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# Revisiting Jadid Pedagogy for Sustainable Development Goals (SDGs): A Conceptual Framework for Digital Educational Governance

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## ABSTRACT

This study revisits Jadid pedagogy as a historical educational movement that can inform contemporary digital educational governance and Sustainable Development Goals (SDGs). Using a conceptual research design supported by systematic literature review principles, the study analyzes historical Jadid educational mechanisms and contemporary literature on educational leadership, digital governance, self-efficacy, and competency-based learning. Jadid principles, including phonetic learning, visible knowledge, structured schooling, and ethical modernization, can be translated into digital governance, immersive learning, and education manager development. The study proposes a Jadid-Digital Educational Governance Model for improving inclusive, culturally grounded, and innovation-oriented education.



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## 1. INTRODUCTION

Contemporary education systems are increasingly shaped by digital transformation, institutional restructuring, and the global demand to achieve the Sustainable Development Goals (SDGs) (Maryanti *et al.*, 2022; Ragadhita *et al.*, 2026). Among these goals, SDG 4 is especially relevant because it emphasizes inclusive and equitable quality education and lifelong learning opportunities for all. In higher education, this transformation is reflected in credit-module reform, online and physical classroom challenges, blended education, and the growing need for innovation-oriented institutional governance (Khamitovna, 2022; Babalola and Oludare, 2024; Salomova, 2025; Glushchenko, 2025). In practice, achieving SDG 4 requires more than expanding access to schooling. It also requires effective educational leadership, digital governance, teacher professional development, curriculum innovation, and culturally responsive educational management.

Digital transformation has changed how schools and universities organize learning, manage data, communicate with stakeholders, and evaluate institutional performance. Educational Management Information Systems, data-driven planning, and evidence-based policy formulation have become important parts of modern educational administration (Dacholfany *et al.*, 2024; Prasad *et al.*, 2024). Studies on information and communication technology (ICT) availability, ICT-based teaching, and digital tools in education also show that technology use depends on accessibility, pedagogical readiness, and institutional support (Makinde *et al.*, 2023; Sanni, 2023; Jadhav *et al.*, 2022). However, digitalization alone does not guarantee educational quality. Technology must be integrated with pedagogical purpose, institutional ethics, leadership capacity, and local cultural relevance. Without these elements, digital governance may become administrative modernization without meaningful educational transformation (Solehuddin *et al.*, 2025).

Educational leadership is central to this issue because future education managers are expected to guide institutional change, manage digital infrastructure, support teachers, and maintain the quality of learning. Administrative preparation must be connected with quality education, strategic leadership, and SDG-oriented institutional development (Khimmataliev *et al.*, 2026a). Leadership skills also need to be developed through person-centered approaches because education managers must understand institutional relationships, human needs, and professional decision-making (Ra'no, 2026). Teacher self-efficacy and innovative work activities are important because education managers and teachers are more likely to implement new practices when they feel professionally capable and institutionally supported (Mukhamedov *et al.*, 2024). Self-efficacy is related to affective learning outcomes, occupational identity, and SDG-oriented education (Wiyanarti and Nurjannah, 2026; Yu *et al.*, 2026). Therefore, a strong educational governance model must combine digital systems, leadership competence, professional self-efficacy, and pedagogical innovation.

At the same time, many educational reforms in transitional societies face a cultural challenge. Modern educational policies are often imported from global models, while local historical pedagogical traditions are treated as separate historical topics rather than as resources for contemporary educational development. This creates a gap between digital modernization and cultural identity. In Central Asia, one important historical source for addressing this gap is Jadid pedagogy. The Jadid movement, which developed in the late nineteenth and early twentieth centuries, introduced new methods of teaching, modern textbooks, phonetic reading, visual learning materials, structured classrooms, public enlightenment, and ethical modernization. Historically, Jadidism represented an indigenous

educational reform movement that connected knowledge, social progress, national identity, and school improvement (Lazzerini, 1975). This historical orientation is relevant to current discussions on character education and culturally grounded curriculum because educational quality also depends on values, identity formation, and the ability of institutions to connect learning with social responsibility (Hidayatullah *et al.*, 2026).

