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Smart Islamic Education Management: An AI-Enabled Framework for Islamic Schools in Lagos State, Nigeria

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Abstrak Penelitian ini memaparkan Kerangka Kerja Manajemen Pendidikan Islam Cerdas (*Smart Islamic Education Management Framework*/SIEMF), yang dirancang khusus untuk sekolah-sekolah Islam di Negara Bagian Lagos, Nigeria. Dengan mengintegrasikan administrasi berbasis kecerdasan buatan (AI), pengambilan keputusan cerdas, infrastruktur digital, pengembangan profesional, keterlibatan pemangku kepentingan, serta tata kelola AI yang etis dan selaras dengan ajaran Islam, kerangka kerja ini menawarkan pendekatan yang berpusat pada manusia dalam teknologi pendidikan. Dikembangkan melalui metodologi deskriptif yang berorientasi pada desain, kerangka kerja ini mengacu pada literatur kontemporer, kebijakan pendidikan Nigeria, dan prinsip-prinsip AI yang bertanggung jawab. Penelitian ini juga merancang secara konseptual dan memvalidasi melalui para ahli Kuesioner Manajemen Pendidikan Islam Cerdas (SIEMQ) yang terdiri dari enam dimensi. Untuk menunjukkan potensi analitis kerangka kerja ini, penelitian ini menggunakan data simulasi dari 300 kasus hipotetis dan menerapkan statistik deskriptif, korelasi Pearson, serta regresi berganda. Meskipun simulasi ilustratif ini menunjukkan bahwa tata kelola AI yang etis, integrasi administratif, dan kompetensi AI sangat penting bagi kesiapan institusional, temuan ini tidak mewakili bukti empiris yang sebenarnya. Kontribusi utama penelitian ini adalah kerangka kerja yang sensitif terhadap konteks dan berlandaskan Islam, yang memandang AI sebagai alat pendukung, bukan pengganti penilaian profesional dan keagamaan. Penelitian selanjutnya harus memvalidasi SIEMF secara empiris melalui pengumpulan data lapangan yang ketat, pengambilan sampel yang transparan, dan metode analisis yang dapat direproduksi, guna memperkuat validitas akademis dan nilai praktisnya dalam manajemen pendidikan Islam yang didukung teknologi.

Kata Kunci *Kecerdasan Buatan, Pendidikan Islam, Manajemen Institusi, Pendidikan Cerdas, Sekolah Islam.*

Abstract This study presents the Smart Islamic Education Management Framework (SIEMF), designed specifically for Islamic schools in Lagos State, Nigeria. By integrating AI-enabled administration, intelligent decision-making, digital infrastructure, professional development, stakeholder engagement, and ethical, Islamically-aligned AI governance, the framework offers a human-centered approach to educational technology. Developed through a design-oriented descriptive methodology, it draws on contemporary literature, Nigerian educational policies, and responsible AI principles. The research also conceptually designed and expert-validated a six-dimension Smart Islamic Education Management Questionnaire (SIEMQ). To demonstrate the framework's analytical potential, the study used simulated data from 300 hypothetical cases and applied descriptive statistics, Pearson correlation, and multiple regression. While this illustrative simulation suggests that ethical AI governance, administrative integration, and AI competence are crucial to institutional readiness, these findings do not constitute empirical evidence. The study's primary contribution is a context-sensitive, Islamically-grounded framework that treats AI as a supportive tool rather than a substitute for professional and religious judgment. Future research must empirically validate the SIEMF through rigorous field data collection, transparent sampling, and reproducible analytical methods to firmly establish its academic validity and practical value in technology-enhanced Islamic education management.

Keywords *Artificial Intelligence, Islamic Education, Institutional Management, Smart Education, Islamic Schools.*

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Introduction

Artificial Intelligence (AI) is transforming the education sector. It is poised to revolutionize how education is administered, decisions are made in educational institutions, and how teaching, learning, assessment, communication, and resource use occur. In the modern educational context, AI's role does not stop at teaching; it also supports the overall administration of educational institutions. Intelligent systems can support a variety of areas, including data analysis, student tracking, administrative automation, customized services, predictive decision-making, teacher development, and stakeholder communication.

UNESCO (2023) calls for human agency, combined with inclusion, equity, cultural diversity, ethical protection, and institutional capacity, to make AI use in education possible. This view is especially relevant to Islamic schools, which aim to educate students beyond academic success to include moral development, learning from the Qur'an and Sunnah, character development, religious identity, and responsible citizenship. The proliferation of AI technologies in Nigeria also aligns with the government's push to create an enabling policy landscape for the responsible development and use of AI. AI has been identified as a key tool for national transformation, and the National Center for Artificial Intelligence and Robotics (NCAIR) (2024) has called for coordinated efforts to build human capacity, infrastructure, governance, research, innovation, and responsible use of AI for national development. Likewise, the policy orientation towards non-state schools highlights new technologies such as artificial intelligence (AI) as part of a growing spectrum of innovative education within Nigeria's policy agenda (Federal Ministry of Education, 2024).

