

Strategies for Managing Student Services to Optimise Service Delivery Based on the Student Information System

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Abstract

This study examines the strategic management of student services to optimise service delivery based on the Student Information System (SIS) at the Al-Yasini Integrated Islamic Boarding School. The increasingly complex development of Islamic boarding schools demands an integrated, effective, and technology-based service system. However, the implementation of the SIS still faces various challenges, including human resources, system integration, and managerial oversight. This study aims to: (1) identify the forms and characteristics of SIS-based services for boarding school students; (2) analyse the obstacles to their implementation; and (3) analyse management strategies for optimising SIS-based services. The method used is a qualitative approach employing a case study design. Data collection techniques included observation, interviews, and documentation, with data analysis involving data reduction, data presentation, conclusion, and triangulation. The research findings indicate that SIS-based services encompass administrative services, attendance tracking, authorisation processes, communication with students' guardians, and digital data management, all characterised by speed, accuracy, and transparency. The main constraints include limited staff competence in technology, a lack of system integration, and the continued use of manual systems. The strategies implemented include applying management functions (planning, organising, executing, and monitoring), strengthening institutional policies, enhancing staff competencies through training, and developing a more integrated system. These strategies have been shown to improve the efficiency, effectiveness, and accountability of services for students.

Keywords: Strategic Management; Student Services; Student Information System; Service Optimisation.

INTRODUCTION

Islamic boarding schools are among the Islamic educational institutions that play a vital role in shaping the character, religious knowledge, and social life of Indonesian society (Niswah et al., 2025). Over time, Islamic boarding schools have evolved to serve not only as centres for the transmission of Islamic knowledge but also as educational institutions managing a wide range of academic, administrative, and pastoral activities on an increasingly large scale (Fahham, 2020). The growing number of students, the complexity of educational programmes, and the increasingly diverse demands for services necessitate a management system capable of supporting the delivery of services in a more organised and professional manner.

These changes are taking place in line with the public's growing demand for transparent, efficient, and easily accessible educational services. Parents of students do not merely entrust their children's education to the pesantren; they also expect transparency regarding their children's academic progress, daily activities, and well-being whilst they are at the pesantren (Astika, 2023). This situation presents new challenges for pesantren administrators in establishing service mechanisms that bridge the institution's internal needs and the community's ever-evolving expectations.

Recently, developments in information technology have offered educational institutions a range of opportunities to improve the quality of their management and services. The use of technology is no longer limited to data storage; rather, it has become an integral part of organisational management strategies, enabling various activities to be carried out more effectively (Prabowo, Merthayasa, and Saebah 2023). With the support of information technology, administrative processes can be carried out more quickly, data can be managed systematically, and communication between parties can take place without being hindered by spatial or temporal constraints.

The presence of information technology within Islamic boarding schools is part of efforts to adapt to social changes (Muzakky, Mahmuudy, and Faristiana 2023). Various Islamic boarding schools have begun developing digital systems to support administrative activities, financial management, student data collection, and services for students' guardians (Fattachil'Izza, Nabila, and Zuhriyah 2025). This development demonstrates

that the modernisation of Islamic boarding school management is not necessarily at odds with the traditional values that have long defined the institutions' identity; rather, it can strengthen governance effectiveness without compromising the distinctive character of the boarding schools' educational approach.

One form of innovation in the management of Islamic boarding schools is the implementation of a Student Information System (SIS). This system is designed to integrate various services related to students' needs into a single, more organised platform (Aimah & Mursidah, 2021). Through this system, various activities such as administration, attendance recording, permit management, and information dissemination to students' guardians can be carried out more efficiently and in a more structured manner. The availability of well-documented data also facilitates monitoring and decision-making by administrators regarding student services (Aswin, Fajri, and others 2026).

The use of the Santri Information System is not merely concerned with the technical aspects of data management but also touches on the managerial dimensions within the organisation of Islamic boarding schools (Permata & Muwahid, 2025). The introduction of digital systems necessitates adjustments to working practices, a clearer division of tasks, and more intensive coordination among the institutions or units involved in service delivery (Engkus et al., 2025). Consequently, the effectiveness of an information system is inextricably linked to an organisation's ability to manage its resources and establish working mechanisms that support the optimal utilisation of technology.