Revisiting Jadid pedagogy is important because several of its educational mechanisms are closely related to contemporary educational needs. The Usul Jadid approach challenged rote memorization and emphasized comprehension, structured instruction, and active learning. The use of blackboards, maps, printed textbooks, and visual materials reflected an early commitment to making knowledge visible and accessible. These mechanisms can be reinterpreted in relation to modern learning management systems, digital textbooks, virtual reality, augmented reality, artificial intelligence, and data-driven educational governance. **Figure 1** presents the main idea of revisiting Jadid school pedagogy as a bridge between historical educational mechanisms and contemporary improvement.

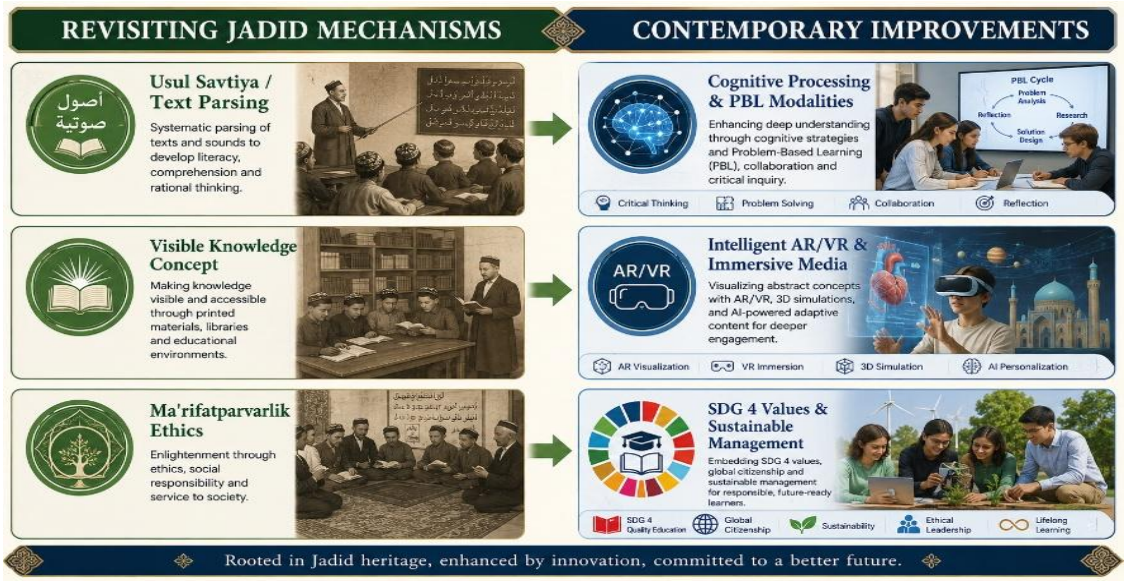


**Figure 1.** Revisiting Jadid school pedagogy.

Despite the historical importance of Jadid pedagogy, previous studies have often discussed Jadidism mainly from historical, political, or literary perspectives. Less attention has been given to how Jadid educational mechanisms can be translated into modern educational governance, digital learning systems, leadership preparation, and SDG 4-oriented institutional development. This creates a research gap because indigenous pedagogical heritage has not been fully used as a conceptual foundation for preparing future education managers and strengthening culturally grounded educational leadership.

This study aims to develop a conceptual framework that connects Jadid pedagogy with contemporary digital educational governance and SDG 4. Specifically, it examines how Jadid instructional mechanisms, such as phonetic-comprehension learning, visible knowledge, structured schooling, ethical education, and public enlightenment, can inform modern educational leadership, digital governance, teacher self-efficacy, and innovative educational management. The originality of this study lies in positioning Jadid pedagogy not merely as a historical movement but as a conceptual resource for designing digital, inclusive, culturally grounded, and SDG-oriented educational governance.

## 2. METHODS

This study employed a conceptual research design supported by systematic literature review principles. Although this study adopted systematic literature review principles, its main purpose was conceptual synthesis rather than a full systematic review or meta-analysis. This design was selected because the study aimed to construct a conceptual framework rather than test statistical relationships among variables. The main purpose was to reinterpret historical Jadid educational mechanisms and connect them with contemporary theories of digital governance, educational leadership, teacher self-efficacy, innovation, and SDG 4-oriented educational management.