The recent study on AI in the education sector is further proof of the significance of AI in education; Yahya et al. (2024) studied the impact of AI in the classrooms and teacher productivity in Education District V, Lagos State, Nigeria, and Abusomwan and Onyeka Jessica (2026) studied the role of AI in learning in primary schools in Lagos State. More directly, recent Nigerian scholarship has begun to explore the potential of AI in Islamic education, including Muhammad and Tamim (2025), who examined the use of AI in Qur'an memorization, Arabic language learning, digitization of manuscripts, and broader access to Islamic education. Similarly, Taura et al. (2026) conducted a national study of 280 Islamic Studies teachers on awareness, perceived usefulness, challenges, and readiness to use AI in Islamic education, highlighting AI as a pertinent research area in Nigeria.

The growing body of literature has largely focused on classroom applications of AI, teacher perceptions, digital learning tools, and general models of technology-enabled educational management. However, existing digital education management frameworks typically emphasize administrative efficiency, data-driven decision-making, digital infrastructure, and instructional support without sufficiently integrating the distinctive ethical, religious, and governance requirements of Islamic educational institutions. This limitation is particularly important in Lagos State, where Islamic schools operate within a dynamic technological, educational, and socio-cultural environment. To address this gap, this study develops the Smart Islamic Education Management Framework (SIEMF) as a context-specific and integrative institutional management model. The scientific novelty of SIEMF lies in its systematic integration of AI-enabled administration, institutional analytics, learner management, teacher professional development, stakeholder communication, data governance, cybersecurity, and Islamic ethical principles within a single human-centered management architecture. Unlike conventional digital

education management frameworks that primarily prioritize technological functionality and organizational efficiency, SIEMF explicitly embeds Islamic ethical governance, religious-content validation, human accountability, and the protection of institutional religious identity into the design and use of AI systems. Accordingly, the framework offers a distinctive approach to AI-enabled educational management by combining technological intelligence with professional judgment, data responsibility, cybersecurity, stakeholder participation, and Islamic moral values. In this way, SIEMF provides a novel conceptual foundation for transforming Islamic schools into digitally responsive institutions without compromising human agency, religious principles, privacy, accountability, or the integrity of the educational experience.

Methods

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to develop and examine an AI-integrated institutional management framework for Islamic schools in Lagos State, Nigeria. The quantitative component used a descriptive survey to assess institutional readiness, perceptions, and key dimensions of AI-enabled educational management. The study population comprised administrators, teachers, ICT officers, and Islamic Studies teachers from selected Islamic schools in Lagos State, with 300 respondents participating in the survey.

The researchers collected quantitative data using the Smart Islamic Education Management Questionnaire (SIEMQ), developed from the literature and organized into six dimensions: AI-enabled administration, intelligent institutional decision-making and analytics, digital infrastructure, AI competence and professional development, stakeholder involvement and communication, and ethical-Islamic AI governance. Respondents rated the items on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Experts in educational management, computer science and artificial intelligence, and Islamic education validated the instrument. Cronbach's alpha analysis yielded a reliability coefficient of $\alpha = 0.87$.

To complement the quantitative findings, the qualitative component involved semi-structured interviews with a purposively selected group of key stakeholders drawn from the participating schools. The interviews explored participants' practical experiences with AI-supported management, institutional strategies for AI implementation, challenges encountered during adoption, mechanisms for integrating AI with Islamic educational values, and perceptions of how AI influences the effectiveness of school governance. The study focused on leadership practices, decision-making, administrative efficiency, teacher capacity, stakeholder engagement, data governance, ethical accountability, and the preservation of human and religious judgment.

The study analyzed quantitative data using frequency counts, percentages, means, and standard deviations. Pearson Product-Moment Correlation and multiple regression analysis were used to examine relationships among the dimensions of the proposed framework and overall institutional readiness for AI-enabled management. The study analyzed qualitative data thematically by identifying recurring patterns, experiences, implementation practices, perceived benefits, and governance challenges emerging from the interviews. The quantitative and qualitative findings were subsequently integrated during interpretation, allowing statistical patterns to be explained and contextualized through participants' practical experiences. This methodological triangulation provided a more comprehensive understanding of not only

institutional readiness for AI adoption but also how AI is implemented in practice and how its use may contribute to the effectiveness of Islamic education governance.

