

University Governance in the Age of Artificial Intelligence: Opportunities, Challenges, and Institutional Requirements

La gouvernance universitaire à l'ère de l'intelligence artificielle : opportunités, défis et exigences institutionnelles

Dr. Asma Saadi,

Lecturer (Class B), Hassiba Benbouali University of Chlef, (Algeria)

Email: saadiasmaa62@gmail.com

Received: 01/3/2026

Accepted: 05/06/2026

Published: 22/08/2026

Abstract:

This study examines university governance in higher education institutions in the context of the rapid transformations driven by artificial intelligence (AI). It analyzes the potential of these technologies to advance university administration, enhance the quality of administrative and academic service delivery, support evidence-based decision-making, and promote institutional transparency, efficiency, and effectiveness. Furthermore, the study investigates the critical challenges that impede the effective deployment of AI within university governance frameworks, particularly technical, organizational, legal, human, data-related, and ethical hurdles. Methodologically, the paper adopts a descriptive-analytical approach, based on a critical review and synthesis of relevant academic literature and scholarly studies addressing artificial intelligence, university governance, digital transformation, and higher education administration.

The study does not employ primary empirical data; rather, it develops an analytical understanding of the opportunities and constraints associated with AI-enabled university governance. The findings indicate that while AI constitutes a potent catalyst for optimizing university governance and elevating institutional performance, maximizing its potential remains contingent upon establishing robust digital infrastructure, upskilling human capital, instituting transparent legal and ethical frameworks, strengthening data governance and protection mechanisms, and ensuring data security while mitigating the risks of algorithmic bias and unregulated or poorly governed technological adoption.

Keywords: Artificial Intelligence; University Governance; Higher Education; Digital Transformation; University Administration; Transparency; Decision-Making.

Résumé :

Cette étude examine la gouvernance universitaire au sein des établissements d'enseignement supérieur dans le contexte des transformations rapides induites par l'intelligence artificielle (IA). Elle analyse le potentiel de ces technologies pour moderniser l'administration universitaire, améliorer la qualité des services administratifs et académiques, soutenir la prise de décision fondée sur les données probantes et favoriser la transparence, l'efficacité et l'efficacité institutionnelles. L'étude s'intéresse également aux principaux défis qui entravent le déploiement

efficace de l'IA dans les dispositifs de gouvernance universitaire, notamment les contraintes techniques, organisationnelles, juridiques, humaines, liées aux données et éthiques. Sur le plan méthodologique, l'article adopte une approche descriptive et analytique fondée sur une revue critique et une synthèse de la littérature académique pertinente ainsi que des travaux scientifiques consacrés à l'intelligence artificielle, à la gouvernance universitaire, à la transformation numérique et à l'administration de l'enseignement supérieur.

L'étude ne repose pas sur des données empiriques primaires ; elle vise plutôt à développer une compréhension analytique des opportunités et des contraintes associées à une gouvernance universitaire fondée sur l'IA. Les résultats montrent que, bien que l'IA constitue un puissant catalyseur pour optimiser la gouvernance universitaire et améliorer la performance institutionnelle, la pleine exploitation de son potentiel demeure tributaire de la mise en place d'une infrastructure numérique robuste, du développement des compétences du capital humain, de l'instauration de cadres juridiques et éthiques transparents, du renforcement de la gouvernance et des mécanismes de protection des données, ainsi que de la garantie de la sécurité des données et de la réduction des risques liés aux biais algorithmiques et à l'adoption technologique non réglementée ou insuffisamment gouvernée.

Mots-clés: Intelligence artificielle ; gouvernance universitaire ; enseignement supérieur ; transformation numérique ; administration universitaire ; transparence ; prise de décision.

1. Introduction

Over recent decades, the global landscape has experienced rapid digital transformations that have fundamentally reconfigured operational paradigms and administrative workflows across diverse sectors. Artificial intelligence has emerged as one of the primary drivers of this transition, offering advanced capacities in data processing, process automation, predictive analytics, decision support, and service optimization. The integration of these advanced technologies is no longer confined to technical or corporate domains; it has extended to higher education institutions, which face growing demands to modernize their administrative frameworks and adapt to an increasingly dynamic digital ecosystem.

In this context, university governance represents a critical institutional framework designed to foster efficiency, transparency, accountability, and participatory management within higher education, thereby enhancing organizational performance and educational quality. The accelerating evolution of AI provides new opportunities to operationalize these principles through big data analytics, real-time administrative intelligence, process automation, optimized resource allocation, and key performance indicator (KPI) tracking. These capabilities facilitate a structural shift from traditional, bureaucratic administrative modalities toward agile, data-driven, and more responsive governance systems.

However, the deployment of AI in university governance is accompanied by substantial systemic challenges. The success of this digital transition cannot be achieved merely by procuring digital platforms or deploying algorithmic models; it requires modern technological infrastructure, skilled human capital capable of managing and auditing intelligent systems, and well-defined legal

and regulatory frameworks. Moreover, safeguarding data privacy, ensuring algorithmic accountability, and addressing ethical dilemmas associated with automated decision-making remain paramount. Barriers such as organizational inertia, weak digital literacy, financial constraints, and institutional resistance to change can severely undermine the efficacy of these technologies, impeding the realization of good governance objectives.

Consequently, examining the intersection of artificial intelligence and university governance is of paramount importance—not only to explore the transformative potential of intelligent systems in driving institutional excellence, but also to anticipate and mitigate the structural vulnerabilities that accompany their adoption. The transition toward AI-enabled university management must be grounded in a balanced strategic vision that synthesizes technological opportunities with the imperatives of ethical, secure, transparent, and equitable deployment.

