only streamlines administrative processes but also enhances accountability and builds trust among students' guardians in the boarding school's governance (Fattachil 'Izza et al., 2025).

In addition, the "SIASA DARA" app supports services such as student permits, the dissemination of announcements, boarding school policies, and

comprehensive information regarding the boarding school's activities and conditions. The integration of these services into a single system demonstrates that Islamic boarding schools have made efforts to establish more effective communication channels between administrators, students, and parents. Thus, the implementation of digital information technology in Islamic boarding schools not only serves as a means of administrative modernization but also acts as a vital tool for improving the quality of educational services without compromising the Islamic values that define the institution's core character (Fattachil 'Izza et al., 2025).

Challenges in Implementing the "SIASA DARA" Digital Information System in Islamic Boarding School Management

The research findings indicate that the implementation of digital information technology in Islamic boarding schools has generally proceeded quite well and has received support from the institutions' management. Based on interviews with the IT team, the adoption of digital technology has not encountered any fundamental obstacles because the boarding schools already have policies and management systems in place that support the digitization process. This demonstrates that boarding schools have the ability to adapt to technological developments without compromising the values of discipline and the unique educational culture of Islamic boarding schools (Jannah & Halid, 2026).

One of the challenges faced in implementing digital technology in Islamic boarding schools relates to controlling students' use of technological devices. Islamic boarding schools enforce a policy prohibiting students from bringing cell phones into the dormitory as a means of supervision and fostering discipline. This policy is primarily intended to maintain focus on studies, build character, and avoid the negative effects of uncontrolled technology use. Nevertheless, this rule does not hinder the digital learning process, as the boarding schools still provide access to technology through targeted and controlled mechanisms (Jannah & Halid, 2026).

For students pursuing vocational education in information technology at the vocational high school (SMK) level, owning a laptop is a mandatory requirement to support the learning process. Meanwhile, students at the junior high school (SMP) and Formal Diniyah Education levels continue to have access to technology through computer labs provided by the pesantren. This situation indicates a pattern of adaptation by Islamic boarding schools in integrating digital technology while maintaining the rules and educational values of the boarding school. These findings align with the perspective of Badi'ah et al. (2021), who state that Islamic educational institutions need the ability to adapt in utilizing technology without abandoning their institutional identity and culture.

On the other hand, this study also found that the challenges of implementing digital technology are not only related to policies on device usage but also concern the readiness of human resources. Based on the interview results, there are still some

educators who have not yet fully utilized information technology facilities optimally in the learning process. This situation indicates that digital transformation in Islamic boarding schools cannot be supported by the availability of technology alone but also requires improvements in educators' digital competencies and literacy so that technology can be used to its fullest potential in educational activities (Afendi, 2024).

In addition to human resource factors, limitations in information technology infrastructure also pose a distinct challenge to the development of digital-based learning systems. The still-limited number of devices and the lack of other supporting facilities mean that the use of technology has not yet been able to optimally meet all learning needs. This situation demonstrates that the digitization process in Islamic boarding schools still requires strengthening of facilities and infrastructure so that technology implementation can proceed more effectively and sustainably (Oganda et al., 2026).

The findings of this study are consistent with previous research indicating that the main barriers to the adoption of technology in Islamic educational institutions are generally related to human resource readiness and limitations in supporting infrastructure. Thus, the challenges of implementing digital information technology in Islamic boarding schools lie not only in the technical aspects of device usage but also encompass institutional readiness to foster a digital culture supported by educators' competencies and the availability of adequate facilities. Therefore, strengthening digital literacy training for educators and developing technological infrastructure are crucial steps in supporting the sustainability of digital transformation within Islamic boarding schools (Oganda et al., 2026).

