

Critical Analysis of Digital Infrastructure Readiness in Supporting Islamic Boarding School Economic Management

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Abstract

This study examines the readiness of pesantren economic digitalization through technical, institutional, and human resource (HR) aspects. Using a systematic literature review of 50 publications (2021–2025), it was found that internet access and hardware remain limited. Internal regulations and IT teams play a key role in implementing digital applications such as Santri App. HR digital literacy improved through participatory training. The findings indicate that the synergy of these three aspects is crucial to support the sustainable digital transformation of pesantren within the Society 5.0 framework.

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Introduction

The development of digital technology has revolutionized various sectors—especially education and the economy—with significant acceleration since the COVID-19 pandemic. This transformation presents challenges such as the digital divide, while simultaneously opening opportunities to enhance technology-based services in rural areas and traditional educational institutions such as Islamic boarding schools (pesantren) (Fattachil'Izza et al., 2025). According to Soleh (2024), the readiness of digital infrastructure—including internet networks, hardware and software, as well as supporting regulations—is the fundamental basis for transformation toward the Society 5.0 era. In this study, the term Digital Infrastructure is defined as the comprehensive system of technologies and policies that enable electronic transactions, reporting, and decision-making.

The focus of this research is a Critical Analysis of Digital Infrastructure Readiness in Supporting Pesantren Economic Management. Manual systems such as book-based recordkeeping and cash transactions, which are still widely used in pesantren, are vulnerable to errors, limited access, and lack of transparency. The implementation of applications such as Santri App, as studied by Fattachil'Izza et al. (2025), has been found to improve accuracy, transparency, efficiency, and effectiveness in pesantren educational reporting. Meanwhile, a study by Mutmainah and Romadhon (2023) on the use of the E-Syarif Card indicates that digitalization can shape students' mental accounting and enhance financial transaction security.

Functionally, the Santri App supports integration among teachers, administrative staff, and students' guardians, facilitating centralized daily academic and institutional reporting (Fattachil'Izza et al., 2025). This functionality allows for more data-driven policies by pesantren administrators. On the other hand, the E-Syarif Card, launched on March 3, 2023, by Koppondren Syarifuddin, has shown direct impact on increasing cooperative income and students' financial discipline (Mutmainah & Romadhon, 2023). Recorded electronic transactions allow guardians to monitor activities, increasing accountability and encouraging a healthier digital culture.

From an institutional perspective, Suhendi and Sholeh (2021) highlight key obstacles such as uneven technical infrastructure and low levels of digital literacy among pesantren human resources. Awareness of digital regulations, data security, and social impacts also remains weak, making institutional readiness a crucial factor in technology adoption. This study positions human resource readiness, internal policy, and external support (e.g., from local governments and the Ministry of Religious Affairs) as key variables in the digital economic management of pesantren.

Using a systematic literature review approach (B. S. Widodo, 2021), this study explores both national and international literature from 2021–2025, primarily peer-reviewed and indexed journals. The subjects of the review include research on technical aspects (digital infrastructure and platforms), institutional dynamics (regulations, public management), and economic psychology (mental accounting). The review procedure consists of identifying articles using keywords such as “digital pesantren,”

applying inclusion-exclusion criteria based on relevance, data extraction, and thematic-narrative synthesis.

To explain key concepts, several terms are explicitly defined. Digital Infrastructure includes both physical components (internet networks, servers, computers, mobile devices) and non-physical components (academic management software, cybersecurity, regulations) (Suhendi & Sholeh, 2021). Pesantren Economic Management refers to the comprehensive process of managing funds, accounting, financial planning, and reporting aimed at sustaining pesantren operations. Acronyms such as IS (Information System), HR (Human Resources), and ICT (Information and Communication Technology) are defined upon first use to clarify their relevance.

International literature shows a trend of accelerating digitalization in faith-based educational institutions. Azizah and Husni (2025) mention that digital attendance applications like SiMadin Dartaq, using barcode-enabled student cards, increase attendance efficiency and compliance. Meanwhile, Widodo and Husni (2025) emphasize that pesantren education transformation, as part of a digitalization strategy, must preserve traditional values while adopting modern technologies. Globally, such digital approaches are considered effective in embedding local cultural values into community-based digital transformation.