1.1. Research Problem

In light of these transformative dynamics and the structural dilemmas surrounding the deployment of intelligent systems in academic environments, the central problem of this study concerns the extent to which artificial intelligence can be effectively integrated into university governance while preserving institutional accountability, human oversight, data protection, and ethical standards. Accordingly, the study addresses the following overarching research question:

To what extent can the adoption of artificial intelligence contribute to enhancing university governance and optimizing institutional performance in higher education, and what are the primary technical, human, organizational, legal, and ethical constraints limiting its efficacy?

This central problem generates several interrelated sub-questions:

1. What are the key opportunities and capabilities offered by AI to advance governance principles across higher education institutions?
2. What are the foremost technical, human, organizational, legal, and ethical challenges confronting the integration of AI into university governance?
3. What strategic mechanisms and institutional frameworks can be adopted to ensure the effective, safe, ethical, accountable, and responsible utilization of AI in university management?

1.2. Significance of the Study

The importance of this study stems from its focus on an intersectional domain at the intersection of artificial intelligence, digital transformation, institutional management, and university governance in higher education. Its significance is further highlighted by the pressing need to balance the operational advantages offered by AI with the necessity of mitigating its ethical, technical, legal, organizational, and regulatory risks.

Specifically, the study:

1. Demonstrates the strategic role of AI in reinforcing good governance principles, particularly transparency, operational efficiency, accountability, and data-informed decision-making.

2. Highlights the practical potential of intelligent systems in modernizing academic administration and institutional service delivery.
3. Diagnoses the structural bottlenecks, institutional constraints, and operational hurdles that impede the effective and responsible integration of AI in universities.
4. Contributes to formulating a balanced, holistic framework that harmonizes technological adoption with legal compliance, ethical integrity, and robust data security.

1.3. Objectives of the Study

In alignment with the formulated research problem and questions, this study aims to:

1. Clarify the conceptual foundations of university governance and examine its relationship with digital transformation and AI integration.
2. Analyze the strategic capabilities afforded by AI systems in enhancing administrative efficacy and institutional performance within universities.
3. Identify the principal technical, human, organizational, regulatory, and ethical obstacles hindering AI implementation in academic governance.
4. Define the foundational prerequisites necessary for the effective, secure, and ethical deployment of intelligent systems across higher education institutions.
5. Propose actionable institutional mechanisms and policy guidelines to reinforce effective, accountable, and responsive university governance in the digital era.

1.4. Methodology

To achieve these objectives and address the research questions, the study employs a descriptive-analytical approach based on a structured review and critical analysis of relevant academic literature and scholarly studies addressing artificial intelligence, university governance, digital transformation, and higher education administration. The study relies exclusively on secondary sources and does not involve a field survey, interviews, questionnaires, experiments, or other forms of primary empirical data collection. The methodological framework enables the study to identify and analyze the principal opportunities offered by AI for university governance and to examine the technical, organizational, human, legal, and ethical constraints associated with its implementation. The study is therefore theoretical and desk-based, and its conclusions constitute analytical interpretations derived from the reviewed literature rather than statistically generalizable empirical findings or causal estimates.

2. Artificial Intelligence in the University Environment

This section introduces artificial intelligence and examines its conceptual foundations, major applications, potential contributions, and limitations within the higher education environment, providing a basis for understanding its institutional implications for university governance.

2.1. Definition of Artificial Intelligence

The term "artificial intelligence" consists of two words: "intelligence" and "artificial," each carrying its own definition. Intelligence is the ability to perceive and understand circumstances and to learn from new and changing situations; in other words, the core of intelligence lies in

perception, comprehension, and learning. As for the word "artificial," it is derived from the verb "to make" or "to fabricate," and is thus applied to entities created and shaped as a result of an activity or action through synthesis, distinguishing them from things that exist naturally without human intervention.¹

Artificial intelligence may therefore be understood as the science and engineering of developing computational systems capable of performing cognitive tasks and generating outputs that resemble aspects of human intelligent behavior. These systems rely on software, computational models, algorithms, and increasingly large datasets to perform functions such as pattern recognition, prediction, classification, language processing, and decision support².

2.2. Definition of Artificial Intelligence in Education

Artificial intelligence in education refers to the capacity of intelligent systems and software to employ learning, reasoning, and data-analysis techniques to provide educational content and services tailored to the individual needs of each student.

Artificial intelligence has entered the field of education through its use in developing and adapting lessons to learners' abilities and learning patterns. AI-based educational software can collect and analyze data related to students' academic performance, learning patterns, response speed, and educational needs, enabling it to personalize educational content, provide feedback, support assessment processes, and assist teachers and administrators in making more appropriate and effective educational decisions³.

This also facilitates a shift from a standardized educational model toward more personalized and adaptive learning experiences, while requiring due consideration of data protection, privacy, transparency, bias mitigation, and the preservation of the essential role of human judgment in educational decision-making.

2.3. Contributions of Artificial Intelligence in Higher Education Institutions

Over the past decade, artificial intelligence (AI) has increasingly influenced numerous sectors, with higher education standing out as one of the fields experiencing significant transformation through this technology. The use of AI in universities and educational institutions is no longer merely a supplementary addition; rather, it has become an increasingly important

¹ - Abdelrazak Ahmed Mohamed El-Meery, "Al-Mas'ūliyyah al-Jinā'iyyah 'an Jarā'im al-Dhakā' al-Iṣṭinā'ī" [Criminal Liability for Artificial Intelligence Crimes], in *Mustaqbal al-Dhakā' al-Iṣṭinā'ī: al-Taḥaddiyāt al-Qānūniyyah wa-al-Akhlāqiyyah* [The Future of Artificial Intelligence: Legal and Ethical Challenges] (Berlin: Arab Democratic Center for Strategic, Political, and Economic Studies, 2024, p. 48.