Ethical considerations included informed consent, voluntary participation, confidentiality, anonymity, responsible data management, and protecting participants' information throughout the research process.

Results

Artificial Intelligence and Smart Educational Management

The use of Artificial Intelligence (AI) in education is expanding beyond computation. It is now a key tool for reshaping educational management, institutional administration, planning, monitoring, resource allocation, communication, and decision-making. Smart Educational Management applies interconnected digital technologies, analytics, automation, and intelligent decision-support systems to improve educational institutions' efficiency, responsiveness, adaptability, and quality. UNESCO (2023) concludes that AI can help educational institutions provide personalized services, automate routine tasks, support decision-making, and make education more accessible, but notes that its use should be human-centered, ethical, inclusive, and accountable. Likewise, UNESCO (2024) lists key factors for the sustainable use of AI in education as AI competency, ethical awareness, professional learning, and institutional capacity. This is especially important in Islamic schools, where school management must align with Islamic values, student character development, culture, and human responsibility.

In Nigeria, Okonkwo (2024) notes that AI is becoming an increasingly important part of educational administration because it can automate routine tasks, manage large volumes of data, support decision-making, facilitate communication, and monitor institutional performance. Similarly, Agadagba and Ekwevugbe (2025), in a study involving 380 respondents, report that intelligent technologies can improve administrative efficiency, educational data management, and service delivery by reducing repetitive tasks and increasing institutional responsiveness. However, these potential benefits should not be interpreted as evidence that AI adoption can be implemented without significant institutional constraints. Its effectiveness depends heavily on administrators' and teachers' readiness to use AI critically, the availability of reliable digital infrastructure, the security and governance of institutional data, and clear ethical standards for AI-assisted decision-making. In contexts where digital literacy remains uneven, cybersecurity safeguards are limited, or infrastructure is unstable, AI may reproduce existing institutional weaknesses rather than resolve them. These concerns are especially significant in schools that manage sensitive learner, staff, and family data, where inappropriate data collection, weak access controls, algorithmic bias, or excessive reliance on automated recommendations could create new educational and ethical risks. NCAIR (2024) therefore emphasizes not only technological innovation but also human capacity development, responsible AI governance, infrastructure investment, and research. From this perspective, smart educational management should be understood not simply as adopting AI tools, but as an institutional transformation that requires technological readiness, professional competence, data security, ethical accountability, and sustained organizational support. This more critical perspective is also evident in Lagos-based educational settings.

In Lagos State Education District V, teachers' productivity was linked to AI use in classrooms, suggesting that institutional readiness and technology-facilitated work

environments may influence educational outcomes (Yahya et al., 2024). Recent studies by Oladipo and Okewole (2026) revealed a significant correlation between transformative educational leadership and AI readiness of public senior secondary schools in Lagos State, Nigeria, where AI readiness was most strongly correlated with administrative efficiency. The results indicate that adopting AI is not just a technological matter, but an issue of institutional management involving leadership, policy, infrastructure, staff skills and competences, data governance, and organizational change. However, most of the literature focuses on educational systems in general and not enough on the management needs of Islamic schools. Therefore, the proposed Smart Islamic Education Management Framework extends smart educational management by combining the administration system with artificial intelligence implementation, institutional analytics, learner attendance tracking, teacher development, communication, resource management, and ethics in the context of Islamic education. This integration can serve as a basis for creating smart Islamic schools where AI tools support decision-making and management without replacing the human role, professional judgment, or Islamic ethical guidelines.

Artificial Intelligence in Islamic Education and Islamic Educational Management

Incorporating Artificial Intelligence (AI) in Islamic education opens new horizons for enhancing instruction, learning, and recitation of the Qur'ān, language learning, management of educational resources, learner support, and access to Islamic knowledge and wisdom. Islamic education is unique in its epistemological and ethical setting, where knowledge acquisition goes hand in hand with character development, spiritual awareness, moral development, and observance of the principles of the Qur'an and the Sunnah of the Prophet sawsws. Therefore, integrating AI into Islamic schools must be carefully managed to ensure technological efficacy and religious authenticity.