Nationally, numerous studies describe both the practices and barriers to pesantren digitalization. Fattachil'Izza et al. (2025) found that Santri App improves academic and institutional administrative accuracy, efficiency, and transparency. Mutmainah and Romadhon (2023) report that the E-Syarif Card effectively builds students' mental accounting and financial security, particularly through guardian monitoring. Another study by Mutohar, Darmawan, and Prastiwi (2025) shows that training using the SIPonpes system with the Participatory Action Research (PAR) method enhances the operational and financial reporting capacity of Lubabul Fattah pesantren.

Despite the implementation of various systems, several challenges persist: unequal internet infrastructure, low digital literacy among pesantren HR, and the lack of internal policy as digital regulations (Azizah & Husni, 2025). Digitalization is not solely about technology—it requires the integration of regulations, training, and

organizational culture. There has been no comprehensive study critically analyzing the holistic readiness of technical, institutional, and human components to support digital-based pesantren economic management. This is the main justification for this research to examine such readiness systematically and holistically.

This study applies the library research method, namely systematic literature review (Magdalena et al., 2021). Sources were identified through national and international databases (2021–2025), such as Google Scholar, GARUDA, and indexed journals. Keywords include “Digital Pesantren,” “Pesantren Economic Management,” and “Digital Infrastructure.” Selected articles met inclusion criteria: relevance to pesantren digitalization and economic management, publication year 2021–2025, and clear methodologies. The next step involved data extraction covering conceptual definitions, empirical findings, identified challenges, and technical recommendations from each analyzed study. The systematic procedure included keyword identification, preliminary screening of titles and abstracts, full-text review of context, methods, and findings, and thematic mapping (technical, institutional, HR aspects). Analysis was conducted using a thematic and narrative synthesis approach (B. S. Widodo, 2021).

Thematic synthesis categorized literature into three domains: technical readiness (infrastructure and platforms), institutional readiness (policies and pesantren public management), and HR capability (technological literacy). Quality evaluation was based on methodological criteria: instrument validity, procedural transparency, and data credibility. Articles such as Mutohar et al. (2025), which used PAR with structured SIPonpes training, were considered high-quality due to active participation and cyclical evaluation.

Findings show that technical infrastructure is organized at three levels: internet networks, hardware, and management applications. Suhendi and Sholeh (2021) revealed that only 40% of pesantren in West Java have stable internet connections, while hardware such as computers and servers are often outdated and insufficient in number. This condition is worsened by the lack of internal regulatory support for device use and infrastructure maintenance, highlighting a critical need for technical readiness in digital economic management.

From an institutional perspective, digital readiness involves not only devices but also regulation, management, and organizational culture. Fattachil'Izza et al. (2025) observed that pesantren that successfully adopted Santri App had supportive management structures such as internal IT teams and regular staff training. In contrast, pesantren without digital systems faced obstacles due to a lack of formal policy and leadership commitment. This study explores such contrasts to formulate strategies for systematically improving institutional readiness.

Human resource capability—particularly of students, educators, and pesantren managers—is crucial for technology adoption. Mutmainah and Romadhon (2023) noted that students' digital literacy was initially low during the E-Syarif implementation but improved significantly after one semester of intensive training. The PAR method used by Mutohar et al. (2025) reinforced these findings, showing significant gains in operational and technological competencies after participatory training and collaborative evaluation. These results affirm the importance of contextual and sustainable strategies for capacity building.

Preliminary findings of this literature study hold important implications for pesantren economic management. First, technical readiness requires continuous investment in devices and connectivity. Second, internal regulation and management structure must align with digitalization goals, such as by forming IT divisions and establishing standard operating procedures (SOPs). Third, enhancing HR capability through systematic training and participatory methods is key to successful digital implementation. The integration of these three variables is believed to improve efficiency, transparency, and accountability in digital-based economic management.

Various stakeholders—kyai, pesantren administrators, student guardians, and local government—play strategic roles in driving digitalization. Literature shows that the success of Santri App and E-Syarif strongly depends on kyai support and guardian involvement in transaction oversight (Fattachil'Izza et al., 2025; Mutmainah & Romadhon, 2023). This interaction fosters trust and provides useful feedback for system improvement. Local governments and the Ministry of Religious Affairs (MoRA) are needed to integrate pesantren digitalization into regulation and provide funding and technical infrastructure.

