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TRANSFORMATION OF EDUCATIONAL FINANCING SYSTEMS THROUGH FINANCIAL MANAGEMENT DIGITALIZATION IN MADRASAH

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Abstract:

The The advancement of digital technology has driven significant transformations in various aspects of educational management, including financing systems in madrasahs. The digitalization of financial management has become a strategic approach to promoting more effective, efficient, transparent, and accountable financial governance. This study aims to analyze the transformation of the educational financing system through the digitalization of financial management in madrasahs, as well as to examine its benefits, challenges, and implementation strategies. This study employed a library research method with a qualitative approach. Data were collected through documentation of scientific literature, books, journal articles, educational regulations, and relevant previous studies. Data analysis was conducted using content analysis to identify concepts, patterns, and findings related to the digitalization of educational financial management. The findings reveal that the transformation of the educational financing system in madrasahs has occurred across all stages of financial management, including planning, implementation, reporting, monitoring, and evaluation. The implementation of digitalization through various technology-based financial systems and applications has improved administrative efficiency, transaction recording accuracy, transparency in fund utilization, and accountability in financial management. Furthermore, digital systems support data-driven decision-making and strengthen supervisory functions through the availability of systematically documented audit trails. However, the implementation of financial digitalization still faces several challenges, including limited digital literacy among human resources, unequal technological infrastructure, and the need to adapt to new working cultures. Therefore, strengthening human resource competencies, providing adequate technological infrastructure, developing integrated financial information systems, and ensuring continuous policy support are essential factors for the successful transformation of educational financing. The digitalization of financial management has proven to be a strategic instrument for fostering professional, transparent, and accountable financial governance in madrasahs while remaining aligned with the Islamic values of trustworthiness (amanah) in educational management.

Keywords: *Digitalisation , Finance ,Education , Transformation , Madrasah.*

INTRODUCTION

Education is one of the most fundamental pillars of a nation's civilizational development. Madrasahs occupy a strategic position within Indonesia's Islamic education system as institutions that cultivate Muslim generations equipped not only with religious knowledge but also with the competencies required to navigate contemporary challenges. Yet behind this strategic role lies a persistent and unresolved problem: how to finance education in a manner that is effective, transparent, and accountable.

Educational financing is a crucial determinant of the quality of educational services and of the overall capacity of educational institutions. Without well-managed financing, educational programs cannot function optimally. Nurhayati et al. (2022) affirm that sound educational financing management is the primary prerequisite for improving the quality of Islamic educational institutions, including madrasahs at every level—from Madrasah Ibtidaiyah (MI) through Madrasah Aliyah (MA)—underscoring the importance of planned and structured financial governance.

Empirically, the majority of madrasahs in Indonesia—particularly private institutions—still manage their finances manually and conventionally. Transactions are recorded in general cash books, budget realization reports are prepared in handwriting, and financial documents are stored as physical archives that are vulnerable to loss or damage. This situation generates a range of problems: inaccurate financial data, weak oversight of fund utilization, limited transparency to stakeholders, and an elevated risk of misappropriation in the management of School Operational Assistance (BOS) funds. Prihanarko and Hidayati (2023) found that the use of information systems in school financial management remains extremely limited, resulting in budgeting and financial reporting processes that are frequently inefficient and unaccountable.

Responding to these challenges, the eras of Industry 4.0 and Society 5.0 have introduced digitalization as a transformative solution. Financial digitalization is not merely a process of converting physical documents into digital formats; it represents a new paradigm in financial management that harnesses information technology to enhance efficiency, accuracy, transparency, and accountability. In the madrasah context, the digitalization of educational financing has become an urgent necessity as financial transaction volumes grow, reporting requirements to the Ministry of Religious Affairs become more complex, and public demand for openness in the management of educational funds intensifies.

The Government of Indonesia, through the Ministry of Religious Affairs (Kemenag RI), has responded by launching the e-RKAM (Elektronik Rencana Kerja dan Anggaran Madrasah / Electronic Madrasah Work Plan and Budget) application as part of the REP-MEQR (Realizing Education's Promise – Madrasah Education Quality Reform) project, supported by the World Bank from 2020 to 2024. This application was designed to assist madrasahs in composing budget plans, realizing activities, and reporting fund utilization online in a standardized manner (Kemenag RI, 2022). Field implementation of e-RKAM has yielded significant results: the combined use of the EDM and e-RKAM applications has improved transparency in budget allocation and the efficiency of expenditure monitoring (Suratman, 2023).

