



Integrating Artificial Intelligence into Islamic Education Management Information Systems in the Era of Digital Transformation

Ulfi Maula Saniya[✉], Sugeng Listyo Prabowo

Universitas Islam Negeri Maulana Malik Ibrahim, Malang, Indonesia

Abstract

This study aims to analyze the role of Artificial Intelligence (AI) in developing Islamic Education Management Information Systems (IEMIS) in the era of digital transformation. This study employs a qualitative approach using the library research method. Data were obtained from books, national and international journal articles, and official documents related to AI, management information systems, digital transformation, and Islamic education. Data were analyzed using content analysis through the stages of identification, classification, interpretation, and literature synthesis. The findings indicate that AI plays a strategic role in transforming IEMIS from systems primarily oriented toward data storage and reporting into intelligent systems that support administrative automation, data analysis, data-driven decision-making, and improved academic services. AI integration also provides opportunities to enhance the efficiency and quality of educational governance. However, its implementation faces challenges related to human resource readiness, infrastructure, data security, algorithmic bias, and ethical considerations. In Islamic education, AI adoption should be guided by the principles of trustworthiness, justice, responsibility, and public benefit.

Keywords: Artificial Intelligence; Digital Transformation; Islamic Education Management Information Systems; Islamic Educational Governance.

Abstrak

Penelitian ini bertujuan menganalisis peran Artificial Intelligence (AI) dalam pengembangan Sistem Informasi Manajemen Pendidikan Islam (SIMPI) pada era transformasi digital. Penelitian menggunakan pendekatan kualitatif dengan metode library research. Data bersumber dari buku, artikel jurnal nasional dan internasional, serta dokumen resmi yang relevan dengan AI, sistem informasi manajemen, transformasi digital, dan pendidikan Islam. Data dianalisis melalui content analysis dengan tahapan identifikasi, klasifikasi, interpretasi, dan sintesis literatur. Hasil penelitian menunjukkan bahwa AI berperan strategis dalam mentransformasi SIMPI dari sistem yang berorientasi pada penyimpanan dan pelaporan data menjadi sistem cerdas yang mendukung otomatisasi administrasi, analisis data, pengambilan keputusan berbasis data, dan peningkatan layanan akademik. Integrasi AI juga menghadirkan peluang peningkatan efisiensi dan kualitas tata kelola pendidikan. Namun, implementasinya menghadapi tantangan kesiapan sumber daya manusia, infrastruktur, keamanan data, bias algoritmik, dan etika. Dalam konteks pendidikan Islam, penerapan AI perlu berlandaskan prinsip amanah, keadilan, tanggung jawab, dan kemaslahatan.

Kata Kunci: Artificial Intelligence; Sistem Informasi Manajemen Pendidikan Islam; Transformasi Digital; Tata Kelola Pendidikan Islam.

Introduction

Digital transformation has become a fundamental phenomenon influencing various sectors of society, including education. Advances in information and communication technology have fundamentally changed how educational institutions collect and manage data, provide academic services, communicate with stakeholders, and formulate organizational decisions. In the era of Society 5.0, technology is no longer positioned merely as an administrative instrument but has become an integral component of organizational transformation that can support effectiveness, efficiency, innovation, and service quality. Consequently, educational institutions are increasingly required to develop adaptive digital capabilities and integrate technology into their managerial processes to respond to rapidly changing societal needs (Laudon & Laudon, 2021). The digital transformation of education, therefore, involves not only the adoption of digital tools but also changes in organizational processes, information management, decision-making mechanisms, and institutional governance.

Within this transformation, Management Information Systems (MIS) have an important function in supporting educational organizations. MIS is designed to collect, process, store, and present information required by managers for planning, organizing, implementing, monitoring, and evaluating organizational activities. The availability of accurate, relevant, and timely information enables educational managers to make more informed decisions and improve administrative and academic services. A well-designed MIS can facilitate administrative efficiency, improve information availability, and support data-driven decision-making (Behl et al., 2019; Laudon & Laudon, 2021). At the system level, the OECD (2023) identifies Education Management Information Systems as a core component of the digital education ecosystem, while emphasizing that digital transformation requires not only technological infrastructure but also effective governance of data, people, and digital technologies.