Challenges identified in the literature include technical issues such as uneven connectivity and limited devices, as well as non-technical ones such as cultural resistance, data security concerns, and lack of budget (Suhendi & Sholeh, 2021). Data privacy concerns for students and guardians also hinder digital system implementation. Key recommendations include multifaceted stakeholder engagement, clear policy and SOP development, and structured digital literacy improvement.

To overcome these challenges, suggested strategies include: (1) improving internet access through collaboration with service providers; (2) investing in hardware and adopting cloud-based systems for cost efficiency; (3) training HR through PAR and forming internal IT units; and (4) strengthening institutional policy with clear digital regulations and financial SOPs (Mutohar et al., 2025; Suhendi & Sholeh, 2021). A phased implementation starting with the administration unit is considered more effective to ensure sustainable adoption.

Based on the research gap and previous recommendations, this study aims to achieve three main objectives. First, to evaluate the level of digital infrastructure readiness in pesantren environments by examining technical, institutional, and human resource domains. This evaluation is essential to understand how effectively pesantren can adopt and utilize digital technology to support institutional and economic activities. Second, to identify key enabling and inhibiting factors in the management of digital-based pesantren economies. Understanding these dynamics is critical to ensure that digital systems are not merely formalities but truly support pesantren's sustainable economic independence. Third, as a practical contribution, this study aims to formulate strategies and develop a roadmap for strengthening adaptive and contextual digital infrastructure. These strategies and the roadmap are expected to serve as references for pesantren of various scales—small, medium, and large—in building an inclusive and competitive digital ecosystem.

In conclusion, although digitalization efforts in pesantren have shown promising developments—such as the implementation of Santri App, E-Syarif Card, and participatory training—technical, institutional, and cultural challenges remain significant barriers to digital transformation. In this context, a holistic evaluation through systematic literature review is crucial to generate a more accurate mapping

and formulate contextual, applicable strategies for managing pesantren economies. This study is expected to provide both conceptual and practical foundations for developing faith-based educational policies grounded in technology, and to strengthen digital integration in Indonesia's pesantren economic ecosystem in a sustainable manner.

Materials and Methods

This study adopts a qualitative approach using a systematic literature review (SLR) method, guided by a positivist-constructivist paradigm (Pahleviannur et al., 2022). This approach enables the objective collection of data from the literature (positivist) and the development of in-depth thematic understanding through narrative synthesis (constructivist). The research stages began with the formulation of focused research questions centered on three main variables—technical infrastructure, institutional readiness, and human resource (HR) capability—as the pillars of digital economic management readiness in Islamic boarding schools (pesantren).

The literature search was conducted through platforms such as Google Scholar, GARUDA, and the National Digital Library from 2021 to 2025. The keywords used included: "digitalization of pesantren", "digital infrastructure of pesantren", "digital economic management", "library research", and "thematic synthesis". Widodo's work (2021) served as a primary reference for applying the systematic literature review methodology, while Prasetyo and Dewayanto (2024) provided clear guidance on thematic and narrative synthesis techniques.

The selection process began with screening the titles and abstracts of more than 120 documents. These were then filtered more rigorously using inclusion criteria (relevant titles, clear methodologies, published between 2021–2025, indexed journals or academic books) and exclusion criteria (opinion pieces and non-academic articles). As a result, 50 publications were selected for further analysis.

Each piece of literature was examined with a focus on aspects such as network readiness, hardware and software availability, internal regulations, and digital literacy of human resources, as illustrated by Suhendi and Sholeh (2021), Khusna et al. (2025), and Mutmainah and Romadhon (2023). The data were thematically coded following the model suggested by Prasetyo and Dewayanto (2024), and then reorganized narratively

to explain the relationships among concepts, identify dominant patterns, and outline the strengths and weaknesses of each variable.

Validation was carried out through cross-checking among reviewers and group discussions to minimize interpretive bias. To support replication, all stages were thoroughly documented, including search keywords, access dates, selection criteria, data extraction tables, and thematic relation diagrams.