Although various benefits have been offered, the implementation of the Santri Information System in Islamic boarding schools still faces several challenges (Satria et al., 2025). Not all administrators possess the same level of technological proficiency, so the pace of adapting to the new system varies. Furthermore, the existence of work procedures that were previously performed manually often means that integrating services takes longer. In some cases, data management is still carried out through two mechanisms simultaneously—namely, digital systems and manual record-keeping—which can cause discrepancies in information (Putri, Muis, and others 2025).

Various studies on information systems in the educational sector generally focus on aspects such as application development, user acceptance, and the effectiveness of

technology use (Rismawati et al., 2024). Meanwhile, discussions on management strategies for optimising information system-based services in Islamic boarding schools remain relatively limited (Hijazi, 2025). In fact, the successful implementation of technology in educational organisations is determined not only by the quality of the equipment used but also by managers' ability to plan, organise, mobilise, and supervise all processes involved in using such systems.

Against this backdrop, this study focuses on the implementation of the Student Information System at the Al-Yasini Integrated Islamic Boarding School. The research aims to understand the types of services developed through the information system, the dynamics that emerged during implementation, and the management strategies applied to optimise services for students. It is hoped that this study will enrich the discourse on the management of Islamic educational institutions in the digital age, whilst providing an empirical overview of the practice of developing information technology-based services within Islamic boarding schools.

RESEARCH METHODOLOGY

This study employs a qualitative case study approach (Assyakurrohim et al., 2022). The qualitative approach was chosen as it enables the researcher to gain an in-depth understanding of phenomena related to strategies for managing student services and optimising services based on the Student Information System (SIS). Meanwhile, the case study method was used to obtain a comprehensive overview of student service management practices within a specific context, thereby enabling a holistic understanding of the dynamics of information system implementation in line with on-the-ground conditions (Nurrisa, Hermina, and others 2025).

The research was conducted at the Al-Yasini Integrated Islamic Boarding School in Pasuruan, East Java. The location was selected through purposive sampling, given that the boarding school had already implemented a Student Information System as part of the development of information technology-based service management. The research informants comprised boarding school administrators, student services managers, system operators, and other parties involved in the management and utilisation of the Student

Information System. Informants were selected through purposive sampling based on their level of involvement, knowledge, and experience in the system implementation process (Moleong & Surjaman, 2014).

Data collection was carried out through interviews, observation, and documentation (Moleong & Surjaman, 2014). Interviews were used to obtain information on the nature of services provided to santri, the obstacles encountered in implementing the system, and the strategies employed to optimise service delivery (Sugiyono, 2013). Observations were conducted by directly observing the implementation of services based on the Student Information System and the interactions among the actors involved in their management. Meanwhile, documentation was used to supplement the research data through various documents, including policies, service procedures, activity reports, and archives, that supported the research focus.

Data analysis was carried out interactively, drawing on the model proposed by Miles, Huberman, and Saldaña, which comprises data reduction, data presentation, and concluding (Qomaruddin & Sa'diyah, 2024). During the data reduction stage, the researchers conducted data selection, focusing, and grouping in line with the research focus. The reduced data is then presented as a narrative description to facilitate the identification of emerging patterns, relationships, and trends. The next stage involves concluding, a process that takes place continuously throughout the research.

The validity of the data was tested through source and methodological triangulation (Sugiyono, 2013). Source triangulation was carried out by comparing information obtained from various informants, whilst methodological triangulation was carried out by comparing the results of interviews, observations, and documentation. In addition, the researcher also cross-checked the data obtained to ensure consistency between the information provided by informants and the conditions found in the field. This step was taken to enhance the credibility and reliability of the research findings.

RESULTS AND DISCUSSION

RESULTS

The implementation of the Student Information System (SIS) at the Al-Yasini Integrated Islamic Boarding School forms part of efforts to develop a more organised and integrated service management system (Ma'sum, 2024). This system supports various administrative and service needs of students that were previously managed manually (Huda, Hidayat, and others, 2026). Based on observations and interviews with boarding school administrators, the Student Information System (SIS) was implemented to facilitate student data management and improve service effectiveness within the boarding school environment. The services integrated into the Student Information System include student administration, attendance recording, permit management, communication with parents, and the digital storage of student data (Ana, 2025). Through this system, various pieces of information relating to students can be accessed more easily by authorised parties. Data management, which was previously scattered across various service units, can now be consolidated into a single system, thereby facilitating data search and update processes (Yusman, Putra, and Sinaga 2024).

