



Evaluation of The Management Information System for New Student Admissions (PPDB) at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa Based on The Pieces Analysis

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Abstract

This study evaluates the effectiveness of the Management Information System (MIS) for New Student Admissions (PPDB) at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa in improving administrative efficiency and service transparency. A qualitative evaluative case-study design was applied using the PIECES framework, covering performance, information, economy, control, efficiency, and service. Data were collected through in-depth interviews with seven purposively selected informants (five internal managers or committee members and two parents), direct observation, and documentation. The findings show that the web-based PPDB MIS accelerates registration, improves data accuracy, reduces paper-based administrative costs, and supports transparent and responsive services. Basic security controls, including HTTPS and separate applicant and administrator logins, were available; however, formal security procedures, automated backup, fine-grained authorization, dedicated IT personnel, and integrated payment verification were not yet fully established. Islamic management principles were used as an interpretive lens, particularly amanah in protecting data, tabayyun in verification, transparency in communication, and ta'awun in service. Overall, the system was generally effective, but structural and technical strengthening is required to ensure sustainable, accountable, and secure pesantren governance.

Keywords: Management Information System; New Student Admissions (PPDB); PIECES Analysis; Islamic Boarding School; Educational Evaluation

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INTRODUCTION

مقدمة

The development of information technology in the modern era has fundamentally changed the paradigm of managing educational institutions. Administrative digitalization has become a strategic necessity to increase efficiency, data accuracy, and service transparency. In the context of national education, the Law of the Republic of Indonesia Number 20 of 2003 affirms that the goal of education is to develop the potential of students so that they become individuals who are faithful, pious, noble in character, and knowledgeable (UUD RI, 2003). Therefore, a quality education system requires governance that is adaptive to technological developments. The government strengthens the direction of digital transformation through Ministry of Education and Culture Regulation Number 79 of 2015, which mandates the electronic management of data, indicating that the use of information technology is not merely an alternative, but a prerequisite for modern educational governance (Permendikbud, 2015).

From an Islamic perspective, the use of technology for public benefit reflects the value of knowledge as emphasized in QS al-Mujādilah/58:11 regarding the virtue of those who possess knowledge (Ramdani, 2024). Al-Qurṭubī explains that the nobility of knowledge includes all forms of beneficial knowledge, including information technology that supports education (Al-Qurṭubī, 2002). A similar principle is emphasized in QS al-'Alaq/96:1–5 concerning the command to read and document, which in a contemporary context may be interpreted as support for well-organized, accurate, and secure information systems (Kemenag RI, 2019). Thus, the use of a Management Information System (MIS) in Islamic educational institutions has not only technical value, but also spiritual value as part of the trust in managing knowledge.

The development of digital technology not only encourages educational institutions to adopt information systems but also demands a shift toward data-driven decision-making. In the era of big data, educational institutions are expected to collect, manage, and use integrated data as a basis for improving service quality. In the context of PPDB, an MIS is not merely a registration tool; it is also a strategic instrument that provides accurate information for institutional planning and policy formulation (Ibrohim & Hidayati, 2024; Sutrisnaniati, 2024). Therefore, PPDB digitalization can support educational planning that is more comprehensive, measurable, and adaptive.

In addition, the digitalization of education management creates opportunities for more inclusive access. Online PPDB enables prospective students from remote areas or outside the province to obtain information and register without being constrained by distance and time. Rifqi and Karwanto (2023) found that digital PPDB in pesantren can increase accessibility and public trust. In the context of An-Nail Gowa, a responsive and user-friendly PPDB MIS therefore functions as a bridge toward more equitable and modern access to Islamic education.

On the other hand, implementing a digital system requires human-resource readiness and internal management reform. Digitalization involves more than providing an application; it also requires changes in work culture, operator training, and a clear understanding of digital administrative workflows. Amin (2024) identifies limited personnel, insufficient technological training, and overlapping workloads as major constraints in pesantren digitalization. At An-Nail Gowa, the main challenge is likewise not the availability of the platform itself, but the limited number of personnel who must handle multiple responsibilities. This condition may delay verification, increase the risk of input error, and reduce the use of available features. Consequently, MIS evaluation must consider organizational readiness and role allocation alongside technical performance.