Thus, this study not only logically and operationally explains the research procedures but also facilitates replication or adaptation by other researchers, either in different pesantren settings or other types of educational institutions.

Results

The findings indicate that the technical infrastructure in pesantren remains highly varied. Soleh (2024) reports that only around 40% of pesantren in West Java have stable internet connections, while much of their hardware is outdated. Digitalization enablers—such as local servers or cloud-based platforms—have been adopted by less than 20% of modern pesantren (Fattachil'Izza et al., 2025). In other words, technical readiness remains a primary barrier to implementing digital economic management systems, as a weak IT foundation undermines the effectiveness of applications like Santri App and the E-Syarif Card.

Literature also reveals stark differences in the level of internal regulation. Pesantren that have successfully implemented digitalization, such as institutions using Santri App, generally have internal IT teams and written standard operating procedures (SOPs) for managing digital data and financial systems (Fattachil'Izza et al., 2025; Khusna et al., 2025). In contrast, institutions that fail to accommodate these changes often experience delays and resistance, including concerns about student data security (Soleh, 2024). Thus, internal regulation is shown to be a significant moderating variable influencing the outcomes of pesantren economic management.

Both prescriptive literature and empirical studies (Mutmainah & Romadhon, 2023; Khusna et al., 2025) demonstrate improvements in digital literacy and participation among students and administrators following one-semester intensive training interventions. These participatory training programs yielded notable results, including a better understanding of electronic transaction systems and digital data

management—aligning with research on digital capability development in educational institutions (Soleh, 2024). Therefore, HR interventions are identified as a crucial supporting component for the readiness of pesantren's digital economic management ecosystem.

Using thematic-narrative analysis, this study found positive interactions among the three main variables: technical readiness, internal regulation, and HR capability. A concrete example can be seen in pesantren with adequate infrastructure and internal teams followed by training programs, which demonstrated a 30% increase in financial report accuracy (Fattachil'Izza et al., 2025) and a 20% rise in parent satisfaction levels (Mutmainah & Romadhon, 2023). This confirms the initial hypothesis that successful digital economic management is strongly influenced by the synergy of these three variables.

Theoretically, the study reinforces a holistic model of technological transformation, going beyond a one-dimensional focus (e.g., on devices or literacy alone), and supports the conceptualization of Industry 4.0–Society 5.0 readiness within the context of traditional institutions (Suhendi & Sholeh, 2021). Practically, the results encourage pesantren and policymakers to adopt layered policy frameworks, including: infrastructure budget increases, digital SOP development, and comprehensive HR training.

The study also proposes a medium-term digital implementation roadmap (2–3 years), starting from financial/administrative units toward a full academic management system. Overall, the findings and discussion confirm that the success of digital economic management in pesantren heavily depends on the synergy between technical infrastructure, internal regulation, and human capital literacy. Through thematic-narrative synthesis, this study not only affirms the initial hypothesis but also offers a new theoretical framework for examining digitalization in traditional, faith-based institutions—a domain previously underrepresented in Islamic education modernization discourse.

Discussion

The results of this study indicate that digital readiness in pesantren remains at an early and complex stage, particularly in relation to three key pillars: technical infrastructure, institutional framework, and human resources (HR). These findings align with Soleh (2024), who reported that only 40% of pesantren in West Java possess adequate internet infrastructure. The digital divide is further emphasized by Soleh, who highlights the limitations in hardware and the absence of a standardized electronic data management system across pesantren.

In terms of institutional readiness, studies by Fattachil'Izza et al. (2025) and Khusna et al. (2025) underline that pesantren successfully implementing Santri App typically have Standard Operating Procedures (SOPs), internal IT teams, and ongoing training programs. Conversely, pesantren lacking clear digital regulatory frameworks tend to experience internal resistance, both from administrators and students. These observations are supported by Saputra and Sirozi (2025), who noted that institutional policies act as key determinants in the successful adoption of community-based technology.

The role of human resources as a decisive factor in digitalization success has also been emphasized in multiple studies. Mutmainah and Romadhon (2023) observed that improvements in student financial literacy through the E-Syarif platform were only effective after intensive training. Participatory training methods, such as the Participatory Action Research (PAR) approach, were found to significantly enhance pesantren HR capabilities (Mutohar et al., 2025; Teuku et al., 2023). Research by Windiarti and Haryanto (2022) further demonstrated that digitally-oriented training rooted in local culture yields more adaptive outcomes compared to generic training models.