The study analyzed two main bodies of literature. The first body consisted of historical and conceptual sources related to Jadid pedagogy, Usul Jadid, Central Asian educational reform, public enlightenment, visual learning, textbook development, and national educational identity. These sources were used to identify the core educational mechanisms of Jadid pedagogy. The second body consisted of contemporary literature on educational governance, digital transformation, education management information systems, leadership preparation, self-efficacy, ICT competence, competency-based learning, blended learning, and sustainable educational development. These sources were used to connect historical mechanisms with modern educational management needs, especially in relation to SDG 4, digital transformation, ICT-based learning, innovative management competence, and teacher professional development (Khamitovna, 2022; Salomova, 2025; Qizi and Muhabbat, 2024; Khamidullaevna and Muhabbat, 2024).

The literature selection process focused on relevance to three main criteria: (i) sources had to discuss Jadid pedagogy, Central Asian educational reform, or historical educational mechanisms; (ii) contemporary sources had to address educational leadership, digital governance, self-efficacy, ICT competence, competency development, or SDG-oriented education; (iii) sources had to contribute conceptually to the construction of a framework for future education managers. Materials that were unrelated to educational mechanisms, digital governance, or SDG 4 were excluded from the main synthesis.

The analysis was conducted in four stages: (i) the study identified major Jadid pedagogical mechanisms, including phonetic-comprehension learning, visual instruction, structured classroom organization, modern textbook use, public enlightenment, and ethical education; (ii) these mechanisms were compared with contemporary educational concepts such as active learning, problem-based learning, digital textbooks, learning management systems, immersive learning environments, and data-driven governance; (iii) the study mapped the relationship between historical mechanisms and SDG 4 targets, especially quality education, relevant skills, inclusion, and global citizenship; (iv) the results were synthesized into the Jadid-Digital Educational Governance Model.

Two analytical approaches guided the interpretation. Structural-functional analysis was used to examine how historical Jadid mechanisms functioned within their original educational context and how similar functions can be adapted to modern institutions. Axiological modeling was used to identify the educational values behind Jadid pedagogy, including enlightenment, ethical development, national identity, social responsibility, and access to knowledge. These values were then connected with digital educational governance and SDG 4. The validity of the conceptual synthesis was strengthened through source triangulation and thematic consistency. Historical sources were compared with contemporary educational

management literature to avoid treating Jadid pedagogy as a purely historical phenomenon. Contemporary studies on digital governance, self-efficacy, and educational leadership were also examined to ensure that the proposed model responds to current institutional challenges. Therefore, the framework should be understood as a theoretically grounded model that requires future empirical testing in schools, teacher education institutions, and educational management programs.

## 3. RESULTS AND DISCUSSION

### 3.1. Mapping Usul Jadid onto Active Learning Frameworks

The first finding shows that Usul Jadid introduced an important instructional shift from mechanical memorization to comprehension-based learning. Traditional scholastic models often emphasized repetition without sufficient understanding, while Jadid schools promoted phonetic reading, structured lessons, classroom interaction, and the use of printed textbooks. This shift is educationally important because it reflects an early form of student-centered learning in Central Asia. In contemporary education, this principle can be connected with active learning, problem-based learning, and competency-based instruction. Jadid pedagogy encouraged students to understand, discuss, and apply knowledge rather than merely repeat it. Interactive learning media and problem-based learning can improve learning outcomes, motivation, and SDG-oriented educational quality (Purnomo *et al.*, 2026; Saidirasilovna, 2025; Arifiani *et al.*, 2025). This approach is consistent with modern educational governance because SDG 4 requires learning systems that improve literacy, critical thinking, relevant skills, and equitable access to meaningful learning. Studies on teacher preparation and administrative training also show that educational quality depends on structured pedagogical mechanisms and competency-oriented development for future education managers (Khimmataliev *et al.*, 2026a). The comparison between the old scholastic model, the Jadid mechanism, and contemporary digital education is presented in **Table 1**. Jadid pedagogy can be interpreted as a bridge between historical classroom reform and modern digital education. Its main value lies in the movement from passive learning toward structured, visual, and meaningful learning. In the context of educational management, future education managers can use historical pedagogy as a conceptual basis for designing learning systems that are active, measurable, and aligned with SDG 4.