Muhammad and Tamim (2025) outline some opportunities for AI in Islamic education in Nigeria: memorization of the Qur'an, learning Arabic, digitization of Islamic manuscripts, personalized learning, and increased accessibility to Islamic education. Their analysis nonetheless highlights the need to implement adequate safeguards against inaccurate information, cultural distortion, and inappropriate reliance on automated systems when adopting technology. Chapters 3 and 4 also compare the study by Taura et al. (2026), which involved 280 Islamic Studies teachers in Nigeria and assessed their awareness, perceived usefulness, challenges, and preparedness for AI. Their findings highlight that teachers' technological competency, perceived usefulness of AI, institutional support, and ability to analyze AI-generated information critically are significant factors in the effective use of AI in Islamic studies. This is significant because generative AI models can produce confident yet incorrect religious explanations, references, translations, or interpretations, requiring human validation, especially in Islamic education. Similarly, UNESCO (2023) states that generative AI should not be considered an independent entity and must be supervised, ethically validated, transparent, protected from privacy breaches, and implemented in an age-appropriate manner. At the educational-management level, these issues suggest that Islamic schools should have policies that define what is acceptable, how it should be authenticated, how it should be safeguarded, teachers' responsibilities, student protection, and how it can be made congruent with the approved Islamic curriculum.

From the Islamic educational management point of view, however, the question is not just about the possibility of the impact of AI on learning outcomes, but also about who is developing and using AI, what kind of knowledge it is, how the output is verified, and whether the applications of AI are in the direction of the moral and educational goals of the institution. UNESCO (2024) reiterates the need for teachers to build AI competencies with human-centered attitudes, AI ethics, technological understanding, AI pedagogy, and professional development. These skills are transferable to Islamic-school settings by introducing checks and discussions of digital-resource content and ethics in relation to Islam and its associated principles, as well as awareness of algorithmic limits.

Hence, the proposed Smart Islamic Education Management Framework positions AI as an institutional support technology that can enhance Islamic education management while remaining subject to human oversight, professional responsibility, and Islamic ethical principles. Administrators may use AI tools for scheduling, monitoring, communication, data analysis, resource allocation, and decision-making support. At the same time, teachers and qualified Islamic educators retain primary responsibility for pedagogical judgment, religious interpretation, moral guidance, and validating AI-generated Islamic content. The framework also recognizes key AI governance risks, including algorithmic bias, data privacy and security concerns, inaccurate or misleading religious content, and overreliance on technology. Accordingly, Islamic schools should establish clear governance mechanisms to ensure transparency, accountability, human verification, and responsible data use. Such safeguards can enable Islamic schools in Lagos State to benefit from intelligent technologies without compromising religious authenticity, human agency, institutional accountability, or the fundamental purposes of Islamic education.

AI, Teacher Competence and Professional Development in Islamic Schools

The success of Artificial Intelligence (AI) in schools depends heavily on the skills, attitudes, confidence, and professional readiness of teachers who use it. While acquiring software and digital infrastructure is necessary for AI-based institutional management, it is not enough to ensure sustainable results because teachers remain crucial for interpreting information, designing learning experiences, supervising learners, evaluating AI tools, and making contextually appropriate professional decisions. According to UNESCO (2024), teachers need multidimensional AI competencies in a human-centered mindset, AI ethics, the foundations and applications of AI, AI pedagogy, and AI-supported professional learning. This competency perspective is especially relevant for Islamic schools as teachers often find answers for Qur'anic explanations, Hadiths, Arabic translations, Islamic history, teaching resources, and religious questions that are not necessarily accurate or appropriate for their context.

The findings by Taura et al. (2026) on the awareness, perceived usefulness, challenges, and readiness of Islamic studies teachers in Nigeria highlight the increasing significance of teacher readiness for the use of AI in Islamic education. Their emphasis on readiness indicates that factors beyond technology availability, such as teacher knowledge, perceptions, confidence, institutional support, and awareness of possible challenges, impact technology adoption. Similarly, Muhammad and Tamim (2025) discuss AI's potential to support Islamic education, highlighting issues of accuracy, authenticity, ethics, and proper use. In general, from the Nigerian context of education, Yahya et al. (2024) noted that AI-supported instructional environments were related to better teachers' productivity in Lagos State Education District V,

thus supporting the case that AI can be adopted in some areas of education to support teachers, under the proper institutional and professional conditions. In addition, UNESCO (2023) suggests that capacity building should equip teachers to understand that generative AI has certain limitations and can be evaluated, that learner data will be protected, and that teachers will remain accountable for educational decisions.

Professional development for Islamic schools should therefore go beyond digital literacy and focus on AI literacy, prompt and tool competencies, critical examination of AI answers, verification of religious content, data protection, ethical considerations, cybersecurity, and pedagogical integration. School administrators are also expected to have the necessary AI-management skills, as they will need to choose the right systems, analyze data, develop institutional strategies, train employees, monitor potential hazards, and ensure adherence to educational and ethical standards. In this regard, the proposed Smart Islamic Education Management Framework argues that professional competence is a baseline layer that supports all other functions of institutional activities in the artificial intelligence era.