Nevertheless, the financing transformation through digitalization has not proceeded without obstacles. Limited digital literacy among madrasah administrators and uneven internet infrastructure—especially in remote, frontier, and disadvantaged (3T) regions—remain primary barriers to digital system adoption (sukriyadi, 2025). Nur and Hanif (2024) found that, despite digitalization's meaningful contribution to financial transparency, the complexity of digital management software challenges staff who are unaccustomed to such tools. Salsabila and Karim (2025) further noted that madrasahs face a dual predicament: they are compelled to innovate in financing management while simultaneously confronting contemporary economic constraints that limit the development of human resources and infrastructure.

These conditions underscore the urgency of a comprehensive analysis of the transformation of educational financing through financial digitalization in madrasahs—addressing not only the technical dimensions of implementation but also managerial, policy, and educational quality dimensions. This study therefore pursues four objectives: (1) to describe the concept of the educational financing system in madrasahs; (2) to analyze the transformation of the educational financing system through the digitalization of financial management; (3) to identify the benefits and challenges of financial digitalization in madrasahs; and (4) to explain effective implementation strategies for the digitalization of financial management.

RESEARCH METHODS

This study employs a library research method with a qualitative approach. Library research is a method that draws on various written sources—books, scholarly articles, journals, official documents, and relevant digital publications—to obtain comprehensive conceptual and theoretical data (Bahrum Subagiya, 2021). The qualitative approach is used to understand phenomena in depth and in context through the interpretation of meaning embedded in textual data (Sugiyono, 2017).

Data collection employed the documentation technique. According to Arikunto (2013), documentation is a data collection method involving the search and examination of documents, archives, books, and reports pertaining to the research object. Documents examined included scientific literature on educational financing management, journal articles on the digitalization of school and madrasah finance, government policies on educational financing standards, prior research reports, and relevant madrasah financial management documents.

Data analysis applied content analysis. Krippendorff (2018) defines content analysis as a research technique for producing valid, replicable inferences from textual data while remaining attentive to context. The analytical process proceeded through four stages: (1) data reduction—selecting and focusing data relevant to the research theme; (2) data categorization—grouping information into key themes such as financial transparency, accountability, efficiency, and financing governance; (3) data interpretation—identifying patterns and important concepts related to the implementation of financial digitalization; and (4) conclusion drawing—synthesizing findings systematically to address the research focus comprehensively.

RESULTS AND DISCUSSION

The Concept of the Educational Financing System in Madrasahs

Educational financing is one of the most strategic components of educational provision, serving as the linchpin of all educational processes. From an educational management perspective, financing encompasses not only the procurement of funding sources but also the planning, implementation, oversight, and accountability of budget utilization in an effective and efficient manner. The availability and sound management of funds directly affect the quality of educational services, infrastructure development, teacher competency enhancement, and the overall achievement of educational goals (fattah, 2019).

Effective educational financing management must rest on the principles of transparency, accountability, efficiency, and effectiveness—the foundations for professional financial governance answerable to all stakeholders. In the madrasah context, transparent and accountable financial management is particularly vital, as it concerns the use of government funds, community resources, and other funding sources that must be managed with amanah (trustworthiness) and in accordance with applicable regulations (Rahayu, S. I. N., & Weny, 2025).

According to Educational Finance Management theory, the educational financing system comprises a series of activities—planning, allocation, implementation, oversight, and accountability for educational fund utilization—that must ensure all financial resources are optimally deployed in support of educational objectives (Fattah, 2019; Mulyasa, n.d.). The digitalization of madrasah financial management represents an innovative step toward more efficient and transparent governance through the use of information and communication technology to facilitate financial transactions, reporting, and budget monitoring (Trimiltin, R., & Ahmad, 2025).

Transformation of the Educational Financing System through Financial Management Digitalization

Based on the content analysis, transformation of madrasah educational financing has occurred across all stages of financial management, encompassing planning, implementation, monitoring, and evaluation. This transformation reflects a systemic shift from conventional financial governance toward a more fully integrated digital approach.

This finding aligns with Vial's (2019) Digital Transformation theory, which explains that digital transformation constitutes an organizational change process through the integration of digital technology to improve operational effectiveness and decision-making quality. Research by Afra, Mahdalena, and Alwi (2025) similarly shows that the adoption of digitalization in educational services contributes to improved administrative effectiveness and madrasah accountability, enabling administrative processes to proceed more rapidly, accurately, transparently, and with well-maintained documentation.