Studies by Akhmad (2024) and Muiz (2023) support the notion that pesantren are currently undergoing a phase of "modernization without abandoning tradition," in which digital adoption must remain aligned with cultural values. However, Safirah et al. (2025) cautioned that digital literacy among teachers remains low, making contextualized training a prerequisite for successful educational technology integration.

This study also found that the success of digital financial management systems in pesantren depends on a tight interplay between technology and institutional accountability. Research by Suhasto, Kirowati, and Anggraeny (2021), as well as Asri et al. (2024), shows that digital systems accelerate financial reporting accuracy and increase transparency, which in turn boosts the trust of students' guardians. Similar results were reported in pesantren-based schools by Musfirah (2024), where electronic finance applications improved the efficiency of managing government funds (BOS) and community donations (infaq).

At a macro level, studies by Prasetyo and Dewayanto (2024) and Widodo and Husni (2025) show that integration among technical, institutional, and HR variables is key to the digital transition of community-based institutions. The thematic synthesis model used in this study demonstrates that the synergy between infrastructure, policy, and training forms a strong foundation for digital transformation. This model is further reinforced by studies from Ciptadi and Khozin (2025) and Restalia and Khasanah (2025), which observe similar patterns in Islamic educational institutions in South Asia and North Africa.

In terms of program sustainability, the involvement of kyai (religious leaders) and pesantren administrators emerges as a critical factor. This is affirmed by Fattachil'Izza et al. (2025) and Maisya and Rohman (2021), who found that the success of digital applications is heavily influenced by the legitimacy of pesantren authorities in supporting technology initiatives. Successful interventions are measured not only by the formation of digital culture but also by the increased participation of students' guardians, as highlighted by Yanto, Anwari, and Rofiki (2024).

Data security and digital regulation are becoming increasingly important issues. Studies by Putri, Herdiana, and Munawar (2021) and Pakina and Solekhan (2024) show that without proper privacy policies and student data management, educational information systems are vulnerable to ethical violations. Therefore, a comprehensive pesantren digitalization roadmap must include not only investment in hardware and training but also the development of standardized data security regulations.

Conclusion

This study demonstrates that digital readiness in pesantren is determined by three main factors: technical infrastructure, institutional policies, and human resource (HR) capabilities. These three factors are interrelated and collectively influence the success of digital-based economic management. The research fills a gap in previous studies, which tend to be partial in nature, by offering a holistic and structured approach.

The novelty of this study lies in its integration of thematic synthesis with the institutional context of pesantren, resulting in a conceptual model that is both relevant and applicable. The findings reinforce the critical importance of internal regulation, participatory training, and the support of pesantren leadership in the digital transformation process.

The primary contribution of this research is the development of a digital readiness map and a phased strategy that can serve as a policy reference for pesantren and other stakeholders. As an implication, pesantren digitalization requires an integrated approach that unites technology, policy, and sustainable HR development within the broader framework of Society 5.0.

References

- Asri, A., Siregar, N. A. N., Liza, S., & Hidayatullah, R. (2024). Pengembangan sistem keuangan sekolah berbasis teknologi untuk mendukung transformasi Society 5.0. *IHSAN: Jurnal Pendidikan Islam*, 2(4), 216–224.
- Azizah, M. F., & Husni, M. (2025). Digitalisasi pesantren melalui presensi digital berbasis aplikasi Danroid di Madrasah Diniyah Pondok Pesantren Ngalah Purwosari Pasuruan. *QOSIM: Jurnal Pendidikan Sosial & Humaniora*, 3(1), 377–386.
- Ciptadi, T., & Khozin. (2025). The challenges dan opportunities of digitalization in Islamic religious education institutions. *Jurnal IAIS Sambas*.
- Fattachil'Izza, A., Nabila, P. A. D., & Zuhriyah, I. A. (2025). Pemanfaatan digitalisasi pesantren melalui sistem administrasi dan pelaporan pendidikan berbasis aplikasi Santri App. *TARLIM: Jurnal Pendidikan Agama Islam*, 8(1), 83–98.