² - Khaled Nasser Al-Sayed, *Aṣālat al-Dhakā' al-Iṣṭinā'ī* [Originality of Artificial Intelligence] Riyadh: Maktabat al-Rushd, 2004, p. 14.

³ - Mokhtar Bekkari, "Taḥaddiyāt al-Dhakā' al-Iṣṭinā'ī wa-Taṭbīqātuhi fī al-Ta'līm" [Challenges of Artificial Intelligence and Its Applications in Education], *Majallat al-Muntadā lil-Dirāsāt wa-al-Abḥāth al-Iqtisādiyyah* [Journal of Forum for Economic Studies and Research] 6, no. 1, 2022, p. 292.

component of the digital transformation of teaching, learning, research, assessment, and administration⁴.

Artificial intelligence is considered one of the significant technological developments affecting education in general and higher education in particular. AI has numerous contributions, some of which-though not exclusively-include:

- a. Flexible Learning:** AI allows for more flexible and personalized forms of education that suit students' diverse circumstances, such as synchronous and asynchronous learning, blended learning, and web-based lessons, enabling students to choose how and when they access educational content.
- b. Supporting Educators:** The impact of artificial intelligence is not limited to students alone; it extends to teachers by providing data-driven insights into student performance, improving teaching methods, and supporting the allocation of time and educational resources to meet students' needs⁵.
- c. Enhancing Interaction and Engagement:** Interaction can be stimulated through the use of systems such as educational games, simulations, and adaptive learning environments that make learning more engaging and enjoyable for students. These methods may increase involvement and maintain student focus, particularly in subjects that are complex or require deep thinking.
- d. Promoting Educational Equity and Inclusion:** AI can potentially expand access to educational resources and personalized learning opportunities, particularly for students in remote areas or those facing certain educational and socioeconomic constraints⁶.
- e. Accelerating Research and Development:** AI contributes to research efficiency through applications such as digital simulations, automated data analysis, literature discovery, and computational modeling. These applications can save time and resources in studying scientific phenomena and exploring research questions.⁷
- f. Expanding International Collaboration Among Researchers:** Intelligent platforms provide digital environments that facilitate the exchange of research information, publications, datasets, and findings among researchers, potentially enhancing scientific communication and interdisciplinary collaboration.⁸

2.4. Potential Drawbacks of Employing Artificial Intelligence in Education

⁴ - Houria Bebbah, "Istikhdāmāt al-Dhakā' al-Iṣṭinā'ī fī Qitā' al-Ta'līm al-Ālī: Qirā'ah Sūsiyūlūjiyyah" [Uses of Artificial Intelligence in the Higher Education Sector: A Sociological Reading], *Ḥawliyyāt Jāmi'at al-Jazā'ir I* [Annals of the University of Algiers I] 38, no. 3, 2024, p. 120.

⁵ - Amal Mohammed Abdullah Al-Badou, *Istirāṭijyyāt al-Dhakā' al-Iṣṭinā'ī* [Artificial Intelligence Strategies], 1st ed., 2024, p. 11.

⁶ - Houria Bebbah, *op. cit.*, p. 122.

⁷ - Anas Al-Moustaqil and Khadija Al-Ajj, "Ta'thīr al-Dhakā' al-Iṣṭinā'ī fī Jawdat al-Baḥth al-Īlmī" [The Impact of Artificial Intelligence on the Quality of Scientific Research], *Majallat al-Maqālāt al-Dawliyyah* [International Articles Journal], no. 5, September 2025, p. 5.

⁸ - *Ibid.*, p. 6.

Heavy reliance on student feedback and responses may steer algorithms toward providing academic content that merely facilitates an effortless learning experience rather than offering rigorous content and meaningful educational engagement. In this regard, AI systems that generate predictable, overly simplified, or biased outputs warrant careful scrutiny to determine whether they may undermine educational quality or reduce opportunities for critical thinking⁹.

In addition, automation may transform or displace certain tasks and occupational functions, particularly where institutions adopt AI primarily as a cost-reduction mechanism. Faculty members, teaching assistants, student advisors, and administrative staff may therefore face changes in their professional roles as intelligent tutoring systems, automated administrative tools, and chatbots become more widely used. Furthermore, students' overreliance on AI to substitute independent intellectual effort in preparing for exams, completing assessments, and drafting texts may weaken their writing, analytical, critical-thinking, and creative skills¹⁰.

3. University Governance: From Theoretical Foundations to Practical Challenges

This section examines the conceptual foundations and significance of university governance, focusing on its transformation in the digital era and the challenges associated with integrating AI into university management.

3.1. A Conceptual Introduction to University Governance

Governance in higher education refers to the structures, processes, relationships, and mechanisms through which higher education institutions are directed, managed, and held accountable. Put simply, university governance concerns the ways in which institutions establish objectives, allocate resources, make decisions, exercise authority, and ensure accountability. The concept of governance in post-secondary education therefore encompasses the internal structures, organization, administration, and decision-making processes of higher education institutions¹¹. It has also been defined as the application of principles, standards, and mechanisms that govern the performance of higher education institutions. This ensures sound strategic orientations, ethical practices, and institutional integrity, while guaranteeing transparency, accountability, and participation across relevant stakeholders. It prioritizes the institution's collective interest over

⁹ - Sidi Ahmed Kebdani and Abdelkader Baden, "Ahammiyyat Tawzīf Taṭbīqāt al-Dhakā' al-Iṣṭinā' ī fī Mu' assasāt al-Ta'lim al-'Ālī al-Jazā'iriyyah li-Ḍamān Jawdat al-Ta'lim: Dirāsah Maydāniyyah" [The Importance of Employing Artificial Intelligence Applications in Algerian Higher Education Institutions to Ensure Educational Quality: A Field Study], *Cahiers Bodax* 10, no. 1, 2021, p. 163.