The strategic importance of MIS is particularly relevant to Islamic educational institutions, including madrasahs, pesantren, Islamic schools, and Islamic higher education institutions. These institutions manage increasingly complex information concerning students, educators and educational personnel, curriculum, academic activities, finance, facilities and infrastructure, and institutional services. At the same time, Islamic educational institutions are expected to demonstrate accountability, responsiveness, and service quality to students, parents, communities, government agencies, and other stakeholders. In Indonesia, digitalization initiatives within Islamic education have been supported by the Ministry of Religious Affairs through various information systems, including the Education Management Information System (EMIS), the Educator and Educational Staff Information System (SIMPATIKA), and the PUSAKA SuperApps. These developments demonstrate that information technology has become an increasingly important component of the governance and administration of Islamic education.

Nevertheless, digitalization does not automatically result in managerial transformation. The existence of information systems may improve data availability while leaving substantial challenges in data utilization, interoperability, analysis, and decision-making. In some educational institutions, information systems continue to function predominantly as tools for data entry, storage, reporting, and administrative documentation. Consequently, large volumes of educational data may remain underutilized for identifying institutional problems, predicting emerging conditions, evaluating programs, or formulating strategic policies. The OECD (2023) similarly

highlights that fragmented digital systems, limited interoperability, and weak data governance can prevent educational data from being effectively connected and utilized for improvement. This condition indicates that the next stage of digital transformation requires a shift from information systems that merely provide data toward intelligent systems capable of processing data into meaningful insights and decision-support information.

The development of Artificial Intelligence (AI) provides an important opportunity to address this challenge. AI refers to computational technologies capable of performing functions associated with human intelligence, including learning from data, recognizing patterns, processing natural language, generating predictions, and producing recommendations. The development of machine learning, deep learning, natural language processing, and generative artificial intelligence has significantly expanded the capacity of digital systems to process and generate information (Holmes et al., 2019; Luckin, 2018). Unlike conventional information systems that primarily retrieve and present stored information, AI-enabled systems can analyze large and complex datasets, identify patterns, generate predictions, and assist users in interpreting information. Therefore, AI has the potential to transform MIS from a primarily descriptive information infrastructure into an intelligent management support system.

The growing application of AI in education has attracted substantial academic and policy attention. Zawacki-Richter et al. (2019), through a systematic review of AI applications in higher education, identified several areas of application, including profiling and prediction, assessment and evaluation, adaptive systems, and intelligent tutoring. More recent developments in generative AI have expanded the scope of AI utilization beyond conventional predictive applications to include information generation, communication, research support, and administrative services. A systematic mapping review by Yusuf et al. (2024) demonstrates the rapid expansion of generative AI research across education and research contexts. These developments suggest that AI should no longer be understood solely as a pedagogical technology but also as an emerging component of educational organizational management.

From a managerial perspective, the integration of AI into MIS can generate several strategic functions. First, AI can automate repetitive administrative activities, including data processing, document management, scheduling, reporting, and information retrieval. Second, AI can support data analytics by identifying patterns and relationships that may not be readily visible through conventional information systems. Third, predictive analytics can assist managers in anticipating academic risks, resource requirements, student performance trends, and other organizational conditions. Fourth, AI-based natural language processing and conversational systems can improve the accessibility and responsiveness of academic and administrative services. These capabilities potentially enable educational managers to move from reactive administrative practices toward more proactive and evidence-based decision-making. Alshahrani et al. (2024) similarly emphasize the potential of AI to improve operational efficiency and educational service quality while highlighting the importance of ethical considerations, privacy, and human resource readiness.