In terms of administration, the SIS is used to document students' identities, educational records, payment histories, and various other administrative requirements. The use of a digital system helps to speed up service processes as staff no longer rely entirely on physical archives when searching for data. Furthermore, electronic data storage facilitates updating information when students' details change. To date, the SIS has made it easier for administrators to maintain continuous recording of student data. Data stored in the system can be updated at any time as required, ensuring that the available information is relatively more accurate and easier to trace (Rukmana et al., 2023). Administrators no longer need to repeatedly search through documents stored across different units, as most data has been consolidated into a single service platform.

The Santri Information System is also utilised for managing attendance and leave requests (Permata & Muwahid, 2025). Through this system, santri attendance data can be documented more systematically and monitored more easily by the management. Leave requests for activities outside the pesantren can be recorded and traced, if necessary. The

availability of data in digital form facilitates supervision whilst also assisting the reporting process to relevant parties (Sahira et al., 2025). Based on observations, manual attendance recording previously took longer because it had to be re-tallied for reporting purposes. Following the implementation of the SIS, the recording and reporting processes can be carried out more simply as the data is automatically stored within the system. This facilitates administrators in monitoring student attendance levels whilst reducing the potential for errors in data recording.

In addition to internal use, the SIS serves as a tool to facilitate communication between the pesantren and students' guardians. Information regarding pesantren activities, administrative requirements, and various announcements can be conveyed more quickly through the system. The availability of this service provides guardians with broader access to information, enabling them to obtain various details without visiting the pesantren in person. According to several informants, ease of access to information has become one of the most significant benefits felt following the implementation of the SIS. Parents can obtain information on administrative requirements and students' activities more practically (Ma'sum, 2024). On the other hand, management also finds it easier to convey important information, as they are no longer reliant on manual communication methods, which are more time-consuming.

Before the use of the SIS, most administrative activities were carried out through manual record-keeping, which required repetitive checking and archiving processes. Following the system's implementation, various service activities can now be carried out through a more structured mechanism, thereby speeding up work processes and facilitating coordination amongst the administrators. Although the SIS has provided various benefits in service delivery, its implementation still faces several challenges. Findings indicate that human resource capabilities in operating the system are not yet entirely consistent. Some administrators have been able to utilise the system effectively, whilst others still require guidance on certain features. These differences in technological proficiency affect the effectiveness of the system's utilisation in day-to-day service activities.

In addition to human resource factors, challenges were also identified in technical aspects and coordination between service units. Some data is still managed separately, requiring a synchronisation process when used for specific purposes. In some cases, administrators still perform double recording as a precaution in the event of difficulties with the system. This practice means that some work is not yet fully efficient, as data must be checked through more than one mechanism. Another identified challenge concerns the integration of services across units, which is not yet functioning optimally (Siregar & Nasution, 2025). Some data is still managed separately, requiring a synchronisation process when used for specific purposes. Furthermore, in some services, manual processes are still used to supplement digital systems. This situation leads to duplication of work, which can cause inefficiencies in data management and service delivery.

To address these challenges, the pesantren has implemented several management strategies to optimise services through the Santri Information System. The strategies implemented include system development planning, assigning tasks to administrators according to their respective functions, providing training for system users, and regularly monitoring service delivery (Maujud, 2018). Efforts to strengthen institutional policies and develop a more integrated system are ongoing to support the sustainability of information technology-based services within the Al-Yasini Integrated Islamic Boarding School.