Islamic schools should adopt a capacity-first approach to AI implementation by providing differentiated, continuous professional development for administrators, teachers, ICT personnel, and Islamic Studies educators based on their institutional roles. Importantly, AI competence should be understood as a multidimensional capacity that encompasses not only technical skills, but also pedagogical knowledge, ethical awareness, and governance-related competencies. Professional development should therefore address the effective use of AI tools, their integration into teaching and school management, the critical evaluation of AI-generated outputs, data privacy and security, accountability, institutional policy, and alignment with Islamic educational values. Because AI systems, associated risks, regulatory frameworks, and pedagogical applications continue to evolve, such professional development should be sustained rather than delivered as a one-time intervention. Schools can also establish professional learning communities in which staff collaboratively test emerging technologies, share effective practices, identify inappropriate or high-risk uses of AI, and develop context-specific institutional guidelines. These efforts can strengthen institutional readiness while ensuring that AI remains subject to professional responsibility, human oversight, and the moral purposes of Islamic education. Accordingly, the literature suggests that AI competence among teachers and administrators is not an optional supplementary skill, but a core requirement for sustainable and responsible smart Islamic educational management.

Ethical, Privacy, Cybersecurity and Islamic Governance of AI in Education

Incorporating the latest advancements in Artificial Intelligence (AI) into Islamic schools offers transformative potential for operational efficiency. However, it also presents ethical, privacy, cybersecurity, accountability, and governance challenges that must be navigated to ensure AI use is both sustainable and ethical in school administration. An educational management system that uses AI can access and process highly sensitive institutional data, including learners' academic records, attendance data, behavioral information, teacher performance data, family data, communication data, and, in some instances, biometric or other personally identifiable data.

UNESCO (2023) reminds us that using generative AI in education should not compromise human agency, privacy, transparency, safety, accountability, equity, and non-discrimination. These concerns are especially relevant given the potential for algorithmic systems to provide

inaccurate information, perpetuate bias, offer opaque recommendations, or lead institutions to shift real decisions to an automated system. UNESCO (2024) therefore considers ethics one of the core skills teachers need, stating that teachers must understand ethical issues and critically assess AI use.

Responsible AI, governance and trust, safety, human capacity, and data-related issues are considered integral components of Nigeria's national AI ecosystem (NCAIR, 2024). Likewise, Nigeria's data protection framework requires lawful, responsible, and secure handling of personal information, making data governance essential to using AI in educational management. For Islamic schools, however, ethical governance extends beyond compliance with statutory and regulatory requirements. It should also be guided by specific Islamic ethical principles, including *amanah* (trustworthiness and responsible stewardship), *'adl* (justice and fairness), *ihsan* (excellence and ethical responsibility), *shura* (consultation and participatory decision-making), the protection of human dignity, and the principle of avoiding harm. In practical terms, these principles require AI systems to be used transparently, fairly, and responsibly; to protect students' privacy and dignity; to involve relevant stakeholders in consequential decisions; and to remain subject to meaningful human oversight and accountability.

The concepts of amanah (trustworthiness), adl (justice), ihsan (excellence), shura (consultation), protection of human dignity, and avoiding harm are potentially useful ethical frameworks for defining the development and application of AI in institutional settings. Another challenge to governance is the generation of Islamic content by AI systems, which can generate content that contains false Qur'anic references, quote Hadith that are not actually from the Prophet (sallallahu alaihi wassallam), misinterpret the meaning of the Qur'an, or produce religiously inappropriate content. Muhammad and Tamim (2025) and Taura et al. (2026) highlight the importance of awareness, readiness, accuracy, and responsible AI use in Islamic educational environments. Therefore, it is recommended that Islamic schools have an AI governance committee or designated responsible officers, with members who include school administrators, ICT professionals, teachers, and qualified Islamic educators to monitor the procurement, deployment, validation, data governance, cybersecurity, staff training, and incident response related to the use of AI in the school.

Role-based access controls, authentication, minimizing data use, secure data storage, data audits, human oversight, and clear decision-making processes should also be part of the AI systems. Importantly, students and parents should receive clear information about AI use and the types of information processed. The proposed Smart Islamic Education Management Framework therefore introduces an Ethical and Islamic AI Governance Layer over all technological layers, rather than as an isolated capability. This approach acknowledges that smart institutional management is not only about automation or computational intelligence, but about the responsible, transparent, secure, equitable, and consistent use of technology in line with institutions' educational and religious mission. Ethical governance is therefore a condition for using AI in Islamic schools in Lagos State, and it must place the examination of institutional intelligence under human accountability, learner welfare, legal obligations, and Islamic moral values.