Beyond efficiency, PPDB digitalization reflects a commitment to transparency and accountability. From an Islamic management perspective, data management and administrative service constitute an amanah that must be carried out honestly and professionally. Sutrisnaniati (2024) argues that a well-managed MIS can improve accountability and information transparency in educational administration. Digital systems may support more open reporting, reduce opportunities for data manipulation, and strengthen a fair and traceable selection process. Thus, the value of PPDB digitalization lies not only in technological improvement but also in the quality of institutional responsibility.

Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa, as a growing Islamic educational institution, faces administrative challenges along with the increasing number of applicants each year. To address these challenges, the pesantren implemented the Management Information System for New Student Admissions (SIM PPDB) based on an online platform to accelerate

services, improve data accuracy, and strengthen selection transparency. However, the implementation of this system has not yet run optimally due to several obstacles. First, the limited human resources who are proficient in information technology cause the system to be managed less optimally. This aligns with the management principles in QS Yūsuf/12:55 concerning the importance of competence (al-'ilm) and integrity (al-amānah) in managing trust (Yusuf, 2020). Second, the payment system has not yet been integrated, so payment verification is still performed manually, increasing the workload of the committee and slowing down the administrative flow. Hidayat (2023) emphasize that the integration of information systems with financial systems is an important indicator of transparency and efficiency in educational governance.

Previous studies show that evaluating information systems in education is often carried out using the PIECES method (Performance, Information, Economy, Control, Efficiency, Service) because it is comprehensive and capable of mapping system strengths and weaknesses. Palevi & Krisnawati (2017) found that this method is effective in identifying weaknesses in the PPDB system at SMP Negeri 2 Mojosongo Boyolali. Research by Hanifi et al. (2023) on the website of Pondok Pesantren An-Nur 2 Al-Murtadlo also shows that PIECES can be used to assess service quality and determine development priorities. Suhaerah (2021) applied PIECES to the postgraduate library system at UIN Alauddin Makassar and found that this approach is effective for measuring academic service effectiveness. However, literature shows a gap in studies on information system evaluation in pesantren that integrate Islamic management perspectives and the unique challenges of the pesantren environment.

Based on this gap, this study examines the effectiveness of the SIM PPDB at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa through PIECES analysis and interprets the findings through relevant Islamic management principles. It addresses three questions: (1) how the SIM PPDB is implemented in practice; (2) how the system performs across the PIECES dimensions of performance, information, economy, control, efficiency, and service; and (3) how PPDB data may support future strategic decision-making. Islamic principles are used as a contextual interpretive lens rather than as additional measured variables. This approach allows the study to connect technical system evaluation with the institutional values of amanah, verification, transparency, responsible resource use, and service in a pesantren setting.

METHOD

منهج

This research method was designed to systematically describe the scientific procedures undertaken by the researcher in collecting, processing, and analyzing data to produce research findings. Since the purpose of this study is to evaluate the effectiveness of the Management Information System (MIS) for New Student Admissions (PPDB) at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa, a qualitative approach was chosen to allow the researcher to understand the phenomenon in depth through direct interaction with participants and the institutional context. The qualitative evaluative approach enables exploration of user experience, operational constraints, and system performance effectiveness from the participants' perspective. In line with Patton (2015), qualitative evaluation provides space to interpret meaning and social dynamics related to the implementation of a policy or program. In this study, the analysis was directed to assess the system based on the PIECES framework, which includes aspects of performance, information quality, cost efficiency, control, time efficiency, and service quality.