DISCUSSION

Transformation of Student Services through the Student Information System (SIS)

The implementation of the Student Information System (SIS) has brought about significant changes in the working practices of those managing student services at the Al-Yasini Integrated Islamic Boarding School. Before the system was introduced, most administrative tasks were carried out through manual record-keeping, which required considerable time for data collection, verification, and storage. Each service unit had its own archives and record-keeping mechanisms, meaning that retrieving information often required additional coordination. Following the implementation of the SIS, a wide range of information related to students' needs can be accessed through a single integrated system, thereby simplifying data management and speeding up service delivery (Muhajirin, Mukhlis, and Sinlae 2025).

These changes have not only affected technical and administrative aspects but also influenced how the organisation operates as a whole. The integrated system enables information to flow more quickly between units, allowing for more effective coordination. Managers no longer spend a great deal of time searching for or reconciling data from various sources. This situation provides staff with a greater opportunity to focus their attention on improving the quality of service and meeting the needs of the students.

Within the framework of educational institution governance, this change in working practices indicates a shift from a record-keeping-oriented administrative model towards an information-based management model (Raprap et al., 2026). Data is no longer understood as documents stored solely for archiving purposes, but rather as a source of information that can be utilised to support various managerial activities. The availability of organised data enables managers to gain a clearer picture of the students' circumstances, service needs, and various issues requiring follow-up.

The research findings also show that the use of the SIS contributes to improved service accountability. Every activity relating to administration, attendance, or authorisation has a data record that can be traced back when necessary. This digital documentation helps managers verify information more accurately while reducing the likelihood of administrative errors (Hayati, Irsyad, and Setiawati 2025). The existence of a data trail also facilitates the evaluation process, as every service activity has evidence that can be used as a basis for assessment and supervision.

Another aspect arising from the implementation of the SIS is the development of a more data-driven work culture (Lutfiyah et al., 2025). In various service activities, decision-making is no longer based solely on individual experience or managers' personal notes but also takes into account information stored in the system. The availability of systematically documented data provides a stronger foundation for determining which policies and service measures to implement (Muthalib, Abun, and Linda 2025). This situation demonstrates that digitalisation also contributes to the formation of more rational, measurable, and documented working practices.

The existence of the SIS also contributes to improved organisational efficiency. Data management, which was previously carried out repeatedly by several units, can be

minimised through information integration (Turrohmah et al., 2025). The time previously spent on administrative processes can be redirected towards other, more productive activities, including enhancing services for students and their guardians. Such efficiency is crucial, given that the complexity of managing Islamic boarding schools continues to increase in line with the growing number of students and the evolving service needs these institutions must meet.

On the other hand, the implementation of SIS demonstrates that digital transformation within the pesantren environment occurs through continuous adaptation. The use of information technology does not automatically alter all the working mechanisms that have evolved over a long period of time. Change takes place through stages of organisational learning that involve adjusting work procedures, strengthening human resource capacity, and developing systems tailored to institutional needs. These dynamics demonstrate that the implementation of technology within Islamic boarding schools is not merely a technical matter but also entails changes in governance, organisational culture, and how institutions respond to service demands in the digital age.

Challenges in Implementing the Santri Information System in Pesantren Services

Although various benefits have been realised, the SIS still faces several challenges. The most prominent issue concerns the human resource capacity to operate the system in use (Meithiana & Ansory, 2019). Differing levels of technological proficiency amongst administrators mean that the utilisation of the system has not yet been uniform. Some users can utilise the available features, whilst others still require guidance to carry out certain tasks.

This situation demonstrates that digital transformation is essentially a process of organisational change that involves not only technology but also people as the key agents driving it. In many cases, the success of an information system depends heavily on the readiness of the individuals using it. When users' technical skills have not yet reached their full potential, the system's features cannot be utilised to their full extent to support the service. These findings demonstrate that human resource capacity building is an integral part of the digitalisation agenda for Islamic boarding schools.

In addition to the issue of competence, another challenge arises from varying levels of digital literacy amongst managers. Digital literacy is not merely about the ability to use technological devices but also encompasses understanding digital workflows, managing information effectively, and utilising data to inform decision-making. Some findings suggest that a proportion of users still view information systems as purely administrative tools, meaning their use is not yet fully geared towards supporting broader managerial processes. These differences in understanding affect the level of user engagement in optimising the various functions available within the system.