The development of AI-based educational management systems, however, also introduces new forms of organizational and ethical risk. The increasing use of AI requires educational institutions to address data privacy, cybersecurity, algorithmic bias, transparency, accountability, and human oversight. Educational information systems process substantial amounts of personal and potentially sensitive data concerning students, teachers, and other stakeholders. The OECD (2023) emphasizes that privacy and

data protection are fundamental components of trustworthy digital education ecosystems and that the governance of algorithms and automated decision-making requires increasing attention. Similarly, UNESCO (2023) advocates a human-centred approach to generative AI in education, emphasizing data privacy, ethical validation, safety, equity, and meaningful human involvement. Thus, the integration of AI into educational information systems cannot be reduced to technological adoption; it also requires institutional policies, competent human resources, ethical governance, and mechanisms for accountability.

These challenges become particularly significant in the context of Islamic education. The management of Islamic educational institutions is not solely oriented toward efficiency and productivity but is also expected to reflect ethical and moral values. Concepts such as *amanah* (trustworthiness), *'adl* (justice), responsibility, transparency, and *maslahah* (public benefit) provide an important normative foundation for educational governance. Accordingly, AI should function as a technological instrument that strengthens human decision-making rather than replacing human responsibility. The integration of AI into Islamic Education Management Information Systems should therefore consider not only whether a technology is efficient, but also whether its use is responsible, fair, transparent, secure, and consistent with the objectives and values of Islamic education. UNESCO's recent AI competency frameworks similarly emphasize human-centred approaches, AI ethics, responsible use, and human agency as essential dimensions of AI development in education (UNESCO, 2024).

Research on AI in Islamic education has begun to develop, particularly in relation to Islamic Religious Education, AI-assisted learning, digital literacy, learning media, and the opportunities and challenges associated with technological transformation. These studies demonstrate the potential of AI to contribute to the modernization of Islamic education and the improvement of educational services (Hoeruman et al., 2024). However, the dominant focus of existing studies remains instructional and pedagogical. The managerial dimension of AI, particularly its integration into Islamic Education Management Information Systems, has received comparatively less systematic attention. Consequently, an important question remains concerning how AI can be positioned within institutional information systems to improve data management, administrative automation, analytical capacity, decision-making, and academic services while maintaining Islamic ethical principles.

The state of the art therefore indicates three intersecting research domains: Artificial Intelligence in education, Management Information Systems, and digital transformation in Islamic education. Although each domain has developed considerably, their intersection remains insufficiently synthesized. Existing research has examined AI applications in educational processes and services (Zawacki-Richter et al., 2019; Yusuf et al., 2024), while studies of MIS have emphasized the role of information systems in organizational management and decision-making (Behl et al., 2019; Laudon & Laudon, 2021). Research on Islamic education and digital transformation has also highlighted the importance of technological adaptation (Hoeruman et al., 2024). However, limited attention has been given to how these three domains can be conceptually integrated into a framework for AI-enabled Islamic Education Management Information Systems.

This gap is important because the transformation of Islamic educational information systems should not stop at digitizing administrative processes. The more fundamental challenge is how educational institutions can transform accumulated data into actionable knowledge that supports institutional planning, evaluation, prediction, decision-making, and service improvement. AI provides the technological capability to facilitate this

transformation, but its effectiveness depends on the quality of data, technological infrastructure, human competencies, governance mechanisms, and ethical principles that guide its implementation. Therefore, AI integration needs to be understood as an organizational and managerial transformation rather than merely a technological innovation.

Based on this research gap, the novelty of this study lies in its conceptual synthesis of AI integration into Islamic Education Management Information Systems by connecting four strategic functions of AI—administrative automation, data analytics, predictive decision support, and intelligent academic services—with the principles of Islamic educational governance. This perspective positions AI not merely as a tool for improving operational efficiency but as an enabling technology for transforming MIS into an intelligent management system while maintaining human agency, ethical responsibility, data security, and Islamic values. Such a perspective is expected to extend existing discussions of AI in education, which have predominantly emphasized teaching and learning, toward the broader domain of educational management and institutional governance.