The research data consisted of primary and secondary sources. Primary data were obtained through in-depth interviews, direct observation, and examination of internal documents. Seven informants were selected purposively based on their direct involvement in managing or using the PPDB MIS: the Mudir (director), the Head of the Wustha Education Department, the MIS operator, the PPDB committee chair, the committee treasurer, and two parents as end users (N = 7). Prospective students were observed during the registration process but were not counted as interview participants. The informants were selected because they could provide evidence regarding system effectiveness, implementation constraints, administrative workflow, and user experience. Secondary data included institutional documents, PPDB archives, technical guidelines, literature on management information systems, and national education policies, including Law Number 20 of 2003 and Ministry of Education and Culture Regulation Number 79 of 2015.

The data collection procedure was conducted in several complementary stages. First, semi-structured interviews were conducted to explore informants' perceptions, experiences, and assessments of the web-based PPDB system. This interview format enabled the researcher to obtain an in-depth understanding of technical and nontechnical aspects, including HR constraints and system development needs. Second, field observation was conducted by following the entire registration flow, starting from accessing the PPDB website, filling out the registration form, uploading documents, file verification, to the interview and selection process. This observation allowed the researcher to directly assess the consistency between procedures and actual practice, as well as identify technical barriers. Third, documentation was carried out by collecting registration forms, screenshots, internal SOPs, and other archives that support the analysis.

In qualitative research, the researcher acts as the main instrument. The researcher's presence influences the data collection, interpretation, and analysis process. To support data accuracy, supporting instruments such as interview guidelines, observation guidelines, and documentation sheets were used. The interview guidelines were developed based on the six PIECES indicators to ensure the relevance and focus of the data collected. The observation guidelines were used to note actual processes in the field, including user-system interactions and emerging obstacles. Supporting documents such as verification notes and registration archives served as comparative data in the triangulation process.

Data analysis followed the model of Miles and Huberman, which includes data reduction, data display, and conclusion drawing (Miles & Huberman, 1992). In the data reduction stage, the researcher filtered information from interviews, observations, and documents that were relevant to the evaluation of the PPDB MIS. The information was categorized according to PIECES indicators to guide synthesis. The next stage involved presenting data in narrative descriptions and thematic matrices to identify patterns, relationships between categories, and tendencies in the findings. The final stage was drawing conclusions through meaning interpretation and repeated verification of the data to ensure accuracy. The PIECES framework was then used as a thematic analysis tool to evaluate the system from aspects of performance, information, economy, control, efficiency, and service. This combination ensured that the findings were not only descriptive but also analytical and argumentative.

Data validity was ensured through techniques recommended by Guba and Lincoln, namely credibility, transferability, dependability, and confirmability (Moleong, 2021). Credibility was maintained through source triangulation, technique triangulation, member checking, and prolonged engagement. Transferability was ensured through detailed contextual descriptions of the research setting and institutional characteristics. Dependability was achieved through

systematic documentation of the research process, while confirmability was ensured by confirming that all findings were derived from empirical data, not subjective interpretations.

These procedures enabled the study to produce findings that were systematic and empirically traceable. PIECES served as the formal evaluation framework, while Islamic management principles were applied at the discussion stage as a contextual interpretive lens. This distinction ensured that the study did not treat religious values as unmeasured technical indicators, but used them to explain the ethical and managerial significance of the observed strengths and weaknesses.

RESULT | نتائج

This research presents three main aspects in accordance with the formulated problems: the actual implementation of the New Student Admission Management Information System (SIM PPDB), the results of the PIECES-based analysis, and the potential use of the data generated by the system. These three aspects are described narratively based on field findings obtained through interviews, observations, and documentation during the research process.

The Reality of SIM PPDB at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa

The implementation of PPDB at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa has shifted from a manual model to a digital-based system through the application of the PPDB Management Information System. The system is accessed through the official website of the pesantren <https://annail.wahdahislamiyahgowa.sch.id> and is designed to facilitate prospective students and parents in obtaining information and completing the registration process without having to come directly to the institution. The presence of features such as the information homepage, requirements page, capacity information, online registration forms, and service contacts demonstrates that the pesantren has adopted digital technology to improve professional service delivery.