The Impact of Implementing the “SIASA DARA” Digital Information System on Islamic Boarding School Management

The research findings indicate that the use of digital information technology in Islamic boarding schools has a significant impact on improving the quality of learning and the effectiveness of institutional management. Based on interviews with the IT team, technology is not only used to support administrative tasks but has also become an integral part of the educational process and the development of student activities. The presence of digital technology helps Islamic boarding schools adapt to the changing times while improving the quality of educational services provided to students and the community (Zahro et al., 2025).

In terms of learning, the use of technological devices such as LCD projectors has begun to be implemented to support the delivery of material in a more engaging and varied manner. The use of these visual media makes the learning process more interactive, thereby reducing student boredom during learning activities. Additionally, the use of technology in learning also helps students understand the material more easily because information is no longer conveyed solely through verbal means but is also accompanied by visual displays and digital media that are

more communicative. These findings indicate that the integration of technology into learning can create a more dynamic learning environment that aligns with the characteristics of today's digital generation (Anshori et al., 2025).

The use of technology has also contributed to improving students' academic abilities, particularly in completing formal learning assignments that require the use of digital media. Students have become more accustomed to using technological devices to support their learning activities, search for information, and complete various digital-based tasks. This situation indicates that Islamic boarding schools are not only focused on strengthening religious education but are also beginning to pay attention to the development of technological competencies relevant to the needs of modern society. This is in line with the view of Abidin et al. (2025), who explain that the use of technology in education can help improve learning skills while expanding students' digital literacy skills.

In addition to impacting the learning process, information technology also contributes to the development of extracurricular activities within the pesantren. Based on interview results, there is a special group that brings together students with an interest and talent in information technology, particularly within the pesantren's media center and multimedia team. These groups play an active role in supporting various institutional activities, such as event documentation, digital content production, and the management of major boarding school events, including graduation ceremonies and the school's anniversary celebrations. The students' involvement in these activities provides practical experience that helps them develop creativity, communication skills, and technical abilities in the fields of multimedia and broadcasting (Khusnadin et al., 2025).

The presence of multimedia units in Islamic boarding schools has also had a positive impact on increasing students' active participation in various institutional activities. Students no longer merely serve as participants in activities but are also directly involved in the process of producing information and digital publications. This situation demonstrates that the use of technology in Islamic boarding schools can create a more contextual and practical learning environment. This finding is consistent with the research by Khusnadin et al. (2025), which states that the integration of technology into pesantren education can increase students' active engagement and enhance a more interactive learning experience.

In terms of academic services, the implementation of "SIASA DARA" has also led to greater transparency in information sharing between the boarding school and students' parents. Information regarding grades, class schedules, student progress, and educational activities can be accessed more easily and in real time. This makes it easier for parents to monitor their children's educational progress without having to visit the pesantren in person. In addition to accelerating the flow of information, this system also helps foster more effective communication between the pesantren

and parents. These developments demonstrate that the use of digital technology can strengthen institutional relationships with the community through more open and responsive information services (Amin, 2024).

In the area of financial management, "SIASA DARA" also has a positive impact on improving the transparency and accountability of the pesantren's financial administration. The processes of recording infaq (tuition) payments, financial administration, and other transactions can be carried out more systematically and are easier to monitor. The digitization of financial administration helps minimize recording errors while improving the efficiency of the institution's financial data management. This transparency ultimately builds public trust and the confidence of students' guardians in the pesantren's more professional and modern governance (Fattachil 'Izza et al., 2025).

In addition, the "SIASA DARA" information system has also contributed to an overall improvement in the quality of services at Islamic boarding schools. The process of disseminating announcements, boarding school policies, student permit services, and information on boarding school activities can now be carried out more quickly and effectively. A more integrated flow of information makes services for students and parents more responsive to their needs. Thus, the implementation of digital information technology through "SIASA DARA" not only serves as an administrative tool but also plays a vital role in transforming pesantren governance toward a more adaptive, efficient, and information technology-based Islamic education system (Oganda et al., 2026).