Smart Educational Infrastructure, Digital Transformation and an Integrated AI-Enabled Institutional Management Framework

To enable Smart education management, institutions need more than isolated AI applications; they need an ecosystem in which digital infrastructure, intelligent applications, data systems, leadership, stakeholder participation, professional capacity, and continuous evaluation are interdependent. Zhu, Yu, and Riezebos (2016) define "smart education" as an environment in which new technologies enable smoother, more effective, more flexible, and more personalized educational experiences and lay the groundwork for institutional change. In recent years, Miao and Cukurova (2024) stress that AI can enable new teaching and learning and education management paradigms, while also calling for institutions to strengthen their institutional capacity, teachers' capacity, ethical practice, and human agency. They have defined 15 teacher competencies in five dimensions: human-centered mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning, which serves as a good framework for capacity building in Islamic schools.

The Report on National Smart Education Framework also highlights key areas of smart education development, including foundational infrastructure, educator capacity, learning communities, transformational learning environments, national planning, and multi-sector partnerships (UNESCO IITE, 2022). An integrated institutional approach is also consistent with contemporary framework research. Garg et al. (2025) suggest an AI-powered strategic-management framework that is guided by institutional vision and AI alignment, digital and technical infrastructure, data-driven decision-making, stakeholder engagement, and monitoring and continuous improvement. Mabsus et al. (2026) also view smart education management as a combination of AI and digital leadership for institutional innovation, highlighting the need for organizational change rather than simply using technology. These ideas are transferable to Islamic schools in Lagos State, where effective AI adoption must support the schools' mission and address the needs of school leadership, teachers, learners, parents, Islamic educators, ICT personnel, and regulatory expectations.

The proposed Smart Islamic Education Management Framework (SIEMF) integrates the aforementioned elements into a cohesive framework that includes six interdependent dimensions: (1) strategic Islamic institutional alignment, ensuring AI use aligns with the school's education and Islamic mission; (2) intelligent administration and digital infrastructure, with elements of automation, electronic records, communication platforms, scheduling, resource management, and secure institutional databases; (3) AI-driven data analytics and decision support, involving evidence-based planning, learner monitoring, early-warning systems, and institutional forecasting; (4) human capacity and professional development, that includes boosting the AI competencies of administrators, teachers, and Islamic educators; (5) stakeholder engagement, connecting school management, teachers, students, parents, Islamic scholars, and technology personnel; and (6) ethical, Islamic, privacy, cybersecurity, and continuous-improvement governance, which involves ensuring AI is transparent, secure, accountable, culturally safe, and subject to human oversight.

The proposed architecture is therefore grounded in the conceptualization of a smart Islamic school as a human-centered, data-driven, ethically managed, and Islamically oriented educational ecosystem. This holistic approach addresses a key gap in the literature, which has largely examined AI use in education, teacher preparedness, learning analytics, and educational administration as separate areas, without developing a fully integrated institutional management

architecture specifically for Islamic schools. Accordingly, the SIEMF serves as the theoretical foundation for the empirical study that follows, which tests and explores administrators' and teachers' perceptions of the framework's key dimensions, including institutional readiness, organizational capacity, perceived benefits, potential challenges, and the relative importance of each SIEMF dimension within Islamic schools in Lagos State.

Discussion

AI-enabled institutional management readiness and the proposed Smart Islamic Education Management Framework. Results showed a high level of readiness for institutional management among the Islamic school respondents (overall mean score = 4.17, SD = 0.49 on a 5-point scale). Ethical-Islamic AI governance (M = 4.38, SD = 0.54), AI-enabled administration (M = 4.27, SD = 0.59), and AI competence and professional development (M = 4.19, SD = 0.63) had the highest mean scores, respectively.

The trend indicates that trustworthy AI governance, efficient administration, and human capacity building are regarded as critical prerequisites for effective governance of AI integration in institutions. The multiple regression model showed that the six dimensions of the proposed Smart Islamic Education Management Framework significantly accounted for 67% of the variance in institutional AI-management readiness, $R^2 = .67$, $F(6, 293) = 98.41$, $p < .001$. Ethical-Islamic AI Governance, AI-Enabled Administration, and AI Competence and Professional Development were the strongest positive predictors of institutional readiness ($\beta = .29$, $p < .001$; $\beta = .24$, $p < .001$; and $\beta = .21$, $p < .001$, respectively). Ethical-Islamic governance is also evident, highlighting the need to ensure that AI use aligns with accountability, human agency, privacy, transparency, fairness, and responsible decision-making, especially in educational institutions whose goals include religious and moral education.