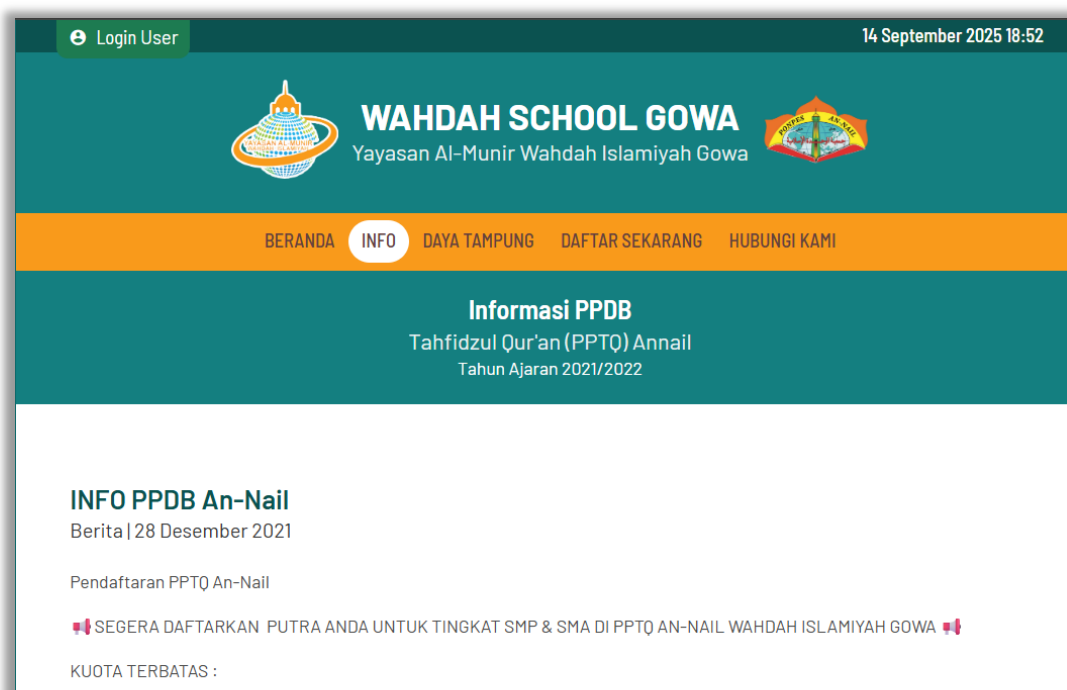


Figure 1. PPDB website interface showing information, capacity, and online registration menus

Field realities show that the system has brought significant changes to the efficiency of the committee's work. Applicant data is automatically stored in the database, reducing the risk of human error that previously often occurred in manual input processes. Prospective applicants can upload documents easily, while the committee can monitor the number of applicants in real time. This allows the recap process to be faster and more organized.

However, the study also found that the system's operations are not yet fully optimal. The absence of dedicated human resources to handle technical aspects of the system causes PPDB management to be hindered by time constraints and the limited technical capabilities of committee members who handle multiple responsibilities. In addition, the lack of payment integration in the system results in manual payment verification, which slows down the registration process. Applicants from areas with limited internet connectivity also continue to experience difficulties in uploading documents. In other words, although the PPDB system is functioning, its implementation still requires strengthening in terms of human resources and technical integration.

PIECES-Based Analysis of SIM PPDB

The PIECES analysis provides a comprehensive picture of the quality and effectiveness of SIM PPDB. In terms of performance, the system demonstrates good capability as it can process registrations quickly and display updated data. Users can access the forms, input data, and upload documents smoothly. However, problems arise in the payment verification stage which still relies on manual processes, thereby prolonging administrative completion.

From the information aspect, the system is sufficiently informative because it presents all important information related to PPDB in a structured manner. The capacity feature provides transparency to the public regarding admission opportunities. Automatically stored applicant data also increases accuracy and reduces input errors. However, the quality of payment-related information is not yet optimal because there is no automatic synchronization between proof of payment and validation status.

