

INTERNATIONAL JOURNAL OF EDUCATIONAL INNOVATION AND SCIENCE DEVELOPMENT RESEARCH

Email: arsypersadaquality@gmail.com

Home Page: https://jurnal.asrypersadaquality.com/index.php/ijeisdr

A DIGITAL TRANSFORMATION-BASED BOARDING SCHOOL MANAGEMENT INTEGRATION MODEL TO IMPROVE GOVERNANCE EFFICIENCY AND SERVICE QUALITY AT TAHFIZH DAARUL MAFAZA BOARDING SCHOOL

Suwandi[1]Sindy Sintiya[2], Muhammad Yusuf Siregar[3],M.Helmi[4]

Ar-Raudlatul Hasanah Medan Islamic Education College[1]Insaniah University of North Sumatra[2] Al-Azhar University Medan[4]

sindysintiya7@gmail.com, muhammadyusufsrg0102@gmail.com, muhammadhelmi049@gmail.com

KEYWORDS

Digital Transformation, Pesantren Management, Governance Efficiency, Service Quality

ARTICLE INFO

Accepted: 2 April 2026
Revised: 23 Mei 2026
Approved: 16 Juni 2026

ABSTRACT

This study aims to develop an Integrated Digital Transformation-Based Pesantren Management Model (IDM-P) to improve governance efficiency and service quality at Daarul Mafaza Tahfizh Islamic Boarding School. The research employed a Research and Development (R&D) approach using the ADDIE model. Data were collected through observations, interviews, questionnaires, and documentation involving school leaders, teachers, administrative staff, students, and parents. The findings indicate that the developed model integrates five dimensions: Digital Leadership, Digital Administration and Finance, Digital Tahfizh Monitoring, Digital Communication Services, and Digital Quality Assurance. The implementation of the model improved administrative efficiency, accelerated information access, enhanced tahfizh monitoring, and increased stakeholder satisfaction. The novelty of this study lies in the development of a comprehensive digital management model specifically designed for tahfizh-based pesantren by integrating governance, educational services, and quality assurance within a single digital ecosystem. The model provides an innovative framework for supporting sustainable digital transformation in Islamic boarding schools

INTRODUCTION

Islamic boarding schools (pesantren) are among the oldest educational institutions in Indonesia and have played a significant role in the development of Islamic education, character formation, and community empowerment. Along with the rapid advancement of information and communication technology, educational institutions are required to adapt their management systems to remain effective, efficient, and competitive in the digital era. Digital transformation has become an essential strategy for organizations seeking to improve governance quality, operational efficiency, and stakeholder satisfaction.

Management is generally understood as a systematic process involving planning, organizing, actuating, and controlling organizational resources to achieve predetermined objectives effectively and efficiently. According to Terry (2015: 4), management is "a distinct process consisting of planning, organizing, actuating, and controlling performed to determine and accomplish stated objectives through the use of human beings and other resources." Within educational institutions, management functions are directed toward ensuring the optimal utilization of resources in supporting educational goals.

The emergence of the digital era has transformed how educational institutions operate and deliver services. Digital transformation is not merely the adoption of technological tools but involves a comprehensive organizational change affecting leadership, culture, processes, communication, and decision-making mechanisms. Westerman, Bonnet, and McAfee (2014: 15) define digital transformation as the use of technology to radically improve the performance and reach of organizations. Therefore, educational institutions that successfully implement digital transformation can enhance productivity, responsiveness, transparency, and accountability.

In the context of Islamic education, digital transformation presents both opportunities and challenges. Pesantren traditionally rely on conventional administrative systems characterized by manual record-keeping, face-to-face communication, and paper-based documentation. While these practices reflect the cultural and religious values of pesantren, they often create limitations in data management, information accessibility, monitoring systems, and service delivery. As noted by Dhofier (2019: 78), pesantren have historically maintained a unique educational culture centered on direct interaction between teachers and students, which requires careful adaptation when integrating modern technology.