### 3.2. Digitalizing Visible Knowledge Through Immersive Educational Architecture

The second finding concerns the Jadid concept of visible knowledge. Jadid schools used maps, charts, blackboards, printed books, and visual aids to help students understand abstract concepts through concrete representations. This is important because visualization was already understood as an educational mechanism for improving comprehension. In modern contexts, this principle can be adapted through virtual reality, augmented reality, digital textbooks, interactive boards, podcasts, micro-learning videos, and learning analytics. Studies on ICT integration, intelligent tutoring systems, and ICT teacher development indicate that digital learning becomes more effective when technology is connected with instructional design, teacher competence, and curriculum-oriented implementation (Jadhav *et al.*, 2022; Ibrahim *et al.*, 2025; Ayinde *et al.*, 2026). Digital transformation in education should therefore not be understood only as the use of new devices. It should be understood as the redesign of learning environments. Thus, knowledge becomes more accessible, visible, interactive, and measurable. Digital learning is more effective when technology is organized through collaborative and cluster-based education models rather than isolated technical training

(Khimmataliev *et al.*, 2026b). This view is consistent with Jadid educational networks, which historically combined textbooks, printing technologies, teacher preparation, and school organization. Similar studies on learning initiation and innovation also show that educational improvement requires carefully designed communication, induction, and institutional support mechanisms (Sahra *et al.*, 2026).

**Table 1.** Comparative structural mapping of educational models.

| MECHANISM DIMENSION | SCHOLASTIC ROTE MODEL | HISTORICAL JADID MECHANISM | CONTEMPORARY DIGITAL CONFIGURATION |
|---|---|---|---|
| Epistemological core | Rigid memorization without comprehension. | Rational synthesis of knowledge, ethics, and social awareness. | Data-informed competency pathways aligned with SDG 4. |
| Instructional vector | One-way dictation and passive student participation. | Active dialogue, structured timetables, blackboards, and guided reading. | Multidirectional collaboration through cloud-based learning management systems. |
| Primary media | Manuscript copying and manual transcription. | Lithographic print media, textbooks, maps, and visual materials. | Digital textbooks, AI agents, 3D learning objects, AR/VR environments, and LMS platforms. |
| Assessment metric | Recall-based evaluation without clear learning evidence. | Periodic progression tracking, public demonstration, and teacher observation. | Continuous learning analytics, automated diagnostic rubrics, and competency-based assessment. |

The adaptation of Jadid's visible knowledge into contemporary digital learning systems is summarized in **Table 2**. The Jadid principle of visible knowledge can be transformed into an immersive educational architecture. For future education managers, this transformation has direct governance implications. Managers need to ensure that digital media are not used only for presentation but also for access, participation, feedback, and learning improvement. Therefore, digital educational governance should connect technology with pedagogy, student engagement, and institutional quality assurance.

### 3.3. Strengthening Managerial Self-efficacy Through Cultural Identity

The third finding shows that the professional self-efficacy of education managers can be strengthened when educational reform is connected with cultural identity. Self-efficacy refers to the belief that individuals can plan and execute actions needed to achieve institutional goals. In education, self-efficacy is important because managers and teachers who believe in their professional capacity are more likely to implement innovation, solve problems, and sustain institutional change (Mukhamedov *et al.*, 2024). This is consistent with studies showing that self-efficacy supports affective learning outcomes, occupational identity, and innovative work behavior in SDG-oriented educational settings (Wiyanarti and Nurjannah, 2026; Yu *et al.*, 2026). Jadid pedagogy provides a useful cultural foundation for strengthening this self-efficacy. If digital reform is presented as a purely external or imported model, education managers may experience resistance or cultural distance. However, when digital reform is connected with the Jadid legacy of enlightenment, modernization, public education, and visible knowledge, institutional change becomes more culturally meaningful. This interpretation can reduce resistance and help future education managers view innovation as a continuation of local educational heritage rather than as a rejection of it.

**Table 2.** Technological adaptation matrix for visible knowledge.

| HISTORICAL JADID VISUAL MECHANISM | TARGET COMPETENCY AREA | MODERN DIGITAL ADAPTATION TECHNOLOGY | SYSTEMIC GOVERNANCE METRIC |
|---|---|---|---|
| Lithographic maps and charts | Spatial reasoning, civic awareness, and socio-economic literacy. | 3D GIS engines, virtual reality, and digital historical spaces. | Spatial data literacy and global citizenship indicators. |
| Anatomical and scientific sketches | Empirical observation and scientific literacy. | Augmented reality overlays and interactive simulation tools. | Conceptual error reduction and laboratory safety awareness. |
| Classroom blackboard | Real-time text parsing, explanation, and collaborative problem-solving. | Smart boards, cloud-synchronized classrooms, and shared digital workspaces. | Collaborative task completion and student engagement analytics. |
| Periodicals and journals | Information competence, literacy, and public awareness. | Podcasts, micro-learning videos, online magazines, and digital repositories. | Digital literacy, micro-learning completion, and access indicators. |

The relationship between Jadid historical precedents and modern education manager competencies is summarized in **Table 3**. Future education managers need more than technical competence. They need the ability to connect institutional reform with cultural meaning, ethical responsibility, digital literacy, and strategic governance. This is where Jadid pedagogy becomes relevant to contemporary educational leadership. It provides a historically grounded source of confidence for managers who must lead digital transformation while maintaining national identity and educational values.