In the madrasah financial management context, digital transformation is manifest across four principal dimensions. First, the digitalization of budget planning through technology-based applications for composing the Rencana Kerja dan Anggaran Madrasah (RKAM / Madrasah Work Plan and Budget), making the budgeting process more systematic, measurable, and controllable. Second, the digitalization of financial transactions through electronic payment methods such as bank transfers, virtual accounts, QRIS, and other digital payment services. Third, the digitalization of financial reporting, enabling real-time presentation of financial data that facilitates budget monitoring by administrators and stakeholders. Fourth, the digitalization of financial oversight, automatically generating audit trails that strengthen supervisory and evaluative functions over madrasah financial management.

Collectively, the analysis indicates that technology-based educational financing transformation has driven a paradigmatic shift from traditional financial administration toward data-driven financial management. The advance of information technology in the era of Industry 4.0 and Society 5.0 has pushed educational institutions, including madrasahs, to move from conventional financing systems toward digital-based systems in response to demands for improved service quality and public transparency (Lena Rusmiyati et al., 2025).

Benefits and Challenges of Financial Digitalization in Madrasahs

Financial digitalization can be understood as the utilization of information and communication technology across all financial management processes of educational institutions, encompassing planning, implementation, reporting, and oversight(Vial, 2019). At least five principal benefits flow from the implementation of financial digitalization in madrasahs.

The first is enhanced effectiveness in educational financing management. Through digital systems, the processes of budget preparation, transaction recording, document archiving, and financial report compilation can be conducted in an integrated platform. Fattah (2019) explains that educational financing effectiveness is reflected in an institution's capacity to deploy financial resources optimally toward educational goals, while Hidayah, Fauzi, and Mustofa (2024) demonstrate that digital financial systems can accelerate administrative processes while simultaneously improving the quality of educational fund management.

The second is improved administrative efficiency. Financial applications reduce the volume of manual work that previously consumed considerable time and effort. From a Cost Effectiveness theory perspective, efficiency is demonstrated by an organization's capacity to produce maximum outputs with minimum resource inputs(Levin, H. M., & McEwan, 2001). Digital systems thus enable madrasahs to reduce operational costs, minimize physical document usage, and increase work productivity

The third is strengthened financial transparency. Digital systems ensure that all information regarding fund receipts and utilization is documented systematically and accessible to relevant parties. In the Good Governance framework, transparency is a primary principle determining the quality of public organizational governance(*UN Policy Paper - 1997*, n.d.). Nur and Hanif (2024) confirmed that financial digitalization meaningfully improves the transparency of educational fund management and strengthens public trust in educational institutions

The fourth is strengthened institutional accountability. All transactions conducted through digital systems are automatically recorded and stored in retrievable databases. Mulyasa (2022) defines accountability in educational management as an institution's capacity to render account for resource utilization to its stakeholders. The audit trails generated by digital systems make oversight and evaluation more straightforward while minimizing the potential for misappropriation of educational funds.

The fifth is support for data-driven decision-making. Financial information stored in digital systems can be presented rapidly, accurately, and comprehensively, enabling madrasah principals to formulate policies and determine programmatic priorities based on sound institutional data. According to the Data-Driven Decision Making framework, decisions grounded in empirical data tend to achieve higher accuracy than those based solely on intuition(Mandinach, E. B., & Gummer, 2016). From an Islamic Education Management perspective, transparent and well-monitored financial governance also strengthens the values of amanah (trustworthiness), sidq (honesty), mas'uliyyah (responsibility), and 'adalah (justice) in the management of educational funds (Sari, P. M., 2025).

Notwithstanding these benefits, implementation still faces significant challenges. Isfarida and Fabaitya (2025) explain that madrasah financial management continues to face obstacles related to human resource capacity, reporting transparency, and suboptimal accountability systems. Sukriyadi et al. (2025) add that limited digital literacy among administrators and uneven internet infrastructure—especially in 3T (frontier, outermost, and disadvantaged) regions—remain primary barriers. Nur and Hanif (2024) further found that the complexity of digital management software challenges staff unfamiliar with such tools, making adaptation a demanding process requiring time, patience, and institutional commitment.