Accordingly, this study aims to analyze the integration of Artificial Intelligence into Islamic Education Management Information Systems in the era of digital transformation through a literature review approach. Specifically, the study examines: (1) the strategic functions of AI in the development of Islamic Education Management Information Systems; (2) the opportunities offered by AI for data management, decision-making, administrative automation, and academic services; and (3) the challenges and governance requirements associated with AI implementation, particularly regarding human resource readiness, technological infrastructure, data security, ethical considerations, and Islamic values. The findings are expected to contribute conceptually to the development of research on AI-enabled Islamic educational management and provide practical considerations for educational institution administrators in designing digital transformation strategies that are effective, adaptive, ethical, and sustainable.

Method

This study employed a qualitative approach using the library research method to analyze the integration of Artificial Intelligence (AI) into Islamic Education Management Information Systems (IEMIS) in the era of digital transformation. Library research involves systematic activities of searching, reading, examining, recording, and synthesizing information from relevant written sources (Zed, 2014). This approach was selected because the study aims to develop a conceptual understanding of the strategic functions, opportunities, challenges, and governance implications of AI integration in Islamic Education Management Information Systems based on existing scientific and policy literature.

The data sources consisted of academic and policy literature relevant to AI, Management Information Systems, digital transformation, and Islamic education. Scientific literature was identified through Google Scholar, Scopus, ScienceDirect, and ERIC, while additional sources included academic books, research reports, and official publications from authoritative institutions such as UNESCO and the OECD. The literature search used combinations of keywords including “Artificial Intelligence,” “Generative AI,” “Management Information System,” “Educational Management Information System,” “Islamic Education,” and “digital transformation.” The selection focused on credible and relevant publications that directly contributed to the objectives of the study.

Literature selection was conducted by examining the relevance of titles, abstracts, and full texts. Sources were included when they addressed AI or related technologies, educational management or information systems, digital transformation, or Islamic education and were published by credible academic or institutional sources. Studies that focused exclusively on technical AI development or instructional applications without relevant managerial implications were excluded. The selected literature was subsequently classified according to the main themes of the study, namely administrative automation and data management, data analytics and data-driven decision-making, predictive and recommendation functions, intelligent academic services, and the challenges and governance requirements of AI implementation.

The selected literature was analyzed using qualitative content analysis. Following Miles et al. (2014), the analysis involved data reduction, data display, and conclusion drawing. Relevant information was extracted, compared, classified, and synthesized to identify recurring patterns and relationships among AI capabilities, Management Information Systems, and Islamic educational management. The analysis emphasized not only the potential benefits of AI but also the organizational, technological, ethical, and managerial conditions required for its responsible implementation.

The credibility of the findings was strengthened through cross-source comparison by examining information from international and national journal articles, academic books, and official policy documents. This process was used to assess the consistency of information concerning the opportunities, challenges, and governance implications of AI integration. Source triangulation was considered to enhance the credibility of the interpretation by comparing perspectives from different types of literature (Denzin, 2017). The resulting synthesis was used to formulate a conceptual understanding of AI integration into Islamic Education Management Information Systems, particularly in relation to automation, data analytics, decision support, intelligent services, and the application of Islamic values in educational governance.

Findings and Discussion

1. Artificial Intelligence and the Transformation of Educational Management

1.1 Artificial Intelligence: Concepts and Development

Artificial Intelligence (AI) refers to computational technologies designed to perform functions associated with human intelligence, including learning from data, recognizing patterns, processing information, making predictions, understanding natural language, and generating solutions to problems (Russell & Norvig, 2010). The development of AI has accelerated through advances in machine learning, deep learning, natural language processing (NLP), and generative artificial intelligence (GenAI) (Luckin, 2018). These developments have expanded the function of digital technologies from conventional data processing toward systems capable of analyzing information, identifying patterns, generating content, and providing recommendations. In the educational context, this development is particularly significant because institutions generate large volumes of administrative, academic, and organizational data that require timely and meaningful analysis.