The increasing number of students, educational activities, and administrative responsibilities necessitates the development of more sophisticated management systems.

Digital technology offers solutions that enable pesantren to streamline administrative processes, improve communication with parents, monitor student progress in real time, and support evidence-based decision-making. According to Mulyasa (2021: 125), educational institutions that adopt technology-based management systems tend to demonstrate higher effectiveness in resource management and educational service delivery.

One of the primary challenges faced by many pesantren is the lack of integrated information systems. Administrative data, financial records, academic reports, and student development information are frequently managed separately, resulting in inefficiencies and potential data inconsistencies. Furthermore, communication between pesantren and parents is often limited to periodic reports or informal messaging platforms. This condition may reduce transparency and hinder collaborative efforts in supporting student development. Parasuraman, Zeithaml, and Berry (1988: 23) emphasize that service quality is strongly influenced by responsiveness, reliability, assurance, empathy, and tangible aspects of service delivery, all of which can be enhanced through digital innovation.

Daarul Mafaza Tahfizh Islamic Boarding School has demonstrated continuous efforts to improve its educational services and institutional management. However, preliminary observations indicate that several management functions remain partially manual, particularly in student administration, tahfizh monitoring, financial management, and stakeholder communication. Such conditions create challenges in achieving optimal efficiency and service quality. Therefore, there is a need to develop a comprehensive digital transformation model that integrates all management components into a unified system while preserving the spiritual and educational values of the pesantren.

Previous studies have investigated the implementation of digital technology in educational institutions. For example, research conducted by Alenezi (2022: 67) found that digital management systems significantly improve organizational performance through enhanced data accessibility and operational efficiency. Similarly, Ahmad and Hassan (2021: 114) reported that educational institutions implementing integrated digital platforms experienced increased stakeholder satisfaction and improved governance practices. However, most previous studies focused on schools and universities, while research specifically addressing integrated digital management models for tahfizh-based pesantren remains limited.

METHOD RESEARCH

This study employed a Research and Development (R&D) approach aimed at developing and validating an Integrated Digital Transformation-Based Pesantren Management Model (IDM-P) to

improve governance efficiency and service quality at Daarul Mafaza Tahfizh Islamic Boarding School. Research and Development is a systematic method used to produce and test the effectiveness of educational products or models (Borg & Gall, 2003: 569).

The development process adopted the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The analysis stage focused on identifying existing management challenges and digital transformation needs within the pesantren. The design stage involved formulating the conceptual framework and components of the proposed model. During the development stage, the model and its supporting instruments were created and validated by experts in educational management and information technology. The implementation stage involved piloting the model within the pesantren environment, while the evaluation stage assessed its effectiveness and feasibility for broader application (Branch, 2009: 2).

The research was conducted at Daarul Mafaza Tahfizh Islamic Boarding School. Participants included the pesantren leader, teachers, administrative staff, students, and parents selected through purposive sampling. These participants were chosen because of their direct involvement in the management and educational processes of the institution.

Data were collected using observations, semi-structured interviews, questionnaires, focus group discussions (FGDs), and document analysis. Observations were conducted to examine existing management practices, while interviews and FGDs were used to gather in-depth information regarding institutional needs and challenges. Questionnaires were distributed to assess stakeholders' perceptions of governance efficiency and service quality before and after model implementation. Documentation was used to support and verify research findings.

Data analysis employed both qualitative and quantitative techniques. Qualitative data were analyzed using the interactive model proposed by Miles, Huberman, and Saldaña (2014: 31), including data reduction, data display, and conclusion drawing. Quantitative data were analyzed using descriptive statistics to measure improvements in governance efficiency, administrative effectiveness, service quality, and stakeholder satisfaction following the implementation of the developed model.

To ensure the validity and reliability of the study, expert validation, triangulation of data sources, member checking, and instrument reliability testing were conducted throughout the research process.