Economically, the system reduces operational costs associated with printing forms, storing physical files, and repeating manual data entry. Nevertheless, cost efficiency is not yet complete because payment verification and several administrative checks remain manual, creating hidden costs in staff time and workload.

From the control aspect, the system already uses basic safeguards, including HTTPS and separate logins for administrators and applicants. No successful data breach or major cyber incident was reported during the study period. However, database encryption, automated and scheduled backup, detailed role-based authorization, audit trails, and formal personal-data protection procedures were not yet standardized. These gaps create prospective risks rather than evidence of an existing breach: data recovery could be delayed after a server failure, and broad internal access could increase exposure as the number of users and committee members grows. Parents generally expressed trust in the official portal and responsive support channels, but their comments focused on service reliability rather than the technical mechanisms used to protect their children's data. Therefore, privacy assurance should not rely solely on the absence of reported incidents; it requires written SOPs, periodic security audits, and dedicated technical responsibility.

The efficiency aspect shows that the system has accelerated most PPDB processes. The registration flow becomes simpler and no longer requires physical files. Nevertheless, the

absence of dedicated IT staff and manual verification reduces overall efficiency. From the service aspect, the system provides a positive user experience. Information is easy to access, communication through WhatsApp is responsive, and the available features are helpful. However, improvements are still needed, such as providing usage guidelines or automated assistance.

Potential Use of SIM PPDB Data

The data generated by SIM PPDB has great potential to support strategic decision-making at the pesantren. Currently, the data is used only for applicant number recap and document verification. In fact, the data can be used to analyze registration patterns from year to year, such as trends in applicant origin, program preferences, or peak registration times. This analysis can help the pesantren design socialization strategies and improve the effectiveness of educational promotion.

Additionally, PPDB data can be used to predict facility and infrastructure needs, including classroom capacity, dormitory requirements, and the number of teachers. Developing a data-based analytics dashboard would also enable the pesantren to monitor applicant numbers more comprehensively through graphs or other data visualizations.

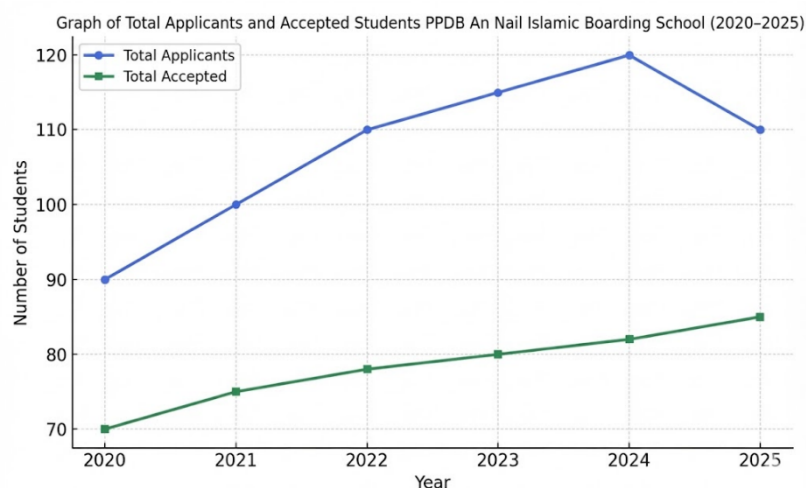


Figure 2. Total of registrants and students accepted

Applicant profiles such as academic background and region of origin can also serve as an important basis for designing educational policies. With deeper analysis, the pesantren can adjust coaching programs, identify academic support needs, and design more adaptive admission policies. In other words, PPDB data holds significant strategic value when managed systematically and sustainably.

Overall, this research emphasizes that the SIM PPDB of Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa has had a positive impact on increasing the speed, transparency, and efficiency of the new student admission process. Even so, technical aspects such as payment integration, data security, and IT personnel availability still need strengthening. The PPDB data produced by the system has great potential to support strategic decision-making, provided it is managed optimally through advanced system development and analysis.