The literature indicates that AI has progressively moved beyond its traditional role as a learning-support technology and has become relevant to broader educational management processes. AI can support administrative automation, data analysis, prediction, information retrieval, and service delivery. Zawacki-Richter et al. (2019),

through a systematic review of AI applications in higher education, identified profiling and prediction, assessment and evaluation, adaptive systems, and intelligent tutoring among the major areas of AI application. More recent developments in generative AI have further expanded these applications into research, professional development, communication, and academic services (A. Yusuf et al., 2024). Thus, AI can be understood not only as an instructional technology but also as an emerging organizational technology capable of supporting educational management.

However, the adoption of AI in education also requires consideration of ethical, social, and governance dimensions. UNESCO emphasizes that AI adoption should be human-centred and accompanied by attention to privacy, security, transparency, equity, and human agency (UNESCO, 2023, 2024). Therefore, the transformation generated by AI should not be understood simply as technological automation. Rather, it represents a shift in how educational institutions collect, interpret, and utilize information for organizational decision-making.

1.2 AI in Digital Transformation of Education

The findings of the literature synthesis indicate that digital transformation in education involves a broader organizational change than the digitization of administrative activities. Digital transformation affects information flows, organizational processes, decision-making, service delivery, and institutional governance. In this context, AI provides an additional layer of intelligence that enables digital systems to process large volumes of data and transform them into information that is potentially useful for managerial decisions (Ahmadi & Syafaah, 2025; Naila Rahmah Maulidiyah et al., 2026).

Several studies demonstrate that AI can support the automation of administrative tasks, student performance analysis, recommendation systems, and chatbot-based services (Zawacki-Richter et al., 2019). AI-based predictive analytics can also assist institutions in identifying patterns associated with academic risks and developing possible intervention strategies (Roe & Perkins, 2024). These capabilities indicate that AI can contribute to a transition from reactive management, which primarily responds to existing information, toward more proactive management based on analysis, prediction, and decision support.

The implication for educational institutions is that digital transformation should not be measured merely by the number of digital platforms adopted. More importantly, transformation should be assessed through the extent to which digital technologies enable institutions to utilize data for organizational learning, strategic planning, service improvement, and evidence-based decision-making. This perspective provides the basis for examining AI integration into Islamic Education Management Information Systems.

2. Islamic Education Management Information Systems in the Digital Era

2.1 The Strategic Role of Management Information Systems

A Management Information System (MIS) is designed to collect, process, store, and present information required by organizational managers to support planning and decision-making (Behl et al., 2019; Laudon & Laudon, 2021). In educational institutions, MIS supports the management of student information, academic activities, educators and educational personnel, finance, facilities, curriculum, and institutional reporting. Its strategic value lies not merely in storing information but in providing managers with relevant and timely information for organizational control and decision-making.

In Islamic educational institutions, the role of MIS becomes increasingly important because institutions operate within complex administrative and educational environments involving students, educators, parents, communities, government agencies, and other stakeholders. Digital platforms such as EMIS and SIMPATIKA illustrate the development of information-based governance in Islamic education. These systems have contributed to the digitalization of educational data and administrative processes and demonstrate the increasing institutional dependence on information technology.

Nevertheless, the literature suggests that the existence of digital information systems does not automatically guarantee intelligent management. Conventional information systems generally remain oriented toward data collection, storage, reporting, and information retrieval. Their capacity to interpret complex datasets, identify future trends, and generate strategic recommendations remains dependent on additional analytical mechanisms. This limitation creates an opportunity for AI integration.

2.2. Development Gaps in Islamic Education Information Systems

The literature synthesis identifies several interrelated gaps in the management of information within Islamic educational institutions. First, the volume and complexity of educational data continue to increase. Second, institutional managers require faster and more accurate information for decision-making. Third, many institutions have limited human resources with the analytical competencies required to transform large datasets into strategic information. Fourth, available data are not always optimally utilized as a basis for institutional planning and policy formulation (Nurkholis, 2024; Zuhriyeh et al., 2025).