¹⁰ - Fodil Delio, *Qaḍāyā Mu'āṣirah: min al-Milkiyyah al-Fikriyyah ilā al-Dhakā' al-Iṣṭinā' ī* [Contemporary Issues: From Intellectual Property to Artificial Intelligence] (Algiers: Dar Houma for Printing and Publishing, electronic edition, 2023, p. 216.

¹¹ - Abdelkader Belkhedher and Boualem Messaoudi, "Al-Ḥawkamah al-Jāmi'iyyah wa-Dawruhā fī Taḥsīn Mustawā Jawdat al-Ta'lim al-'Ālī" [University Governance and Its Role in Improving the Quality of Higher Education], *Majallat Dirāsāt Idārat al-A'māl wa-al-Iqtisād* [Journal of Business Administration and Economic Studies] 5, no. 1, June 2019, p. 185.

individual interests, thereby advancing institutional performance and safeguarding the interests of internal and external stakeholders¹².

It is therefore a central element in the reform of university education worldwide, as this concept is relatively recent and was developed by Clark in 1983 as one of the earliest approaches to classification. The concept focuses on how universities and higher education systems formulate and achieve their objectives, manage their institutions, and assess their record of accomplishments and performance¹³.

Authors Marginson and Considine defined it as "the determination of values within universities, their systems of decision-making and resource allocation, their missions and purposes, the patterns of authority and hierarchy, and the relationship of universities to the different academic institutions in society."¹⁴

3.2. The Significance of University Governance

Institutional governance in general, and university governance in particular, holds immense significance as it constitutes the organizational framework through which an institution operates and accomplishes its objectives. It serves as the cornerstone of university performance by enhancing operational efficiency, ensuring transparency, advancing scientific research standards, and supporting the quality and effectiveness of educational outcomes. Consequently, the importance of governance is reflected in the following dimensions:

- a. Balancing Strategic and Operational Priorities:** Maintaining a deliberate equilibrium between long-term strategic responsibilities and short-term operational obligations.
- b. Enhancing Competitiveness and Integrity:** Strengthening institutional competitiveness, mitigating administrative and financial corruption, and safeguarding university resources to ensure optimal investment.
- c. Protecting Institutional Rights:** Safeguarding the rights and interests of both administrative and academic staff and students without discrimination.
- d. Informing Strategic Decision-Making:** Assisting university leadership in formulating sound strategies and ensuring effective decision-making processes that enhance institutional performance.
- e. Risk and Conflict Mitigation:** Preventing and managing institutional risks and internal conflicts that hinder overall performance quality.
- f. Elevating Institutional Practices:** Advancing pedagogical and administrative practices while embedding equity, integrity, and transparency across all university operations.

¹² - Abdessalam El-Achheb and Faouzi Louhidi, "Jawdat al-Ta'lim al-'Ālī fī Zill al-Ḥawkamah al-Jāmi'iyyah" [Quality of Higher Education under University Governance], *Majallat al-Sirāj fī al-Tarbiyah wa-Qaḍāyā al-Mujtama'* [Al-Siraj Journal in Education and Societal Issues] 4, no. 4, December 2020, p. 45.

¹³ - Latifa Radjeb et al., "Athar Taf'īl Mabādi' al-Ḥawkamah fī Taḥsīn Jawdat Mukhrijāt Manzūmat al-Jāmi'ah al-Jazā'iriyyah" [The Impact of Activating Governance Principles on Enhancing the Quality of Outputs in the Algerian University System], *Majallat al-Ḥawkamah wa-al-Mas'ūliyyah al-Ijtimā'iyyah wa-al-Tanmiyah al-Mustadāmah* [Journal of Governance, Social Responsibility, and Sustainable Development] 2, no. 2, 2020, p. 138.

¹⁴ - Abdessalam El-Achheb and Faouzi Louhidi, *op. cit.*, p. 45.

- g. Delineating Roles and Oversight:** Separating regulatory ownership from administrative management and operational performance oversight.¹⁵
- h. Empowering Academic Councils and Committees:** Strengthening the capacity of academic bodies to establish optimal environments for education, research, and institutional administration.
- i. Broadening Decision-Making and Academic Dialogue:** Deriving academic decisions from comprehensive perspectives across faculty and university levels, stimulating sustained academic discourse between central administrations and colleges, and expanding administrative and pedagogical expertise within committees to ensure participatory governance in strategic decision-making.¹⁶

3.3. The Current State of University Governance Amid Digital Transformation

The higher education sector has recently witnessed a series of technological transformations driven by digitalization, information and communications technologies, cloud computing, data analytics, and artificial intelligence. These developments have significantly influenced institutional administration, communication, service delivery, teaching, learning, and scientific research.

Within this transformation, AI can support university governance by facilitating data analysis, administrative automation, resource allocation, performance monitoring, student-service management, predictive analytics, and decision support. AI-enabled systems may assist university leaders in processing large volumes of institutional data and identifying patterns that can inform strategic and operational decisions.

Furthermore, AI techniques assist in identifying academic performance deficiencies and providing instructors with actionable insights to enhance learning outcomes.¹⁷ However, these educational applications should be considered complementary to the governance dimension rather than a substitute for it.

The term "governance" was introduced to universities in 1983. In a report prepared by a team from the Center for Mediterranean Integration (CMI) in Marseille, university governance was recognized as a fundamental approach to reforming higher education—reflecting how

¹⁵ - Zohra Abbes, "Ḥawkamah al-Jāmi'āt ka-Madkhal li-Iṣlāḥ al-Ta'lim al-'Ālī bayna Ḥatmiyyat al-Taghyīr wa-Mu'awwiqāt al-Taṭbīq: Namādhij Jāmi'āt Dawliyyah fī Majāl al-Ḥawkamah" [University Governance as an Approach to Higher Education Reform: Between the Imperative of Change and Implementation Obstacles—International University Models in Governance], *Majallat al-Dafātir al-Iqtisādiyyah* [Cahiers Économiques] 10, no. 1, 2019, pp. 144–145.