DISCUSSION

مناقشة

This discussion integrates the findings with Management Information Systems theory, PIECES-based evaluation, and the institutional context of pesantren. It also uses Islamic management principles as an interpretive lens to explain why technical strengths and weaknesses have ethical and organizational consequences in an Islamic educational institution.

Digital Transformation and the Reality of SIM PPDB Implementation

The findings indicate that implementing a digital-based PPDB system at Pondok Pesantren Tahfizul Qur'an An-Nail Gowa has significantly improved administrative efficiency and accuracy. This aligns with Laudon & Laudon (2013), who state that MIS enables organizations to process data more quickly, in a structured manner, and with minimal error. The An-Nail PPDB system proves that digitalization is capable of replacing manual workflows that previously consumed much time and were prone to errors, especially in data input and file recap.

However, limited IT personnel and the absence of integrated payment verification show that digital transformation depends on organizational readiness as much as on technology. Rogers (2003) emphasizes that adoption is influenced by institutional capacity and individual competence. In this case, the pesantren has entered the implementation stage, but technical responsibilities are distributed among staff who also perform teaching, boarding, and administrative duties. This shared-work arrangement supports flexibility, yet it can delay troubleshooting, weaken role ownership, and make system development dependent on the availability of personnel whose primary duties lie elsewhere.

PIECES Analysis: System Strengths and Weaknesses

The PIECES analysis provides a comprehensive assessment of the An-Nail PPDB system within the system evaluation framework.

In terms of **Performance**, the system shows quick responses, the ability to serve many users, and effective automation processes. This corresponds to O'Brien & Marakas (2014), who states that performance is measured by processing speed and access stability. Good system performance indicates that the pesantren has overcome initial digitalization barriers.

In the **Information** aspect, the completeness and timeliness of data indicate high information quality. However, the lack of integrated payment features represents an information gap. Stair & Reynolds (2017) argue that information quality involves accuracy, completeness, relevance, and consistency. The PPDB system meets most of these aspects but has not yet achieved full consistency due to manual verification.

In the **Control** aspect, the presence of HTTPS and separate user logins indicates that basic safeguards are functioning. Nevertheless, the absence of standardized backup, database encryption procedures, detailed authorization levels, audit trails, and dedicated security personnel leaves the system vulnerable to delayed recovery and internal overexposure as its scale increases. This supports Bodnar and Hopwood's (2010) view that effective control requires not only technical access restrictions but also formal policy, accountability, and monitoring.

The **Efficiency** aspect shows significant improvement in process speed. However, manual payment verification remains the main obstacle. According to Wetherbe (2010), efficiency is achieved when the system reduces effort, time, and cost simultaneously—something the An-Nail system has not yet fully reached.

The strongest aspect is **Service**. The system provides a good user experience, increases public trust, and facilitates prospective students in obtaining information. This supports Davis (1989) Technology Acceptance Model (TAM), which states that perceived usefulness and perceived ease of use are the main factors influencing user acceptance.

PIECES in the Pesantren Context and Islamic Management Values

The pesantren context makes the PIECES findings different from a conventional organizational setting. At An-Nail, a culture of ta'awun supports flexible cooperation: staff members assist across functions, and the PPDB committee provides responsive support even beyond formal service hours. This culture strengthens the Service dimension. However, ta'awun should complement rather than replace professional role allocation. When technical ownership is continuously shared among personnel with multiple duties, cooperation may unintentionally produce role overload, slower verification, and unclear accountability. A dedicated system owner and written division of responsibilities are therefore consistent with, rather than contrary to, the principle of mutual assistance.