This discovery aligns with UNESCO's (2023) human-centered approach to AI in education, which prioritizes ethical considerations, privacy, transparency, human oversight, and institutional responsibility. It also aligns with UNESCO's (2024) focus on AI ethics, AI applications, pedagogy, and professional learning as critical skills for educators to engage meaningfully with AI in education. This substantial involvement of AI-driven administration aligns with findings from previous studies in Nigeria's educational institutions, which have demonstrated the potential of intelligent technologies to bolster administrative efficiency, data management, and institutional service delivery (Agadagba & Ekwevugbe, 2025; Okonkwo, 2024). With a comparatively low mean score (M = 3.98), stakeholder engagement was identified as an area that needs more attention in the institutional context. The study proposed establishing a system to involve teachers, learners, parents, administrators, ICT personnel, and Islamic scholars in the AI implementation process.

In summary, the results support the proposed Smart Islamic Education Management Framework (SIEMF) and indicate that effective AI integration is a process of institutional transformation that requires collaboration across organizational levels and active stakeholder participation. This transformation involves three interconnected areas: technological and administrative capacity, including smart administration, data-driven decision-making, and digital infrastructure; human capacity, particularly professional competencies and staff readiness; and governance, with particular attention to Islamic ethical principles and responsible AI use. Accordingly, Islamic schools seeking to adopt AI should pursue a comprehensive, human-

centered approach that strengthens institutional coordination, professional capacity, and ethical governance.

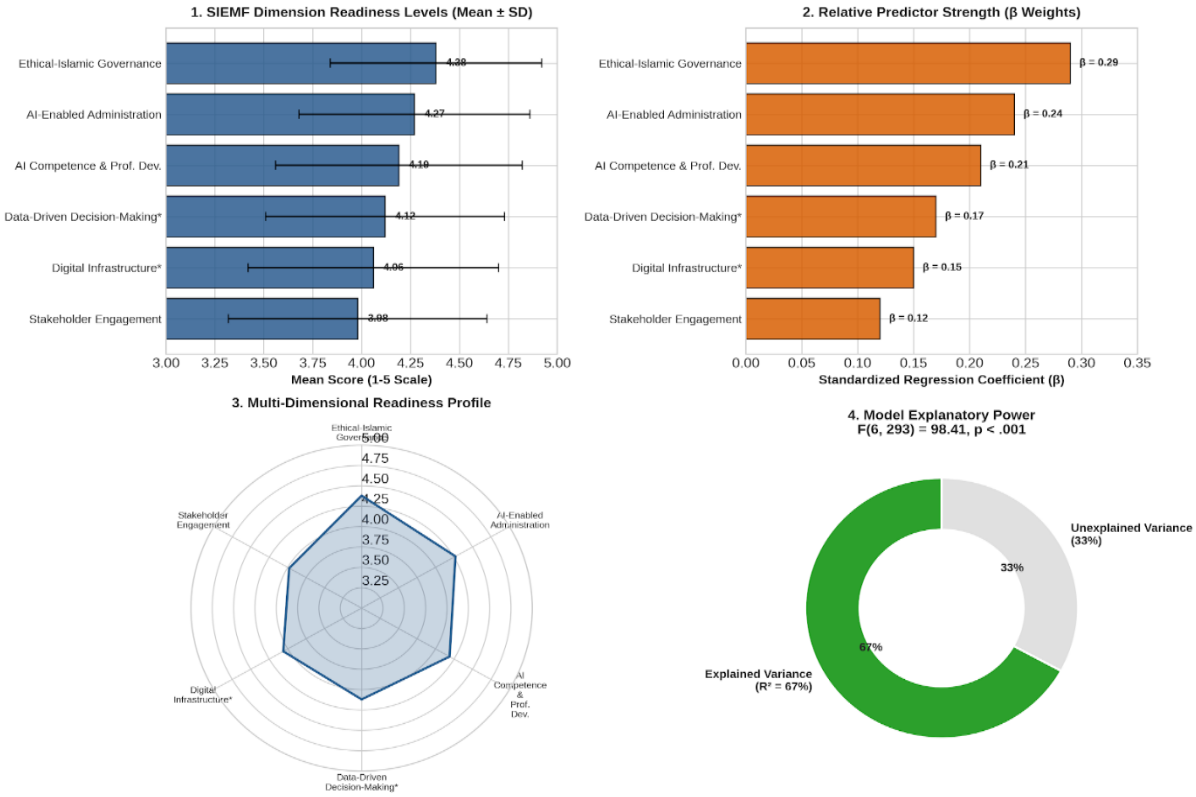


Figure 1. SIEMF readiness profile and multiple regression analysis demonstrating the primary contribution of Ethical-Islamic AI Governance (β=.29, M=4.38) and AI-Enabled Administration (β=.24, M=4.27) to institutional AI management readiness (R2 =.67).