¹⁶ - Naziha Mekideche, "Qiyās al-Ḥawkamah fī al-Jāmi'āt al-Jazā'iriyyah: Dirāsah Taḥlīliyyah fī Ḍaw' Natā'ij Biṭāqat Fahs al-Ḥawkamah lil-Bank al-Dawli" [Measuring Governance in Algerian Universities: An Analytical Study in Light of the World Bank's Governance Screening Card Results], *Majallat al-Ḥuqūq wa-al-'Ulūm al-Insāniyyah* [Journal of Law and Humanities], no. 34, April 2018, p. 490.

¹⁷ - Alaa Abdel-Khaleq Hussein et al., *Al-Dhakā' al-Iṣṭinā'ī: al-Mafāhīm wa-al-Tiqniyyāt-Dalīl Ta'limī lil-Ṭalabah* [Artificial Intelligence: Concepts and Techniques-An Educational Guide for Students], 1st ed. (Iraq: Dar Al-Sard for Printing and Publishing, 2024, p. 42.

universities and higher education systems fulfill their objectives, execute strategic plans, administer their institutions, and track institutional milestones.¹⁸

Given the rapid technological developments, particularly in the field of information and communications technology, its role has expanded significantly in promoting economic and social development and facilitating the transition toward a knowledge-based economy. This, in turn, contributes to the advancement of scientific research across countries and enhances its role in various fields.¹⁹

Numerous AI applications have emerged to support faculty members, researchers, students, and university administrators. Prominent tools used in academic and scientific contexts include:

- a. QuillBot:** QuillBot is an AI-powered platform that can assist users in paraphrasing, editing, and refining texts.
- b. ChatGPT:** ChatGPT is a generative AI system capable of processing and generating natural-language content, summarizing information, supporting brainstorming, and assisting with a range of academic and administrative tasks.
- c. ResearchRabbit:** This application is designed to **collect and organize scientific research**, providing researchers with an easy-to-use interface that enables them to search for topics, authors, and publications efficiently and conveniently²⁰. For example, the application uses artificial intelligence to scan the web for relevant scholarly articles. In addition, the AI-powered tool allows users to save articles and organize them in a personal library.²¹

Modern technology manifests in higher education across numerous practical dimensions, ranging from centralized portals established by the Ministry of Higher Education and Scientific Research and university platforms that bridge communication between students and faculty, to electronic enrollment systems for incoming baccalaureate holders and remote-learning platforms hosting interactive video lectures.²²

¹⁸ - Dalal Bouatrous and Mohamed Dahane, “Dirāsah Taḥlīliyyah wa-Muqāranah li-Qiyās al-Ḥawkamah fī ‘Ayyinah min al-Jāmi‘āt al-Jazā’iriyyah” [An Analytical and Comparative Study for Measuring Governance in a Sample of Algerian Universities], *Majallat al-Buḥūth al-Iqtisādiyyah wa-al-Mālīyyah* [Journal of Economic and Financial Research] 6, no. 2, December 2019, p. 298.

¹⁹ - Aboubakr Boussalem et al., “Muqāranah mi’yāriyyah li-qiyās al-ḥawkamah fī al-jāmi‘āt al-jazā’iriyyah” [A Benchmark Comparison for Measuring Governance in Algerian Universities], *Majallat Namā’ lil-Iqtisād wa-al-Tijārah* [Namaa Journal for Economics and Trade] 4, no. 1, June 2020, p. 139.

²⁰ - Kheira Abdelkarim and Nabila Marmat, “Athar Taṭbīqāt al-Dhakā’ al-Iṣṭinā’ī fī Taḥsīn Jawdat al-Ta’līm al-‘Ālī” [The Impact of Artificial Intelligence Applications on Improving the Quality of Higher Education], *Majallat Ma‘ārif* [Ma‘ārif Journal] 20, no. 2, December 2025, p. 622.

²¹ - Alaa Tuaimah, *Murāja‘at al-Adabiyyāt bi-Istikhdām al-Dhakā’ al-Iṣṭinā’ī* [Literature Review Using Artificial Intelligence] (College of Computer Science and Information Technology, University of Al-Qadisiyah, Iraq, 2024, p. 29.

²² - Randa Latrache and Mohamed Safou, “Ḥawkamah al-Idārah al-Iliktrūniyyah: Bayna Ḥatmiyyat al-Taghyīr wa-Mu‘awwiqāt al-Taṭbīq” [Governance of Electronic Administration: Between the Imperative of Change and

3.4. Obstacles to Implementing Artificial Intelligence in University Governance

Despite the significant progress made by Algeria in digital transformation and institutional modernization, the country continues to confront critical challenges affecting the implementation of AI-enabled governance. A multitude of structural obstacles may impede the effective adoption of AI within higher education institutions. These obstacles can be summarized as follows:

- a. High Infrastructure Costs and Connectivity Deficits:** High infrastructure and equipment costs constitute a major constraint, particularly where institutions face financial pressures. Such constraints may limit universities' ability to establish modern computing environments, secure digital platforms, and reliable data infrastructures. Furthermore, inadequate internet bandwidth and persistent network disruptions across administrative departments can negatively affect user experience and reduce confidence in digital platforms.²³
 - b. Maintenance Shortfalls and Limited Digital Literacy:** The scarcity of timely technical maintenance, coupled with limited specialized training among administrative staff, may lead to prolonged operational disruptions. In addition, insufficient digital literacy among some users may constitute a barrier to AI adoption, particularly where staff members lack confidence in using, evaluating, or supervising AI-supported systems.²⁴
 - c. Gaps in Legal and Regulatory Frameworks:** The absence of a clear and comprehensive legal and regulatory environment may undermine the responsible adoption of AI. Key concerns include data protection, cybersecurity, electronic transactions, accountability for automated decisions, intellectual property, transparency, and the verification and authentication of digital interactions.²⁵
- 4. Data Privacy, Security, and Ethical Risks:** Moreover, the integration of artificial intelligence raises profound ethical, privacy, and data-governance concerns, particularly regarding the collection, processing, storage, and use of personal information. Because AI systems may rely extensively on large datasets to optimize and refine educational and administrative processes, data collection can involve sensitive information relating to students, faculty members, and administrative staff.²⁶

Findings and Discussion

Implementation Obstacles], *Majallat al-Qānūn wa-al-Mujtama' wa-al-Sulṭah* [Journal of Law, Society and Power] 12, no. 1, 2023, p. 265.

²³ - *Ibid.*, p. 269.

²⁴ - Amal Boukacem, "Al-Taḥawwul al-iliktrūnī ka-khiyār istirāṭijī wa-ḍarūrah lil-iṣlāḥ al-idārī fī al-Jazā'ir" [Electronic Transformation as a Strategic Option and a Necessity for Administrative Reform in Algeria], *Al-Majallah al-Jazā'iriyyah lil-Siyāsāt al-Āmmah* [Algerian Journal of Public Policy], no. 8, October 2015, p. 39.

²⁵ - Lamia Tala, "Al-Idārah al-Ilīktrūniyyah wa-Dawruhā fī Taḥqīq al-Tanmiyah al-Idāriyyah: Bayna Ḥatmiyyat al-Taghyīr wa-Mu'awwiqāt al-Taṭbīq" [Electronic Administration and Its Role in Achieving Administrative Development: Between the Imperative of Change and Implementation Obstacles], *Majallat al-Idārah wa-al-Tanmiyah lil-Buḥūth wa-al-Dirāsāt* [Journal of Administration and Development for Research and Studies] 9, no. 2, December 2020, p. 197.

²⁶ - Houria Bebbah, *op. cit.*, p. 122.

The following findings are derived from the reviewed literature and highlight the main contributions of AI to university governance, its broad institutional applications, the constraints affecting its adoption, and the institutional requirements necessary for its effective integration.

4.1. Findings

- a. AI and University Governance:** The analysis indicates that artificial intelligence can contribute significantly to strengthening university governance by improving administrative efficiency, supporting data-informed decision-making, enhancing transparency and accountability, and facilitating more effective management of institutional resources and services. However, these benefits depend on the institutional capacity to integrate AI within existing governance structures and maintain appropriate human oversight.
- b. Broad Institutional Applications:** The reviewed literature suggests that AI has applications extending beyond administrative management to teaching, learning, scientific research, academic communication, student services, and digital platforms, thereby contributing to the broader digital transformation of higher education institutions. This indicates that the governance implications of AI should be considered across the institution rather than within administration alone.
- c. Interconnected Constraints:** The effective adoption of AI remains constrained by interconnected technical, human, organizational, legal, and ethical challenges. In particular, inadequate digital infrastructure, limited digital competencies, financial constraints, regulatory gaps, institutional resistance to change, and concerns regarding privacy and data security may hinder its effective integration into university governance.
- d. Institutional Readiness:** The successful transition toward AI-enabled university governance depends on institutional readiness rather than technology alone. Effective implementation requires qualified human resources, appropriate infrastructure, clear regulatory frameworks, ethical standards, data-protection mechanisms, risk-management procedures, and continuous human oversight of AI-supported processes and decisions.

4.2. Discussion

The findings demonstrate that the relationship between AI and university governance is not merely technological but fundamentally institutional. AI can enhance the speed, efficiency, and analytical capacity of university administration; however, these advantages do not automatically translate into better governance. Effective governance requires transparency, accountability, participation, institutional responsibility, and mechanisms through which technological decisions can be reviewed and challenged.

Accordingly, the adoption of AI should be understood as part of a broader process of digital institutional transformation. Universities that lack adequate infrastructure, qualified personnel, coherent regulatory frameworks, and effective data-governance mechanisms may face difficulties in realizing the expected benefits of AI. Conversely, institutions that combine technological innovation with organizational preparedness and human oversight are better positioned to use AI as a tool for improving administrative and institutional performance.

The analysis also highlights a fundamental tension between automation and human responsibility. Although AI can support decision-making by processing large volumes of data and identifying patterns, it should not be regarded as an autonomous substitute for institutional judgment, particularly in decisions affecting students, staff, academic careers, resource allocation, or institutional rights. Human oversight therefore remains a central requirement of responsible AI-enabled university governance.

5. Conclusion

In light of the preceding analysis, it can be concluded that artificial intelligence has become an increasingly important component of the transformation taking place within higher education institutions, particularly with regard to university governance and institutional management. Its applications offer significant opportunities to improve administrative efficiency, support data-informed decision-making, enhance the quality of academic and administrative services, facilitate resource management, and strengthen transparency and accountability.

Nevertheless, the effective integration of AI into university governance cannot be reduced to the adoption of technological tools or digital platforms. Rather, it requires an enabling institutional environment based on adequate digital infrastructure, qualified human resources, clear legal and regulatory frameworks, effective data-protection mechanisms, and ethical standards governing the use of intelligent systems.

The analysis further demonstrates that infrastructure deficiencies, limited digital literacy, financial constraints, regulatory gaps, resistance to organizational change, and concerns relating to privacy, security, and algorithmic accountability may significantly constrain the effective deployment of AI in higher education.