Islamic values also provide normative meaning to the six PIECES dimensions. The Information dimension relates to tabayyun and shiddiq because applicant and payment data must be verified before they become the basis for admission decisions (QS al-Hujurat/49:6). The Control dimension reflects amanah: personal identities, addresses, documents, and payment information must be protected through proportionate authorization, backup, and accountable access (QS al-Nisa/4:58; Yusuf, 2020). The Service dimension is connected to tabligh and ta'awun through clear information and responsive assistance, while Economy and Efficiency are related to avoiding israf and using institutional time and resources responsibly. These principles do not replace PIECES indicators; they explain why accuracy, security, transparency, and efficiency are moral as well as technical obligations in pesantren governance.

Resource allocation also requires a pesantren-specific reading. The system has reduced paper and administrative expenditure, but the Economy dimension must include hidden costs arising from overlapping workloads, manual payment verification, and delayed security response. Because personnel and funds are shared across academic, boarding, and administrative priorities, improvement should be phased: first appoint a responsible system owner, formalize security and verification SOPs, and train backup operators; next integrate payments and strengthen role-based access; and finally develop an analytical dashboard. This sequence preserves financial prudence while moving the institution toward professional and sustainable digital governance.

Potential PPDB Data and Data-Based Management

The PPDB data collected through the system holds significant potential for strategic decision-making. This aligns with Mandinach (2012), who states that educational data can improve policy, enhance services, and support targeted program planning.

In the context of An-Nail PPDB, applicant data can be used to:

1. Map trends in public interest,
2. Estimate future facility and infrastructure needs,
3. Analyze curriculum and coaching requirements,
4. Design communication and promotional strategies,
5. Optimize student admission policies.

The fact that this data is not yet fully utilized indicates that the pesantren is still in the early stage of data-driven management. Brynjolfsson & McElheran (2016) argue that the full benefits of digitalization are achieved only when organizations develop data-analytic capabilities.

Thus, the significant potential of PPDB data requires support in the form of analytic dashboards, SOPs for data management, and capacity-building for human resources so that the pesantren can transform into a data-driven educational institution.

The implications are both managerial and technical. Managerially, the pesantren needs a clearly designated system owner, documented role allocation, and continuous operator training. Technically, the system requires integrated payment verification, stronger role-based authorization, automated backup, periodic security review, and analytical features. These improvements should be implemented gradually so that digital development remains proportionate to institutional capacity.

This study contributes to the literature on digitalization in Islamic educational institutions by showing that pesantren adoption cannot be understood only through generic information-system criteria. The effects of shared duties, service-oriented cooperation, institutional trust, and limited specialization shape the meaning of each PIECES dimension. The integration of Islamic management values therefore functions as a contextual explanation of why professional accountability, data protection, and responsive service are essential to sustainable pesantren digitalization.

CONCLUSSION | خاتمة

This study addressed its objectives by describing the implementation of the New Student Admission Management Information System (SIM PPDB) at Pondok Pesantren Tahfizhul Qur'an An-Nail Gowa, evaluating it through the PIECES framework, and identifying the strategic potential of PPDB data. The digitalization of admissions improved administrative speed, data accuracy, accessibility, and service transparency. Performance, information, efficiency, and service were the strongest dimensions, while economy and control still require structural and technical strengthening because of overlapping personnel responsibilities, manual payment verification, and incomplete security procedures. The Islamic management lens further shows that successful digital transformation is connected to amanah in protecting data, tabayyun and shiddiq in verification, transparent communication, responsible use of resources, and ta'awun supported by clear professional accountability.

PPDB data also has substantial value for mapping applicant trends, planning facilities, designing adaptive admission policies, and targeting educational promotion. The pesantren should therefore appoint dedicated system responsibility, integrate payment verification, implement formal data-protection and backup procedures, and develop analytical dashboards. At the policy level, umbrella pesantren organizations and regional Islamic education networks should formulate minimum standards for pesantren-based PPDB systems, covering data protection, role authorization, payment integration, interoperability, and operator competence. Future studies may extend this work through quantitative performance measurement, longitudinal analysis of work-culture change, and technical testing of integrated payment, security, and analytics features.

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