Another issue identified in this study concerns the integration among service units, which is not yet fully effective. Different units still manage certain types of data, so exchanging information requires additional steps before it can be used for specific purposes. This situation demonstrates that the existence of an information system does not automatically create inter-unit connectivity unless clear coordination mechanisms are in place. Consequently, certain service processes still require repeated verification, which prolongs administrative workflows.

From an organisational perspective, information integration requires alignment between technology and the existing organisational structure (Iskandar, Nugraha, and Giu 2025). When each unit continues to manage data in isolation, the system's potential to deliver more effective services is limited. Therefore, digitalisation requires not only adequate software but also organisational governance that fosters sustainable collaboration between units. Coordination is a key element in ensuring the smooth flow of information within the pesantren environment.

The research findings also indicate that some services are still carried out manually. The concurrent use of two systems suggests that the transition is taking place gradually and that the old working practices have not yet been fully abandoned. In the context of pesantren, this situation can be understood as a form of organisational adaptation to the changes currently underway. Managers tend to retain certain procedures as a precaution while the new system is still in its refinement phase.

This phenomenon demonstrates that digital transformation cannot be understood as a linear process. Change often proceeds through various stages of adjustment, involving

a negotiation between old habits and new needs (Tampubolon, 2020). Such situations are commonplace in educational organisations with long-standing traditions, including Islamic boarding schools (pesantren), which have historically developed through management models that differ significantly from those of modern organisations in general. Consequently, the successful implementation of a system is determined not only by the sophistication of the technology but also by the organisation's ability to manage change in a gradual manner.

The next challenge relates to the organisational culture that has developed within the pesantren environment. Administrative management, which for many years has been carried out through conventional mechanisms, has established certain working habits amongst the management. When digital systems were implemented, some users needed time to adapt to new, more structured and documented working patterns. This adaptation process does not always proceed quickly, as it involves changes to ways of thinking, communication patterns, and working habits that are deeply ingrained in the institutional life of the pesantren.

In addition to organisational culture, the sustainability of SIS implementation is also influenced by institutional support. The development of information systems requires ongoing commitment to resource provision, system updates, and user capacity building. As the number of students increases and the demand for services grows, the information system needs to be continuously developed to meet the demands of increasingly complex management. Without strong institutional support, the system risks stagnating, preventing the expected benefits from being fully realised.

Infrastructure is also a key aspect of the implementation process. The availability of supporting equipment, the stability of the internet connection, and adequate technical support all influence the smooth running of the system. Disruptions to any of these aspects can undermine the service's effectiveness and hinder data management processes. Therefore, strengthening the digital infrastructure is an integral part of efforts to establish information technology-based service management within Islamic boarding schools.

These various challenges demonstrate that the implementation of the Santri Information System is a process of institutional transformation involving technological,

human resource, organisational culture, infrastructure, and management governance dimensions. This complexity illustrates that the digitalisation of pesantren cannot be understood merely as the adoption of new technology, but rather as a process of change that requires comprehensive organisational readiness to address societal developments and the demands of contemporary Islamic education services.

Management Strategies for Optimising SIS-Based Services

The various challenges arising from implementing the Student Information System (SIS) have prompted the Al-Yasini Integrated Islamic Boarding School to develop a management strategy to enhance service quality. These efforts are being undertaken in response to the institution's need to maintain the effectiveness of its services amid the ongoing digital transformation. In this context, the successful utilisation of technology is determined not only by the quality of the system used, but also by the organisation's ability to manage change in a planned and sustainable manner. Therefore, the SIS management strategy can be understood through the management functions outlined by George R. Terry, namely planning, organising, actuating, and controlling (Widya, 2025).

In terms of planning, the development of the SIS is positioned as part of the institutional agenda to improve service quality for students. Planning is carried out by identifying service needs, mapping the administrative issues encountered to date, and setting objectives to be achieved through information technology (Iva, 2025). This step demonstrates that the digitisation of services is not merely an effort at administrative modernisation, but rather part of an organisational development strategy designed to address the increasingly complex management needs of Islamic boarding schools.