### 3.4. Operationalizing Sustainable Educational Management for SDG 4

The fourth finding shows that Jadid pedagogy can be connected directly with SDG 4-oriented educational management. SDG 4 emphasizes quality education, relevant skills, gender equality, inclusion, global citizenship, and lifelong learning. Recent studies on inclusive higher education and SDG-related educational innovation show that institutional practices, managerial perceptions, and learning media are important for widening access and improving educational quality (Maru, 2026; Amanullah *et al.*, 2026). Jadid reformers also viewed education as a tool for literacy, social modernization, civic awareness, and community development. Therefore, the relationship between Jadid pedagogy and SDG 4 is not forced; both share a concern for meaningful learning, social progress, and wider access to education. In this study, SDG 4 is positioned as the main sustainability goal. However, the model also indirectly supports broader SDG concerns, especially innovation, inclusion, decent work readiness, and cultural identity. For educational managers, SDG-oriented governance should not only focus on policy statements. It should be translated into curriculum design, digital access, learning analytics, teacher support, and institutional outcomes.

The connection between SDG 4 indicators, Jadid management concepts, and digital governance strategies is presented in **Table 4**. Jadid pedagogy can be operationalized as an SDG-oriented educational management framework. The table also clarifies that digital governance should not be separated from educational values. Learning analytics, open educational resources, digital platforms, and bilingual LMS systems should be used to support

literacy, skills, inclusion, and identity formation. In this sense, Jadid pedagogy can help future education managers connect digital transformation with the deeper goals of SDG 4.

**Table 3.** Competency framework for future education managers.

| CORE COMPETENCY DOMAIN | JADID HISTORICAL PRECEDENT | MODERN DIGITAL INDICATOR MATRIX | SELF-EFFICACY DRIVER |
|---|---|---|---|
| Strategic governance foresight | Independent school networks and community-supported reform. | Enterprise resource planning, school data systems, and institutional dashboards. | Stronger institutional autonomy and data-driven decision confidence. |
| Curriculum engineering | Transition from rote religious instruction to integrated secular-ethical curricula. | Competency-based curriculum personalization and digital curriculum mapping. | Greater control over instructional adaptation and labor-market relevance. |
| Ethical communication | Use of media for literacy, public enlightenment, and civic education. | Multi-channel stakeholder communication through LMS, portals, and digital platforms. | Higher transparency, community trust, and institutional legitimacy. |
| Technological adaptation | Rapid adoption of print technology and visual learning materials. | AI-supported assessment, automated grading, and digital learning diagnostics. | Reduced administrative burden and more time for mentoring and instructional leadership. |

**Table 4.** SDG-oriented educational management dimensions.

| SDG 4 TARGET INDICATOR | JADID MANAGEMENT CONCEPT INTERSECT | DIGITAL GOVERNANCE IMPLEMENTATION STRATEGY | INSTITUTIONAL OUTCOME TARGET |
|---|---|---|---|
| 4.1 Quality primary and secondary education | Usul Savtiya, systematic mastery, and structured literacy development. | Automated learning analytics for early reading intervention. | Uniform baseline literacy performance across regions. |
| 4.4 Relevant skills for decent work | Integration of vocational, economic, and practical sciences. | Collaborative project sandboxes and industry simulation platforms. | Increased employment readiness and workplace skills among graduates. |
| 4.5 Gender equality and inclusion | Advocacy for women's access to public schooling and knowledge. | Cloud-distributed open educational resources for remote and flexible access. | Balanced learning delivery independent of geography and social barriers. |
| 4.7 Global citizenship and local identity | Balance between global scientific learning and mother-tongue mastery. | Dual-language intelligent LMS platforms, including Uzbek and English interfaces. | Graduates capable of global participation without losing cultural identity. |