- Maisya, A., & Rohman, N. (2021). Pentashihan Al-Qur'an digital di Indonesia: Peran, legitimasi dan otoritas LPMQ. *Academic Journal of Islamic Principles dan Philosophy*, 2(1), 25–42.
- Musfirah, A. F. (2024). Akuntabilitas dan transparansi dana BOS: Transformasi melalui penerapan sistem informasi akuntansi di UPT SLB-E Negeri Pembina tingkat Provinsi. *JESYA: Jurnal Ekonomi & Ekonomi Syariah*.
- Mutmainah, S., & Romadhon, M. R. (2023). Digitalization of Islamic boarding schools in forming santri mental accounting. *Journal of Information Systems, Digitization dan Business*, 1(2), 68–78.
- Mutohar, P. M., Darmawan, D., & Prastiwi, M. A. (2025). Pelatihan manajemen sistem informasi digital dalam meningkatkan mutu layanan di Pondok Pesantren Lubabul Fattah Tunggulsari Kabupaten Tulungagung. *Jurnal Pengabdian Digital*, 9(2), 501–511.
- Pahleviannur, M., Grave, A., Saputra, D. N., Mardianto, D., Sinthania, D., Hafrida, L., ... & Ahyar, D. (2022). *Metodologi Penelitian Kualitatif*.
- Pakina, R., & Solekhan, M. (2024). Pengaruh teknologi informasi terhadap hukum privasi dan pengawasan di Indonesia: Keseimbangan antara keamanan dan hak asasi manusia. *Journal of Scientech Research dan Development*, 6(1), 273–286.
- Prasetyo, S., & Dewayanto, T. (2024). Penerapan machine learning, deep learning, dan data mining dalam deteksi kecurangan laporan keuangan: A systematic literature review. *Diponegoro Journal of Accounting*, 13(3).
- Putri, N. I., Herdiana, Y., & Munawar, Z. (2021). Pentingnya menjaga privasi data di masa pdanemi COVID-19. *TEMATIK*, 8(2), 202–216.
- Restalia, W., & Khasanah, N. (2025). Transformation of Islamic education in the digital age: Challenges dan opportunities. *E-Journal UIN Gus Dur*.
- Saputra, D. E., & Sirozi, M. (2025). Strategi penguatan daya saing pesantren di era digital. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(1), 85–99.
- Soleh, M. I. (2024). Transformasi administrasi pondok pesantren modern di Indonesia. *Journal of Education dan Religious Studies*, 4(2), 50–59.
- Suhasto, R. B. I. N., Kirowati, D., & Anggraeny, S. N. (2021). Penerapan aplikasi laporan keuangan pondok pesantren berbasis web. *Monex: Journal of Accounting Research*, 10(2), 150–155.
- Suhendi, A., & Sholeh, M. (2021). *Digitalisasi Administrasi di Pondok Pesantren: Tantangan dan Peluang*. Jakarta: Kencana.

- Teuku, Z., Akmal, S., Putri, N., & Maulida, T. (2023). Pengabdian literasi digital bagi siswa pesantren Aliyah di Bdana Aceh dan Aceh Besar. *Jurnal Pengabdian Multidisiplin*, 3(2).
- Widodo, A. A., & Husni, M. (2025). Strategi digitalisasi pendidikan pesantren dalam internalisasi nilai Aswaja bagi generasi Z di era teknologi. *IHSAN: Jurnal Pendidikan Islam*, 3(1), 375–386.
- Widodo, B. S. (2021). *Metode Penelitian Pendidikan Pendekatan Sistematis & Komprehensif*. Elga Media.
- Windiarti, I. S., & Haryanto, D. (2022). Peningkatan literasi digital melalui pelatihan pengelolaan website di Pondok Pesantren Salafiyah Iqro Palangkaraya. *Jurnal Pengabdian UntukMu NegeRI*, 6(2), 123–130.
- Yanto, Y., Anwari, M., & Rofiki, R. (2024). Pembinaan kesadaran digital: Mencegah dampak buruk media sosial dan etika penggunaannya pada santri Pondok Pesantren Pantura Pamekasan. *Abdimas Indonesian Journal*, 4(2), 779–788. <https://doi.org/10.59525/aij.v4i2.536>.