In addition to focusing on the provision of technological infrastructure, the planning process involves formulating policies and operational procedures to guide system use. Clarity on policy direction is necessary to ensure that all parties involved share a common understanding of the objectives of the SIS implementation. With a clear policy framework in place, the system development process can proceed with greater focus whilst minimising potential discrepancies between user needs and the functions available within the system (Kusnadi & Baihaqi, 2020). The organising function is realised through the establishment of working mechanisms that support the operation of the SIS (Aimah &

Mursidah, 2021). Managing an information system requires the involvement of various parties with distinct tasks and responsibilities; therefore, a clear division of roles is necessary at every stage of service delivery. A coordinated organisational structure enables each unit to understand its authority, whilst facilitating the flow of information required to manage student data.

A structured division of tasks also improves the effectiveness of coordination between service units. In an integrated system, individual departments cannot operate in isolation, as information generated by one unit is often required by others (Engkus et al., 2025). Consequently, an organisation serves as a key instrument in creating synergies that support the sustainability of information technology-based services. During the implementation phase, the pesantren integrated the SIS into various administrative, attendance, authorisation, and communication activities with students' guardians. This implementation not only focused on using the application in day-to-day activities but also on building user readiness through training and mentoring (Rismawati et al., 2024). This step is crucial because the system's success rate is heavily influenced by users' ability to make optimal use of the available features.

In addition to enhancing human resource capacity, the implementation function is evident in the regular efforts to refine the system. Feature development, adjustments to service requirements, and data integration across units form part of the ongoing implementation process. This approach demonstrates that the SIS is understood as a dynamic system that must continually adapt to the evolving needs of the organisation and the increasingly diverse service demands (Lutfiyah et al., 2025).

The supervisory function is carried out through monitoring and evaluation of the implementation of SIS-based services. This activity aims to identify obstacles that arise during system use, whilst assessing the effectiveness of the services provided. The results of the evaluation serve as a vital source of information for managers in determining improvement measures, whether relating to technical aspects, human resources, or organisational working mechanisms. Thus, supervision functions not only as a control mechanism but also as an instrument of institutional learning that supports continuous system development.

The implementation of these management functions demonstrates that the optimisation of student services, based on SIS results, stems from close interaction among technology, human resources, and organisational governance. Technology provides the means to improve service efficiency; human resources act as the primary implementers of the system, whilst management serves as the framework that directs the entire process to ensure it aligns with the institution's objectives. By integrating these three elements, the Al-Yasini Integrated Islamic Boarding School strives to develop a service model that is more effective, accountable, and adaptable to the evolving needs of Islamic education in the digital age.

CONCLUSION

Based on the research findings and discussion, the implementation of the Student Information System (SIS) at the Al-Yasini Integrated Islamic Boarding School has shifted the management of student services from a conventional administrative system to a more integrated, information technology-based approach. Services covering administration, attendance, leave requests, communication with parents, and data management can now be carried out more systematically, quickly, and transparently, thereby improving the quality of the boarding school's services. The implementation of the SIS also demonstrates that information technology can enhance the effectiveness of institutional management through data integration and easier access to information. In addition to supporting internal administrative needs, this system also broadens communication channels between the pesantren and parents, making services more responsive to the needs of education service users.

However, this study found that the implementation of the SIS has not yet been fully optimised. The main challenges include limited human resource competence in technology, suboptimal integration among service units, and the continued use of certain manual processes in data management and service delivery. These conditions indicate that the success of digital transformation within Islamic boarding schools is determined not only by the availability of technology, but also by the organisation's readiness and the capacity of its human resources to manage change.

In addressing these various challenges, the Al-Yasini Integrated Islamic Boarding School has implemented a management strategy centred on the core functions of planning, organising, executing, and controlling. has put this strategy into practice by strengthening institutional policies, establishing a clear division of responsibilities, providing training and support for system users, developing a more integrated system, and conducting regular evaluations of the implementation of SIS-based services. These measures play a vital role in supporting the sustainability and effectiveness of information technology-based services for students.

This study shows that the optimisation of services for boarding school students, based on the Boarding School Student Information System, is a process that involves the interconnection of technology, human resources, and organisational governance. Therefore, the development of digital services within the boarding school environment needs to be carried out on an ongoing basis through capacity building for human resources, strengthening coordination between units, and refining the system in line with institutional needs and developments in information technology.

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