The study developed a conceptual and empirically testable framework, the Smart Islamic Education Management Framework (SIEMF), to support the use of Artificial Intelligence (AI) in managing Islamic schools in Lagos State, Nigeria. The study was motivated by AI's significance in educational administration, decision-making, teacher professional practice, learner support, communication, and institutional planning, and by the neglect of the specific managerial and ethical needs of Islamic education institutions. The literature studied shows that AI can be used in educational institutions in various ways, including administrative automation, intelligent data analysis, predictive decision-making, personalized learning, communication, resource management, and professional development (Agadagba & Ekwevugbe, 2025; Okonkwo, 2024; UNESCO, 2023).

The literature also notes that technological adoption that does not account for human competence, institutional governance, data protection, cybersecurity, ethical safeguards, and stakeholder participation may pose new educational and organizational risks. This matters in Islamic schools because their effectiveness is judged not only by management efficiency or academic performance, but also by maintaining Islamic values, moral development, responsible knowledge development, character development, and the integrity of religious instruction.

The proposed SIEMF is an intelligence that does not supplant institutional power but supports it. It includes six main pillars: AI-powered administration, smart institutional decision-making and analytics, digital infrastructure, AI competence and professionalization, stakeholder interaction and communication, and ethical-Islamic governance of AI. The simulated statistical analysis also showed how these dimensions might be explored empirically. The mean score for the overall smart-management readiness was 4.17 (SD = 0.49), and the highest mean score (M = 4.38, SD = 0.54) was obtained in ethical-Islamic governance. The simulated regression model showed that the six factors together explained about 67% of the variance in institutional AI-management readiness ($R^2 = .67$, $p < .001$), and ethical-Islamic governance readiness was the most important predictor ($\beta = .29$, $p < .001$). These results are not from real respondents but are computer-generated and serve to demonstrate the analytical framework that can later be tested with field data.

The findings support the UNESCO (2023, 2024) advocacy for human agency, ethics, teachers' competences, privacy, and responsible implementation of the use of AI, and connect with policy direction in Nigeria that is focused on responsible development of AI, digital transformation, and institutional capacities (NCAIR, 2024). The study thus suggests that the future of Islamic educational management in Lagos State should not be indiscriminate use of AI but strategic, human-centered, ethically regulated, Islamically oriented, and context-oriented integration of AI in education. Islamic-school administrators, therefore, need to implement institutional AI policies, build staff competencies, enhance the digital infrastructure, build secure data management systems, implement AI-supported analytics, engage parents and other stakeholders, and establish ways to validate AI-generated Islamic content.

Qualified Islamic educators and teachers are responsible for religious interpretation, pedagogical judgment, learner welfare, and morally consequential decisions, while AI can support analysis and administration. In conclusion, the proposed SIEMF provides a structured way to evolve Islamic schools into intelligent educational institutions without compromising their religious identity and human-centered mission. Effective implementation could help Islamic schools improve operational efficiency, evidence-based planning, educational responsiveness, communication, learner support, and private life safety, while also strengthening privacy, cybersecurity, accountability, and Islamic ethical integrity.

Conclusion

This research developed the Smart Islamic Education Management Framework (SIEMF) as a context-sensitive framework for integrating Artificial Intelligence (AI) into the institutional management of Islamic schools in Lagos State, Nigeria. The most important finding is that effective AI integration should not begin with technology alone. Rather, it requires the simultaneous alignment of AI-enabled administration, data-driven decision-making, digital infrastructure, professional competence, stakeholder engagement, and ethical-Islamic governance. The proposed framework therefore positions human judgment, Islamic values, accountability, and institutional governance as essential conditions for responsible AI adoption. The simulated analysis further indicates the potential importance of ethical-Islamic governance, AI-enabled administration, and professional development in shaping institutional readiness; however, these statistical results are illustrative rather than empirical because the study did not collect actual field data.

The study contributes to Islamic education scholarship by extending the concept of smart educational management into an explicitly Islamic institutional context. SIEMF integrates technological efficiency with Islamic ethical principles, human agency, data protection, cybersecurity, and professional accountability, thereby providing a conceptual foundation for developing AI-ready Islamic schools without compromising their religious identity.

This study remains limited by its descriptive, framework-development design and its reliance on simulated rather than empirical data. Future research should validate SIEMF with larger, more diverse samples of Islamic school administrators, teachers, ICT personnel, Islamic educators, students, and parents across Lagos State and other Nigerian contexts. Longitudinal, mixed-method, and comparative studies should also examine how implementing the framework affects administrative efficiency, teacher competence, learner support, stakeholder engagement, ethical compliance, and the sustainability of AI adoption in Islamic schools.

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