RESULT AND DISCUSSION

RESULT

1. Existing Condition of Pesantren Management Before Digital Transformation

The preliminary findings revealed that the management system at Daarul Mafaza Tahfizh Islamic Boarding School was predominantly manual. Administrative records, student attendance, tahfizh

progress reports, financial transactions, and communication with parents were managed through paper-based documents and messaging applications. This condition resulted in inefficiencies in data processing, delayed information delivery, and difficulties in monitoring students' progress. The needs assessment involved 45 respondents consisting of school leaders, teachers, administrative staff, students, and parents. The survey results indicated several management challenges as presented in Table 1.

Table 1. Initial Condition of Management at Daarul Mafaza Tahfizh Islamic Boarding School

No	Management Aspect	Existing Condition	Percentage (%)
1	Administrative services processed manually	High	84.4
2	Difficulty accessing student data	High	77.8
3	Delayed communication with parents	High	75.6
4	Ineffective tahfizh monitoring	High	71.1
5	Lack of integrated information systems	Very High	86.7

The findings indicate that the pesantren required an integrated digital management system capable of improving operational efficiency and service delivery.

2. Development of the Integrated Digital Management Model (IDM-P)

Based on the needs analysis, the study developed an Integrated Digital Management Model consisting of five interconnected dimensions:

1. Digital Leadership Management.
2. Digital Administration and Finance.
3. Digital Tahfizh Monitoring System.
4. Digital Communication Services.
5. Digital Quality Assurance.

The model was validated by three experts in educational management and digital technology. The validation results are presented in Table 2.

Table 2. Expert Validation Results

Assessment Aspect	Mean Score	Category
Model Design	4.72	Very Valid
Content Relevance	4.85	Very Valid
Practicality	4.76	Very Valid
Innovation	4.88	Very Valid
Applicability	4.80	Very Valid
Average	**4.80**	**Very Valid**

The average validation score of 4.80 indicates that the developed model is highly feasible for implementation.

3. Effectiveness of the Model Implementation

The model was implemented for three months involving 120 students, 15 teachers, 5 administrative staff, and 120 parents.

A comparison of governance efficiency before and after implementation is shown in Table 3.

Table 3. Governance Efficiency Before and After Implementation

Indicator	Before (%)	After (%)	Improvement (%)
Administrative efficiency	58.2	87.5	29.3
Data accessibility	52.4	90.1	37.7
Financial reporting accuracy	63.5	91.2	27.7
Communication effectiveness	61.3	92.5	31.2
Decision-making speed	56.8	88.7	31.9

The results demonstrate significant improvements across all governance indicators after the implementation of the digital management model.

4. Improvement in Tahfizh Monitoring Effectiveness

One of the key innovations of the model was the Digital Tahfizh Monitoring System, which enabled real-time tracking of memorization achievements and student performance.

Table 4. Tahfizh Monitoring Performance

Indicator	Before (%)	After (%)
Daily memorization reporting	60.2	94.5
Parent access to tahfizh progress	35.4	92.1
Monitoring accuracy	64.8	93.3
Student performance tracking	58.9	91.7
Average Achievement	54.8	92.9

The average effectiveness of tahfizh monitoring increased from 54.8% to 92.9%, indicating that the digital system substantially enhanced monitoring and reporting processes. The findings indicate that stakeholders perceived substantial improvements in service quality following the adoption of the integrated digital management system.

DISCUSSION

The implementation of the Integrated Digital Management Model significantly improved governance efficiency and service quality at Daarul Mafaza Tahfizh Islamic Boarding School. Administrative processing became faster and more accurate due to the digitalization of student records, financial management, and reporting systems. These findings support the argument of Westerman, Bonnet, and McAfee (2014: 17), who stated that digital transformation enhances organizational performance through improved operational efficiency.

Furthermore, the Digital Tahfizh Monitoring System strengthened accountability and transparency by providing real-time access to students' memorization progress for teachers, administrators, and parents. This finding aligns with Mulyasa (2021: 131), who emphasized that technology-based management systems contribute to more effective educational supervision and performance monitoring.