Similarities and Differences with Previous Research

The implementation of the "SIASA DARA" information system is closely linked to the findings of a study conducted by Zahra Yuliani, Ahsanu Amala, Tasya Safira, and Khairunnisa Pratiwi in 2023. The study showed that several Islamic boarding schools in Indonesia have begun to implement digitalization in the areas of administration, information services, and the development of students' competencies. These findings align with the implementation of "SIASA DARA," which also functions as a center for digital data management and information services within the boarding school environment (Yuliani et al., 2023).

This similarity is evident in the use of information technology to improve the administrative effectiveness of Islamic boarding schools. Like the boarding school studied, "SIASA DARA" supports the management of student data, faculty data, financial administration, and academic information services in a faster, more accurate, and more integrated manner. The digitization implemented through this system demonstrates a shift in the management of Islamic boarding schools from manual systems to more modern and efficient information technology-based systems (Sugiara, Arjub, Rejeki, 2020).

Furthermore, the implementation of "SIASA DARA" is also consistent with efforts to strengthen information services at Islamic boarding schools, as found in the study. This system not only serves as an administrative tool but also acts as a means of communication between Islamic boarding schools, students, and parents through information services covering grades, class schedules, student progress, announcements, and school policies. This situation indicates that the digitization of Islamic boarding schools is no longer limited to the internal needs of the institutions but has evolved into a more open and responsive instrument of public educational service (Fattachil 'Izza et al., 2025).

However, "SIASA DARA" has its own unique characteristics compared to some of the other Islamic boarding schools in this study, particularly in terms of its more comprehensive integration of services into a single system. This application not only covers administrative and academic information but also supports student permit services, financial management, and the real-time dissemination of information regarding the boarding school's status. Thus, "SIASA DARA" can be viewed as a more comprehensive form of boarding school digitalization that supports information technology-based Islamic education governance (Fattachil 'Izza et al., 2025).

Conclusion

This study concludes that the implementation of the "SIASA DARA" digital information system has become part of the educational management transformation process at Islamic boarding schools in West Kotawaringin Regency. Digitalization practices carried out through the use of computer labs, multimedia, and boarding school information systems demonstrate efforts to integrate various administrative, academic, financial, and communication services into a single system tailored to the institution's needs. The research findings also indicate that students' involvement in multimedia activities and the use of technology in learning provide insight into how Islamic boarding schools are adapting to technological advancements without neglecting Islamic values as the institution's defining characteristic.

On the other hand, this study found that the implementation of digital information systems in Islamic boarding schools still faces several challenges, particularly regarding limitations in technological infrastructure, the readiness of human resources, and the optimization of system utilization by educators. Nevertheless, the research findings indicate that the implementation of "SIASA DARA" supports the integration of administrative management, academic services, communication with students' guardians, and information management within the Islamic boarding school environment.

Theoretically, this study enriches the literature on digital transformation in pesantren management by demonstrating that the implementation of digital information systems based on local needs is influenced not only by the availability

of technology but also by the readiness of human resources, organizational culture, and institutional policies. These findings indicate that the digitization of Islamic boarding schools is a contextual organizational adaptation process; therefore, the development of information systems must be tailored to the characteristics and needs of each institution.

This study still has several limitations. First, the study was conducted at only one Islamic boarding school in West Kotawaringin Regency; therefore, the findings represent the context of the institution studied and are not intended to be generalized to all Islamic boarding schools. Second, the study focused on the implementation practices of digital information systems in the management and services of Islamic boarding schools; thus, it was not designed to test causal relationships or measure the system's effectiveness regarding the quality of learning or institutional governance. Third, this study has not thoroughly examined aspects of system evaluation, human resource readiness, or long-term strategies for developing digital information systems. Therefore, future research is recommended to involve a greater number of Islamic boarding schools with diverse characteristics or to use a mixed-methods approach to provide a more comprehensive understanding of the implementation of digital information systems in the management of Islamic boarding schools.

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