### 3.5. Jadid-Digital Educational Governance Model

Based on the synthesis above, this study proposes the Jadid-Digital Educational Governance Model (J-DEGM). The model explains how Jadid pedagogy can be transformed into a modern governance architecture for future education managers. The model consists of five connected layers: an axiological foundation, strategic management capacity, digital governance infrastructure, methodological innovation mechanisms, and improved

educational outcomes. This layered design is consistent with recent discussions of advanced educational institutions as innovation hubs and strategic actors in sustainable development, where institutional roles, pedagogical models, and innovation systems must be connected to SDG-oriented outcomes (Glushchenko, 2025; Glushchenko *et al.*, 2026). The conceptual architecture of this model is shown in **Figure 2**. The layers are as follows:

(i) The first layer is the revisited axiological engine. This layer represents the ethical and cultural values of Jadid pedagogy, including enlightenment, social responsibility, language preservation, public education, and intellectual openness. This layer is important because educational governance should be based on values, not only administrative procedures.

(ii) The second layer is strategic management capacity. This layer connects Jadid historical values with the professional self-efficacy of education managers, helping them lead reform with stronger cultural legitimacy.

(iii) The third layer is digital governance infrastructure. This layer includes cloud-based learning management systems, institutional data platforms, automated diagnostic analytics, and AI-supported decision-making.

(iv) The fourth layer is methodological innovation. This layer translates Jadid's visual and dialogic pedagogy into modern tools such as immersive virtual media, VR/AR environments, interactive applications, and intelligent tutoring systems.

(v) The fifth layer is improved educational outcomes. This final layer connects the model with SDG 4 by emphasizing literacy, inclusion, relevant skills, cultural identity, and critical awareness.

**Figure 3** summarizes how the model can be applied in institutional practice. The bottom layer represents innovative technology engines, including VR/AR tools, AI-supported systems, adaptive digital textbooks, and responsive learning media. The next layer represents systemic pedagogical methods, including active and reflective learning, problem-based learning, and object-based learning. The third layer represents structural governance through cloud LMS platforms, data-based quality assurance, and institutional monitoring. The top layer represents the axiological core, where Jadid heritage, SDG 4, ethical modernization, and national identity guide digital transformation.

### 3.6. Implications for Contemporary Educational Governance

The results have several implications for contemporary educational governance.

(i) Historical pedagogy can function as a resource for educational innovation. Jadid pedagogy should not be treated only as a topic of historical memory. It can provide conceptual tools for designing active learning, digital visualization, textbook development, teacher training, and values-based leadership.

(ii) Digital governance must be culturally grounded. Schools and universities should not adopt digital systems only because they are modern. Digital tools should be used to improve comprehension, access, participation, monitoring, and learning quality. This requires education managers who understand both digital infrastructure and pedagogical purpose.

(iii) The study highlights the importance of self-efficacy among future education managers. When managers understand that innovation has roots in national educational heritage, they may become more confident in leading reform. This is important because digital transformation often fails when teachers and managers

view technology as external pressure rather than meaningful educational improvement.

(iv) The results support the development of a curriculum for educational management programs. Future education managers should learn not only administrative theory but also historical pedagogy, digital governance, SDG-based planning, learning analytics, curriculum engineering, and ethical leadership. This integrated preparation can help managers lead institutions that are globally competitive and locally meaningful. It is also consistent with studies showing that innovative management competencies and professional competence formation should be developed through structured, innovation-oriented educational approaches (Qizi and Muhabbat, 2024; Khamidullaevna and Muhabbat, 2024).