These conditions demonstrate that digitalization does not necessarily produce managerial transformation. A system may successfully digitize data collection while still operating within a conventional information-management paradigm. The central challenge is therefore not simply how to collect more data, but how to transform data into actionable knowledge. AI provides a technological mechanism through which this transformation can potentially occur.

3. Integration of AI into Islamic Education Management Information Systems

The synthesis of the literature identifies four major strategic functions through which AI can contribute to the development of Islamic Education Management Information Systems: administrative automation and data management; data analytics and predictive decision support; intelligent academic and administrative services; and organizational decision support. These functions indicate a transformation of MIS from a system primarily used for information storage and reporting into an intelligent management-support system.

3.1 Administrative Automation and Data Management

AI can automate repetitive and rule-based administrative activities, including data processing, attendance management, scheduling, document classification, information retrieval, and report preparation. Holmes et al. (2019) explain that AI has significant potential to reduce repetitive administrative workloads and allow educational personnel to allocate more time to higher-value activities. Yusuf and Ulum (2025) similarly indicate that AI-based technologies can support administrative efficiency and reduce the burden associated with routine data management.

For Islamic educational institutions, administrative automation can improve the speed and consistency of information processing. However, automation should not be equated with the complete replacement of administrative personnel. Rather, AI should be positioned as an assistive technology that handles repetitive processes while human personnel remain responsible for verification, interpretation, and accountability. This distinction is particularly important in educational environments where administrative decisions may have direct consequences for students and other stakeholders.

3.2 Data Analytics, Prediction, and Decision Support

A major distinction between conventional MIS and AI-enabled MIS lies in their capacity to analyze data. Conventional systems primarily present information, whereas AI-based systems can identify patterns, classify information, detect anomalies, generate predictions, and provide recommendations. This capability allows educational managers to move beyond retrospective reporting toward predictive and evidence-based management (Laudon & Laudon, 2021).

In Islamic educational institutions, AI-supported analytics can potentially be applied to identify patterns in student achievement, detect students at risk of academic difficulties or withdrawal, evaluate program effectiveness, forecast resource requirements, and support institutional planning. Such applications are consistent with research demonstrating the use of AI for profiling, prediction, and educational decision support (Zawacki-Richter et al., 2019). The findings also correspond with Yusuf et al. (2024), who demonstrate the expanding application of generative AI across educational and research contexts.

Nevertheless, AI-generated predictions should not be treated as autonomous decisions. Predictive outputs are dependent on the quality and representativeness of the underlying data and may reproduce biases embedded in historical datasets. Therefore, AI-based decision support should remain subject to human interpretation, contextual judgment, and institutional accountability.

3.3 Intelligent Academic and Administrative Services

AI can also expand the service dimension of Management Information Systems. Natural Language Processing enables chatbots and conversational systems to process user queries and provide information in real time. In educational institutions, these systems can support frequently requested services such as academic information, registration procedures, schedules, institutional policies, and communication with students and parents (Alshahrani et al., 2024).

For Islamic educational institutions, intelligent services can potentially strengthen institutional responsiveness and improve access to information. AI-based services may provide students, parents, teachers, and other stakeholders with faster access to routine information without requiring administrative personnel to respond manually to every inquiry. Nevertheless, automated services should provide clear boundaries concerning the types of decisions or information that require human intervention, particularly when dealing with sensitive student information or matters involving individual circumstances.

3.4 From Conventional MIS to Intelligent Management Systems

The synthesis of the literature indicates that the most significant implication of AI integration is not merely the automation of existing processes but the transformation of the functional role of MIS. Conventional MIS primarily answers questions concerning what has happened, through reporting and information retrieval. AI-enabled MIS can

potentially expand this function by addressing why patterns occur, what may happen next, and what actions may be considered.