Accordingly, AI should be regarded not as a substitute for university governance and human decision-making, but as a technological instrument capable of supporting and strengthening them when appropriately regulated and institutionally integrated. The transition toward AI-enabled university governance therefore requires a balanced approach that combines technological innovation with institutional responsibility, human oversight, ethical safeguards, and legal compliance. Such an approach can enable universities to benefit from AI while preserving the principles of accountability, transparency, fairness, institutional autonomy, and human-centered governance.

Based on the foregoing findings and the challenges identified, a set of recommendations can be proposed to support the effective and responsible integration of artificial intelligence into university governance, as follows:

1. Higher education institutions should strengthen their digital infrastructure by improving network connectivity, upgrading technological equipment, developing secure digital platforms, and ensuring the availability of reliable technical support and maintenance services.
2. Universities should invest systematically in developing digital and AI-related competencies among academic and administrative staff. Continuous training should focus not only on the

technical use of AI tools but also on data literacy, critical evaluation of AI-generated outputs, cybersecurity, ethical awareness, and responsible AI use.

3. A comprehensive legal, institutional, and ethical framework should be developed for the use of AI in university governance. Such a framework should address data protection, privacy, cybersecurity, transparency, accountability, algorithmic bias, intellectual property, and the appropriate use of AI in institutional decision-making.
4. Universities should adopt a gradual, participatory, and human-centered approach to AI integration. AI systems should complement rather than replace human judgment, while their implementation should be accompanied by continuous evaluation, stakeholder participation, risk assessment, and mechanisms for monitoring their effectiveness and ethical implications.
5. Universities should establish mechanisms for periodically evaluating AI systems in terms of accuracy, effectiveness, fairness, transparency, security, and compliance with institutional and legal requirements.

6. References

1. Abbes, Zohra. “Ḥawkamah al-Jāmi‘āt ka-Madkhal li-Iṣlāḥ al-Ta‘līm al-‘Ālī bayna Ḥatmiyyat al-Taghyīr wa-Mu‘awwiqāt al-Taṭbīq: Namādhij Jāmi‘āt Dawliyyah fī Majāl al-Ḥawkamah” [University Governance as an Approach to Higher Education Reform: Between the Imperative of Change and Implementation Obstacles—International University Models in Governance]. *Majallat al-Dafātīr al-Iqtisādiyyah* [Cahiers Économiques] 10, no. 1 (2019).
2. Abdelkarim, Kheira, and Nabila Marmat. “Athar Taṭbīqāt al-Dhakā’ al-Iṣṭinā’ī fī Taḥsīn Jawdat al-Ta‘līm al-‘Ālī” [The Impact of Artificial Intelligence Applications on Improving the Quality of Higher Education]. *Majallat Ma‘ārif* [Ma‘ārif Journal] 20, no. 2 (December 2025).
3. Al-Badou, Amal Mohammed Abdullah. *Istirāṭijyyāt al-Dhakā’ al-Iṣṭinā’ī* [Artificial Intelligence Strategies]. 1st ed., 2024.
4. Al-Moustaqil, Anas, and Khadija Al-Ajj. “Ta’thīr al-Dhakā’ al-Iṣṭinā’ī fī Jawdat al-Baḥṭh al-‘Ilmī” [The Impact of Artificial Intelligence on the Quality of Scientific Research]. *Majallat al-Maqālāt al-Dawliyyah* [International Articles Journal], no. 5 (September 2025).
5. Al-Sayed, Khaled Nasser. *Aṣālat al-Dhakā’ al-Iṣṭinā’ī* [Originality of Artificial Intelligence]. Riyadh: Maktabat al-Rushd, 2004.
6. Bebbah, Houria. “Istikhdāmāt al-Dhakā’ al-Iṣṭinā’ī fī Qiṭā’ al-Ta‘līm al-‘Ālī: Qirā’ah Sūsiyūlūjiyyah” [Uses of Artificial Intelligence in the Higher Education Sector: A Sociological Reading]. *Ḥawliyyāt Jāmi‘at al-Jazā’ir 1* [Annals of the University of Algiers 1] 38, no. 3 (September 2024).
7. Bekkari, Mokhtar. “Taḥaddiyāt al-Dhakā’ al-Iṣṭinā’ī wa-Taṭbīqātuhu fī al-Ta‘līm” [Challenges of Artificial Intelligence and Its Applications in Education]. *Majallat al-Muntadā lil-Dirāsāt wa-al-Abḥāth al-Iqtisādiyyah* [Journal of Forum for Economic Studies and Research] 6, no. 1 (2022).
8. Belkhedher, Abdelkader, and Boualem Messaoudi. “Al-Ḥawkamah al-Jāmi‘iyyah wa-Dawruhā fī Taḥsīn Mustawā Jawdat al-Ta‘līm al-‘Ālī” [University Governance and Its Role in