Effective Strategies for Implementing Financial Management Digitalization

The success of financial digitalization is determined not solely by the availability of technology, but also by organizational readiness, human resource competencies, regulatory support, and an adaptive organizational culture(Mulyasa, 2022). Seven key strategies require synergistic and sustained implementation.

First, transformational leadership. Madrasah principals serve as change agents responsible for articulating a digitalization vision, mobilizing available resources, and cultivating an innovation-supporting organizational culture. Bass and Avolio (1994) assert that transformational leadership drives organizational change through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Yusuf (2024) demonstrated that visionary and adaptive leadership is a critical factor in the success of digital transformation in educational institutions.

Second, enhancement of digital competencies among human resources. Davis's (1989) Technology Acceptance Model (TAM) indicates that technology adoption is influenced by perceptions of ease of use and perceived utility; consequently, training and mentoring are strategic steps for improving personnel readiness. Competency development programs may include digital financial application training, financial management information system workshops, technical assistance, and competency certification in technology-based financial administration. Saputra et al. (2025) demonstrated that digital human resource competency significantly affects the effectiveness of digital financial system implementation in Islamic educational institutions.

Third, strengthening of technological infrastructure. Laudon and Laudon (2022) state that the effectiveness of an information system depends greatly on supporting technological infrastructure capable of optimally managing and processing data. Required infrastructure includes adequate computers and administrative equipment, stable internet access, web- or cloud-based financial information systems, data storage servers, and data security and backup systems.

Fourth, implementation of an integrated financial information system. O'Brien and Marakas (2017) note that information system integration enables organizations to obtain rapid, accurate, and relevant information for decision-making. This system encompasses interconnected e-budgeting, e-payment, e-reporting, and e-auditing modules within a single platform. Mubarok, Sulistiyarini, and Basri (2025) demonstrated that the digital transformation of the ARKAS (School Activity and Budget Plan) application significantly enhanced school financial transparency and accountability.

Fifth, formulation of clear policies and standard operating procedures (SOPs). Within the Good Governance framework, sound governance is characterized by transparency, accountability, effectiveness, efficiency, and procedural certainty (UNDP, 1997). SOPs must govern financial data input procedures, transaction approval mechanisms, reporting and accountability systems, user access management, and digital data and archive security.

Sixth, data security protection. In accordance with ISO 27001 (2022) standards, information security must guarantee the confidentiality, integrity, and availability of data. Madrasahs should implement multi-layer authentication, strong password policies, periodic data backups, data encryption, and cybersecurity training for system users..

Seventh, continuous monitoring and evaluation. Deming's (1986) Continuous Improvement theory holds that organizational quality improvement must proceed on an ongoing basis through a cycle of planning, implementation, evaluation, and refinement. Wardani et al. (2025) demonstrated that the digitalization of school financial management, when accompanied by regular evaluation, has a positive impact on institutional transparency and accountability.

CONCLUSION

This study concludes that the transformation of the educational financing system through financial management digitalization in madrasahs constitutes a strategic imperative for improving the governance of Islamic educational institutions in the digital era. The implementation of digital-based financial systems has demonstrably transformed financial management from a manual, administrative process into one that is more transparent, accountable, efficient, and integrated.

The transformation of madrasah educational financing has occurred across all stages of uij89uyhgfinancial management—planning, implementation, monitoring, and evaluation. Digitalization enables real-time transaction recording, more rapid and accurate financial reporting, and the availability of audit trails that simplify oversight and the accountability of fund utilization. Beyond its function as a technical innovation, financial digitalization also serves as a strategic instrument for strengthening the values of amanah, transparency, and accountability in the governance of Islamic educational institutions.

Nonetheless, the implementation of financial digitalization continues to face significant challenges, particularly regarding digital literacy among human resources, technological infrastructure readiness, and the adaptation of organizational culture to digital systems. Successful madrasah financial transformation requires sustained support in the form of visionary transformational leadership, human resource competency development, technological infrastructure strengthening, integrated information system development, and strong institutional commitment to digital-based financial governance.

In sum, this study affirms that the transformation of educational financing through financial digitalization represents a strategic necessity for madrasahs navigating the digital transformation era—one that simultaneously strengthens modern, accountable, and competitive Islamic educational institution governance. Future research is recommended to examine the empirical impact of specific digital financial systems (e.g., e-RKAM, ARKAS) on actual madrasah governance quality through field-based quantitative or mixed-methods approaches.

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