This transformation can be conceptualized as a progression: Data Collection → Information Processing → Data Analytics → Prediction → Recommendation → Managerial Decision Support. Through this progression, AI becomes an intelligence layer within the information system rather than an independent technological component. The resulting system can support managers in converting institutional data into actionable information. However, the final decision remains the responsibility of institutional leaders and authorized personnel.

4. Opportunities and Challenges of AI Integration

4.1 Strategic Opportunities

The literature synthesis identifies several strategic opportunities associated with AI integration into Islamic Education Management Information Systems. First, AI can increase operational efficiency by automating repetitive administrative processes. Second, AI can strengthen the capacity to analyze large volumes of educational data and identify patterns that may be difficult to detect through conventional methods. Third, AI can support evidence-based and predictive decision-making. Fourth, AI can improve the responsiveness and accessibility of academic and administrative services. Finally, AI can accelerate institutional digital transformation by strengthening the integration between data, analysis, and managerial decision-making (UNESCO, 2023; OECD, 2023).

These opportunities suggest that AI can contribute to a more adaptive model of educational governance. However, the realization of these benefits depends on institutional readiness. AI should therefore be integrated into organizational processes and governance structures rather than adopted merely as a technological innovation.

4.2 Human Resource and Technological Readiness

The effectiveness of AI integration depends substantially on the competence of educators, administrators, and institutional managers. Limited digital and AI literacy may result in inappropriate use of AI-generated information or excessive dependence on automated outputs. Consequently, AI adoption requires continuous professional development, including competencies in data literacy, AI literacy, critical evaluation of AI outputs, and responsible technology use.

Infrastructure is another critical requirement. AI-based systems require adequate computing capacity, reliable internet connectivity, interoperable information systems, quality datasets, and appropriate cybersecurity mechanisms. These requirements may present greater challenges for Islamic educational institutions with limited financial and technological resources. Hoeruman et al. (2024) highlight the continuing opportunities and challenges of digital technology adoption in Islamic education, including disparities in technological readiness.

4.3 Data Security, Algorithmic Bias, and Ethical Governance

The integration of AI into educational information systems also creates significant risks concerning data privacy, cybersecurity, algorithmic bias, transparency, and accountability. Educational databases contain personal information that must be protected from unauthorized access and inappropriate use. AI systems may also produce biased recommendations when trained on incomplete or historically biased datasets.

UNESCO (2023, 2024) emphasizes the importance of human-centred AI governance, data protection, transparency, fairness, and human agency in educational applications. Therefore, institutions implementing AI need clear policies concerning data access, data protection, system accountability, validation of AI outputs, and human oversight. These mechanisms are necessary to ensure that efficiency does not come at the expense of privacy, fairness, or educational integrity.

4.4 Islamic Values as a Governance Framework

In Islamic education, technological effectiveness must be accompanied by ethical responsibility. AI integration should therefore be guided by values such as *amanah* (trustworthiness), justice, responsibility, transparency, and *maslahah* (public benefit). These values provide a normative basis for determining how AI should be designed, implemented, and evaluated within educational institutions.

The principle of *amanah*, for example, requires educational institutions to protect information entrusted to them and prevent the misuse of student and institutional data. The principle of justice requires attention to fairness and the prevention of discriminatory outcomes produced by algorithmic systems. Responsibility requires human actors to remain accountable for decisions made with AI assistance, while *maslahah* requires the use of AI to generate genuine educational and institutional benefits. Thus, Islamic values should not merely be treated as ethical additions to AI implementation but as a governance framework for determining legitimate and responsible uses of AI in Islamic education (Muhaimin, 2012).