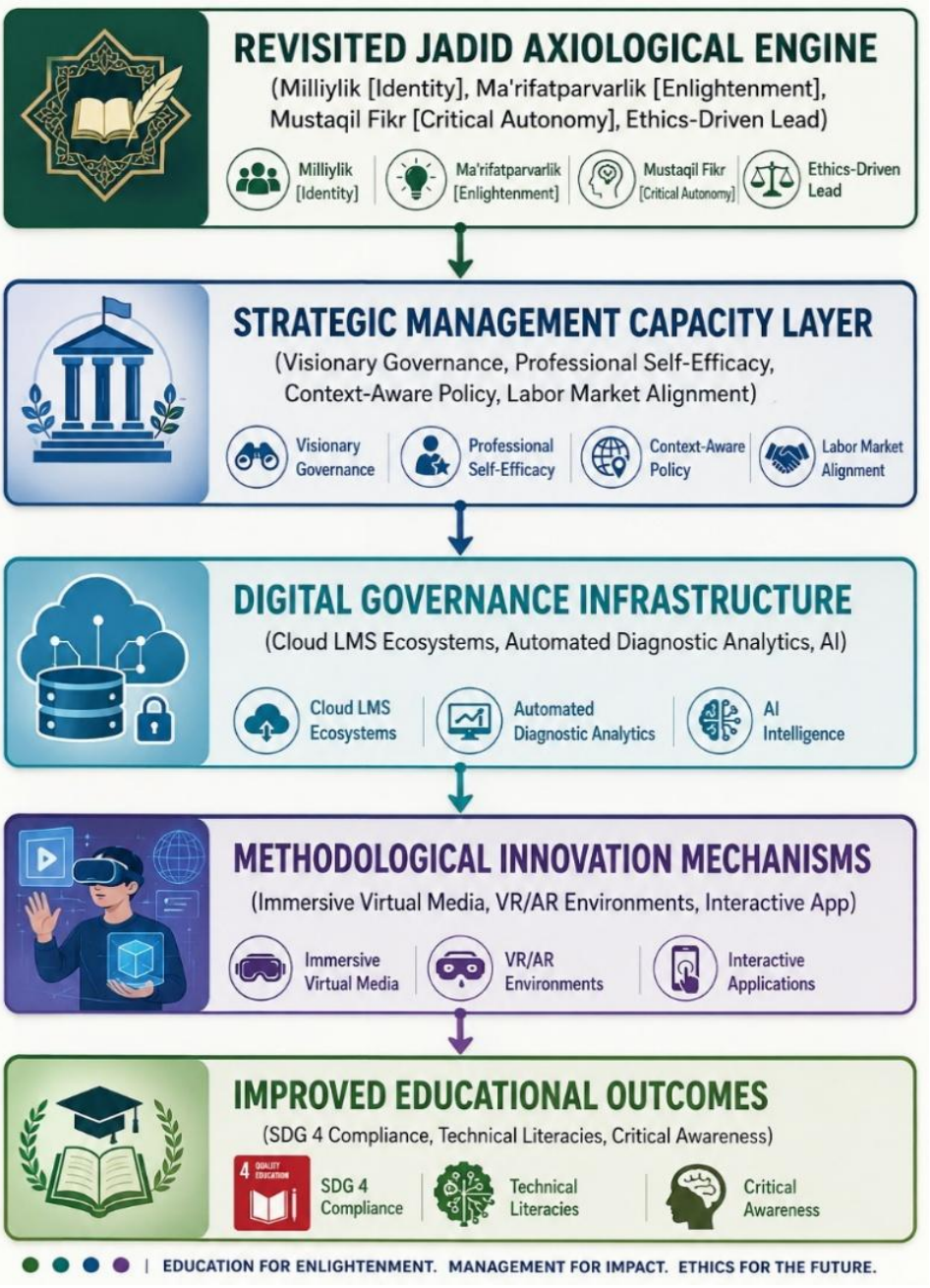


**Figure 2.** Jadid-Digital Educational Governance Model.


**Figure 3.** Jadid-Digital Educational Governance Model (J-DEGM).

Revisiting Jadid pedagogy provides a strong conceptual basis for SDG 4-oriented digital educational governance. The framework developed in this study shows that educational modernization does not require abandoning historical roots. Instead, historical pedagogical heritage can become a foundation for building inclusive, innovative, digitally capable, and culturally grounded educational institutions.

## 4. CONCLUSION

This study revisited Jadid pedagogy as a historical educational foundation for developing contemporary digital educational governance to support SDG 4. The analysis shows that Jadid mechanisms, including Usul Jadid, phonetic-comprehension learning, visible knowledge, structured schooling, textbook development, and public enlightenment, can be reinterpreted as resources for modern educational leadership and institutional management. The proposed Jadid-Digital Educational Governance Model (J-DEGM) connects historical pedagogical values

with digital governance infrastructure, active learning, immersive technology, professional self-efficacy, and SDG-oriented educational outcomes. This study contributes to educational management by showing that digital transformation does not require abandoning local pedagogical heritage. Instead, culturally grounded educational reform can strengthen institutional identity, improve manager self-efficacy, and support inclusive, innovative, and quality education. Future research should empirically test the J-DEGM framework in teacher education institutions, schools, and educational management programs.

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## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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