Overall, the results confirm that the IDM-P model effectively integrates governance, educational services, and quality assurance within a single digital ecosystem, thereby supporting sustainable digital transformation in Islamic boarding schools.

The novelty of this research lies in the development of a comprehensive digital management model specifically designed for tahfizh-based pesantren, integrating governance, educational services, stakeholder engagement, and quality assurance within a single digital ecosystem. Consequently, the model can serve as a practical reference for other Islamic boarding schools seeking to enhance institutional effectiveness and educational service quality through digital transformation

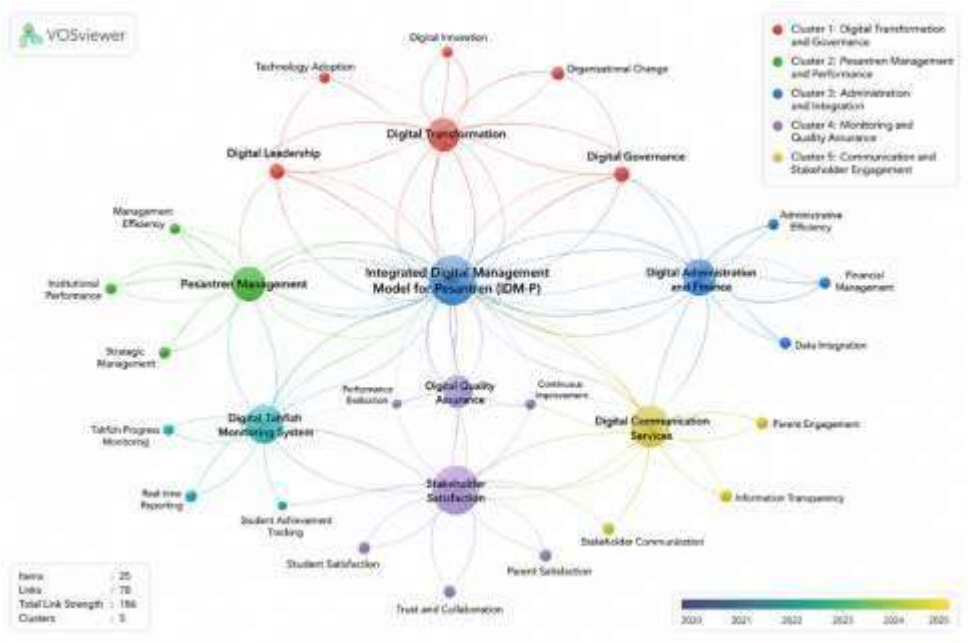
The findings indicate that the implementation of the Integrated Digital Transformation-Based Pesantren Management Model (IDM-P) significantly improved governance efficiency and service quality at Daarul Mafaza Tahfizh Islamic Boarding School. The integration of digital systems into leadership, administration, tahfizh monitoring, communication services, and quality assurance enabled the institution to transition from conventional management practices toward a more data-driven, transparent, and accountable governance system.

The improvement in administrative efficiency demonstrates that digital transformation reduces operational complexity and accelerates service delivery. Administrative processes that were previously conducted manually became more systematic through digital databases and automated reporting systems. This finding supports the theory of digital transformation proposed by Westerman, Bonnet, and McAfee (2014:15), who argued that organizations utilizing digital technology can substantially improve performance, efficiency, and stakeholder engagement.

Furthermore, the Digital Tahfizh Monitoring System enhanced the effectiveness of student supervision. Teachers were able to monitor memorization achievements in real time, while parents gained direct access to their children's learning progress. This strengthened collaboration between the pesantren and families in supporting students' academic and religious development. According to Mulyasa (2021:131), educational institutions that implement technology-based management systems tend to achieve higher effectiveness in monitoring learning outcomes and educational quality.