5. Conceptual Synthesis of AI Integration in Islamic Education Management

Based on the literature reviewed, the integration of AI into Islamic Education Management Information Systems can be understood as a transformation involving five interconnected components. First, educational institutions provide structured and reliable data concerning students, educators, academic activities, resources, and institutional operations. Second, AI technologies process and analyze these data through automation, machine learning, natural language processing, predictive analytics, or generative AI. Third, the system produces analytical outputs, predictions, classifications, or recommendations. Fourth, managers use these outputs as decision-support information for planning, evaluation, service improvement, and resource management. Fifth, all AI-supported processes remain subject to human oversight and Islamic governance principles.

The conceptual relationship can therefore be represented as: Educational Data → AI Processing → Analytics and Prediction → Recommendations → Managerial Decision-Making → Improved Educational Services and Governance, with Islamic values, data governance, ethics, and human oversight functioning as cross-cutting principles throughout the entire process.

This synthesis provides an important conceptual distinction from conventional approaches to educational information systems. AI is not positioned as a replacement for managers or educators but as an intelligence-enhancing layer that expands the analytical and decision-support capacity of existing information systems. The value of AI integration consequently depends not only on technological sophistication but also on data quality, human competence, institutional readiness, ethical governance, and alignment with the objectives of Islamic education.

This study contributes theoretically by extending the discussion of AI in education from predominantly instructional applications toward the managerial and governance dimensions of Islamic education. The synthesis demonstrates that AI can be integrated into Islamic Education Management Information Systems through four strategic functions: administrative automation, data analytics and prediction, decision support, and intelligent services. Conceptually, the study connects these technological functions with human oversight and Islamic governance principles.

Practically, the findings provide a framework for educational institution administrators to consider AI adoption not simply as a technological investment but as part of a broader organizational transformation. Institutions need to assess data readiness, infrastructure, human competencies, cybersecurity, ethical safeguards, and institutional policies before implementing AI-based management systems. This approach may support the development of more effective, adaptive, responsible, and sustainable digital governance in Islamic education.

This study is limited by its reliance on previously published literature and therefore does not empirically examine AI implementation within a specific Islamic educational institution. In addition, the rapid development of AI means that new technologies, applications, risks, and governance models may emerge after the literature included in this review. The findings should therefore be understood as a conceptual synthesis rather than empirical evidence of the effectiveness of AI implementation.

Future research should empirically examine AI integration in Islamic educational institutions through case studies, surveys, or mixed-methods research. Attention should be given to measuring the effects of AI on administrative efficiency, data quality, decision-making, academic service quality, and organizational performance. Further research is also needed to develop and validate models of AI governance that integrate data security, algorithmic fairness, human oversight, and Islamic values into the management of educational information systems.

Conclusion

This study concludes that the integration of Artificial Intelligence (AI) into Islamic Education Management Information Systems has significant potential to support the digital transformation of Islamic educational institutions. The literature synthesis indicates that AI can expand the function of conventional information systems through four strategic capabilities: administrative automation and data management, data analytics and prediction, managerial decision support, and intelligent academic and administrative services. Through these capabilities, AI can facilitate the transformation of educational data into more meaningful information for planning, evaluation, and institutional decision-making.

However, AI integration should not be understood merely as a technological innovation or an effort to automate administrative processes. Its successful implementation depends on institutional readiness, including competent human resources, adequate technological infrastructure, reliable data, cybersecurity, and appropriate governance mechanisms. In Islamic educational institutions, these requirements must be accompanied by ethical principles that reflect *amanah*, justice, responsibility, transparency, and *maslahah*. Human oversight therefore remains essential, particularly when AI-generated analysis or recommendations influence educational and managerial decisions.

The conceptual contribution of this study lies in positioning AI as an intelligence-enhancing layer within Islamic Education Management Information Systems, rather than as a replacement for educational managers. The integration of AI can potentially shift information systems from conventional data storage and reporting toward intelligent systems capable of analysis, prediction, recommendation, and decision support. Further empirical research is needed to examine the implementation and effectiveness of AI-enabled management information systems in Islamic educational institutions and to develop governance models that integrate technological innovation, data security, human agency, and Islamic values.

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