- Improving the Quality of Higher Education]. *Majallat Dirāsāt Idārat al-A‘māl wa-al-Iqtisād* [Journal of Business Administration and Economic Studies] 5, no. 1 (June 2019).
9. Bouatrous, Dalal, and Mohamed Dahane. “Dirāsah Taḥlīliyyah wa-Muqāranah li-Qiyās al-Ḥawkamah fī ‘Ayyinah min al-Jāmi‘āt al-Jazā’iriyyah” [An Analytical and Comparative Study for Measuring Governance in a Sample of Algerian Universities]. *Majallat al-Buḥūth al-Iqtisādiyyah wa-al-Mālīyyah* [Journal of Economic and Financial Research] 6, no. 2 (December 2019).
 10. Boukacem, Amal. “Al-Taḥawwul al-iliktrūnī ka-khiyār istirātījī wa-ḍarūrah lil-iṣlāḥ al-idārī fī al-Jazā’ir” [Electronic Transformation as a Strategic Option and a Necessity for Administrative Reform in Algeria]. *Al-Majallah al-Jazā’iriyyah lil-Siyāsāt al-‘Āmmah* [Algerian Journal of Public Policy], no. 8 (October 2015).
 11. Boussaleme, Aboubakr, et al. “Muqāranah mi‘yāriyyah li-qiyās al-ḥawkamah fī al-jāmi‘āt al-jazā’iriyyah” [A Benchmark Comparison for Measuring Governance in Algerian Universities]. *Majallat Namā’ lil-Iqtisād wa-al-Tijārah* [Namaa Journal for Economics and Trade] 4, no. 1 (June 2020).
 12. Delio, Fodil. *Qaḍāyā Mu‘āṣirah: min al-Milkiyyah al-Fikriyyah ilā al-Dhakā’ al-Iṣṭinā‘ī* [Contemporary Issues: From Intellectual Property to Artificial Intelligence]. Algiers: Dar Houma for Printing and Publishing, electronic edition, 2023.
 13. El-Achheb, Abdessalam, and Faouzi Louhidi. “Jawdat al-Ta‘līm al-‘Ālī fī Zill al-Ḥawkamah al-Jāmi‘iyyah” [Quality of Higher Education under University Governance]. *Majallat al-Sirāj fī al-Tarbiyah wa-Qaḍāyā al-Mujtama‘* [Al-Siraj Journal in Education and Societal Issues] 4, no. 4 (December 2020).
 14. El-Meery, Abdelrazak Ahmed Mohamed. “Al-Mas’ūliyyah al-Jinā’iyyah ‘an Jarā’im al-Dhakā’ al-Iṣṭinā‘ī” [Criminal Liability for Artificial Intelligence Crimes]. In *Mustaqbal al-Dhakā’ al-Iṣṭinā‘ī: al-Taḥaddiyāt al-Qānūniyyah wa-al-Akhlāqiyyah* [The Future of Artificial Intelligence: Legal and Ethical Challenges]. Berlin: Arab Democratic Center for Strategic, Political, and Economic Studies, 2024.
 15. Hussein, Alaa Abdel-Khaleq, et al. *Al-Dhakā’ al-Iṣṭinā‘ī: al-Mafāhīm wa-al-Tiqniyyāt—Dalīl Ta‘līmī lil-Ṭalabah* [Artificial Intelligence: Concepts and Techniques—An Educational Guide for Students]. 1st ed. Iraq: Dar Al-Sard for Printing and Publishing, 2024.
 16. Kebdani, Sidi Ahmed, and Abdelkader Baden. “Ahammiyyat Tawzīf Taṭbīqāt al-Dhakā’ al-Iṣṭinā‘ī fī Mu‘assasāt al-Ta‘līm al-‘Ālī al-Jazā’iriyyah li-Ḍamān Jawdat al-Ta‘līm: Dirāsah Maydāniyyah” [The Importance of Employing Artificial Intelligence Applications in Algerian Higher Education Institutions to Ensure Educational Quality: A Field Study]. *Cahiers Bodax* 10, no. 1 (2021).
 17. Latrache, Randa, and Mohamed Safou. “Ḥawkamah al-Idārah al-Iliktrūniyyah: Bayna Ḥatmiyyat al-Taghyīr wa-Mu‘awwiqāt al-Taṭbīq” [Governance of Electronic Administration: Between the Imperative of Change and Implementation Obstacles]. *Majallat al-Qānūn wa-al-Mujtama‘ wa-al-Sulṭah* [Journal of Law, Society and Power] 12, no. 1 (2023).

18. Mekideche, Naziha. “Qiyās al-Ḥawkamah fī al-Jāmi‘āt al-Jazā’iriyyah: Dirāsah Taḥlīliyyah fī Daw’ Natā’ij Biṭāqat Faḥṣ al-Ḥawkamah lil-Bank al-Dawli” [Measuring Governance in Algerian Universities: An Analytical Study in Light of the World Bank's Governance Screening Card Results]. *Majallat al-Ḥuqūq wa-al-‘Ulūm al-Insāniyyah* [Journal of Law and Humanities], no. 34 (April 2018).
19. Radjeb, Latifa, et al. “Athar Tafīl Mabādi’ al-Ḥawkamah fī Taḥsīn Jawdat Mukhrijāt Manzūmat al-Jāmi‘ah al-Jazā’iriyyah” [The Impact of Activating Governance Principles on Enhancing the Quality of Outputs in the Algerian University System]. *Majallat al-Ḥawkamah wa-al-Mas’ūliyyah al-Ijtimā’iyyah wa-al-Tanmiyah al-Mustadāmah* [Journal of Governance, Social Responsibility, and Sustainable Development] 2, no. 2 (2020).
20. Tala, Lamia. “Al-Idārah al-Ilīktrūniyyah wa-Dawruhā fī Taḥqīq al-Tanmiyah al-Idāriyyah: Bayna Ḥatmiyyat al-Taghyīr wa-Mu‘awwiqāt al-Taṭbīq” [Electronic Administration and Its Role in Achieving Administrative Development: Between the Imperative of Change and Implementation Obstacles]. *Majallat al-Idārah wa-al-Tanmiyah lil-Buḥūth wa-al-Dirāsāt* [Journal of Administration and Development for Research and Studies] 9, no. 2 (December 2020).
21. Tuaimah, Alaa. *Murāja‘at al-Adabiyyāt bi-Istikhdām al-Dhakā’ al-Iṣṭinā’ī* [Literature Review Using Artificial Intelligence]. College of Computer Science and Information Technology, University of Al-Qadisiyah, Iraq, 2024.