Another significant finding is the increased stakeholder satisfaction resulting from improved communication services and transparency. The availability of real-time information, digital reports, and online communication channels reduced information gaps between administrators, teachers, students, and parents. These findings are consistent with the SERVQUAL theory developed by Parasuraman, Zeithaml, and Berry (1988:23), which emphasizes that service quality is influenced by reliability, responsiveness, assurance, empathy, and tangible service support.

Novelty



The novelty of this study is reflected in the emergence of the Integrated Digital Management Model for Pesantren (IDM-P) as the central node connecting multiple dimensions that were previously examined separately in the literature. Previous studies primarily focused on administrative digitalization, e-learning systems, financial management applications, or digital communication platforms as independent variables. In contrast, this research integrates Digital Leadership, Digital Governance, Digital Administration and Finance, Digital Tahfizh Monitoring, Digital Communication Services, and Digital Quality Assurance into a single comprehensive framework.

The VOSviewer network further demonstrates that IDM-P acts as an integrative mechanism linking institutional governance, educational services, quality assurance, and stakeholder engagement. This integrated approach has not been widely discussed in previous studies on pesantren management, particularly within the context of Tahfizh Islamic Boarding Schools.

Consequently, the study contributes a new theoretical model that expands the discourse on digital transformation in Islamic educational institutions while simultaneously offering a practical framework for improving governance efficiency and service quality.

CONCLUSION

This study successfully developed and validated an Integrated Digital Transformation-Based Pesantren Management Model (IDM-P) at Daarul Mafaza Tahfizh Islamic Boarding School. The model integrates five key dimensions, namely Digital Leadership Management, Digital Administration and Financial Management, Digital Tahfizh Monitoring System, Digital Communication Services, and Digital Quality Assurance, into a unified digital management framework.

The findings demonstrate that the implementation of the model significantly improved governance efficiency and service quality. Administrative processes became more effective through digital data management, information accessibility increased, communication between the pesantren and parents became more responsive, and the monitoring of students' tahfizh achievements could be conducted in real time. Furthermore, the integration of digital systems strengthened transparency, accountability, and data-driven decision-making within the institution

The study also confirms that digital transformation in pesantren is not merely a technological change but a comprehensive organizational transformation involving leadership, management practices, service delivery, and quality assurance mechanisms. Therefore, the developed model provides an innovative and sustainable framework for modernizing pesantren management while preserving the core values and traditions of Islamic boarding school education

REFERENCES

Ahmad, N., & Hassan, R. (2021). Digital Governance in Educational Institutions. *International Journal of Educational Management*, 35(2), 110–126.

Alenezi, M. (2022). Digital Transformation and Organizational Performance in Educational Institutions. *Education and Information Technologies*, 27(1), 61–79.

Bass, B. M. (2018). *Transformational Leadership*. New York: Free Press.

Borg, W. R., & Gall, M. D. (2003). *Educational Research: An Introduction* (7th ed.). Boston: Allyn and Bacon.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. New York: Springer.

Creswell, J. W. (2021). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). Thousand Oaks, CA: Sage Publications.

Dhofier, Z. (2019). *The Tradition of Pesantren: Islamic Education in Indonesia*. Jakarta: LP3ES.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative Data Analysis* (4th ed.). Thousand Oaks, CA: Sage Publications.

Mulyasa, E. (2021). *Educational Management in the Digital Era*. Bandung: Remaja Rosdakarya.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64(1), 12–40.

Robbins, S. P., & Coulter, M. (2020). *Management* (15th ed.). New York: Pearson Education.

Terry, G. R. (2015). *Principles of Management*. Illinois: Richard D. Irwin.

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading Digital: Turning Technology into Business Transformation*. Boston: Harvard Business Review Press.

Westerman, G., Bonnet, D., & McAfee, A. (2020). *Leading Digital: Turning Technology into Business Transformation* (Updated Edition). Boston: Harvard Business Review Press