

The Role of Artificial Intelligence Technologies in Enhancing E-Governance in Sports Institutions

دور تقنيات الذكاء الاصطناعي في تعزيز الحوكمة الالكترونية بالمؤسسات الرياضية

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Abstract: This study aimed to examine the role of artificial intelligence technologies in enhancing e-governance within sports institutions. The descriptive method was adopted due to its suitability for the nature of the study. The research relied on a sample of 40 administrators from the Directorates of Youth and Sports in the provinces of M'sila and Laghouat, selected through a comprehensive survey method due to the small size of the study population. A questionnaire was used as the primary tool for collecting information and data. The results demonstrated that artificial intelligence technologies play a crucial role in enhancing e-governance in sports institutions. The study also indicated that the use of artificial intelligence technologies has a positive impact on promoting transparency, accountability, and decision-making in sports institutions within the framework of e-governance.

Keywords: Artificial Intelligence, E-Governance, Sports Institutions.

المخلص: هدفت الدراسة الى معرفة دور تقنيات الذكاء الاصطناعي في تعزيز الحوكمة الالكترونية بالمؤسسات الرياضية، حيث تم استخدام المنهج الوصفي للاثمته لطبيعة الدراسة، والاعتماد على عينة مكونة من 40 إداري بمديرتي الشباب والرياضة لولايي المسيلة والأغواط تم اختيارهم بطريقة المسح الشامل لصغر حجم مجتمع الدراسة، كما تم الاعتماد على استمارة الاستبيان كأداة لجمع المعلومات والبيانات، وفي الأخير تم التوصل الى أن تقنيات الذكاء الاصطناعي لها دور كبير في تعزيز الحوكمة الالكترونية بالمؤسسات الرياضية، كما أظهرت الدراسة أن استخدام تقنيات الذكاء الاصطناعي لها أثر إيجابي في تعزيز الشفافية والمساءلة وصنع القرار بالمؤسسات الرياضية في ظل الحوكمة الالكترونية.

- الكلمات المفتاحية: الذكاء الاصطناعي، الحوكمة الالكترونية، المؤسسات الرياضية.

***Introduction and Problem Statement:**

In recent years, the digital field has experienced rapid growth that has transformed the nature of the work of various organizations. This transformation has imposed a new reality that requires reconsidering their roles, structures, management mechanisms, and operational processes. Digital evolution is no longer merely a technical option; rather, it has become a strategic pathway for enhancing efficiency, effectiveness, and performance in modern institutions. Among these institutions are sports organizations, which are witnessing increasing digital transformation across their multiple functions and activities.

In this context, artificial intelligence technologies have emerged as a technological force capable of transforming the environment of modern management. This is due to their ability to collect and analyze vast amounts of information and data with high accuracy, as well as their contribution to improving decision-making processes, thereby promoting management's ability to fulfill its objectives and enhance efficiency and effectiveness. Researcher Cherif Hamza defines artificial intelligence as "a branch of computer science and the ability of a system to accurately analyze external data, learn from it, and use it to achieve specific goals" (Cherif Hamza, 2025, p. 185)

Various recent studies and literature demonstrate that this major digital transformation must be accompanied by clear rules and procedures of sound governance that ensure fairness, transparency, and accountability, while linking investment in the digital environment with the intended goals and objectives of institutions. In this regard, Tahiri and Laadjal state that governance is a

contemporary administrative approach that encompasses a set of systems and laws regulating the relationship between management and employees, ensuring the enhancement of administrative efficiency and the improvement of institutional performance (Tahiri Mohamed El-Amine & Laadjal, 2025, p. 266).

Since the use of information and communication technologies has led to considerable changes and developments, e-governance has gained particular significance. It is regarded as an essential tool and a fundamental pillar for implementing and practicing modern administrative methods. It aims to use modern technologies by integrating the organization into a comprehensive operational system, supporting accurate decision-making, fostering transparency and accountability, and building an effective information system that maintains continuous readiness in performing administrative activities.

Sports institutions, which are among the most significant societal institutions, no longer limit their role to providing sports services only; rather, their functions have expanded far beyond that. With the expansion and diversification of activities and services, challenges have increased, requiring these institutions to implement fundamental changes in their organizational culture and adopt modern methods to align with developments in their competitive environment. This is particularly evident with the adoption of artificial intelligence technologies, which represent a pioneering strategic approach to strengthening the principles of e-governance such as transparency, integrity, accountability, ease of decision-making, and a sense of responsibility. These components

naturally contribute to building a more disciplined, efficient, and effective administrative system (Selma Issam Mohamed Nawar, 2026, p. 123).

the most significant studies addressing the variables of the present research is the study conducted by Selma Issam Mohamed Nawar (2026) entitled "Mechanisms for Using Ethical Artificial Intelligence in Enhancing Governance Principles in Administrative Decisions within Sports Clubs." The study aimed to identify the role of mechanisms for employing ethical artificial intelligence in enhancing governance principles in administrative decision-making by determining the present state of these mechanisms and the status of governance principales. The study sample consisted of 362 individuals from several Egyptian sports clubs. A questionnaire was utilized as the primary tool for collecting information and data. The findings demonstrated that Egyptian clubs continuously employ artificial intelligence and that the results generated by artificial intelligence are logically explained to justify the decisions taken within the management of these clubs.

Likewise, the study carried out by Bayan Ahmed Fawzi Khatib (2024) titled "The Impact of Artificial Intelligence Applications on E-Governance in the Management of Business Organizations" aimed to explore the positive effects of applying artificial intelligence to promote the efficiency and effectiveness of e-governance in the modern business environment. The study concluded that artificial intelligence applications contribute to fostering decision-making processes and promoting accountability and transparency, and that these

applications require continuous development and updating within administrative practices.

Based on the above, the current study seeks to identify the role of artificial intelligence technologies in enhancing e-governance in sports institutions. Therefore, the research problem statement can be formulated through the following main question:

Is there a role for artificial intelligence technologies in enhancing e-governance within sports institutions?

-Sub-Questions :

- What is the level of readiness of administrative competencies in sports institutions (managers and employees) to employ artificial intelligence in enhancing e-governance?
- Do artificial intelligence technologies play a role in enhancing transparency and accountability in sports institutions within the framework of e-governance?
- Do artificial intelligence technologies contribute to improving decision-making in sports institutions within the framework of e-governance?

-Main Hypothesis :

- Artificial intelligence technologies play a crucial role in enhancing e-governance within sports institutions.

-Sub-Hypotheses :

- The level of readiness of administrative competencies in sports institutions to use artificial intelligence in enhancing e-governance is moderate.
- Artificial intelligence technologies play a significant role in promoting transparency and accountability in sports institutions within the framework of e-governance.
- Artificial intelligence technologies play an important role in improving decision-making in sports institutions within the framework of e-governance.

-Study Objectives :

- Identifying the role of artificial intelligence technologies in enhancing e-governance within sports institutions.
- Determining the level of readiness of administrative competencies in sports institutions to use artificial intelligence in fostering e-governance.
- Exploring the role of artificial intelligence technologies in promoting transparency and accountability in sports institutions within the framework of e-governance.
- Examining the role of artificial intelligence technologies in improving decision-making in sports institutions within the framework of e-governance.

-Study Importance:

From a scientific perspective, the significance of this study stems from its focus on artificial intelligence as the independent variable. This technology has

attracted increasing attention among researchers in sports management due to its transformative potential. The dependent variable is e-governance, through which administrative work can evolve and indicate greater efficiency and effectiveness.

From a practical standpoint, this study contributes to identifying how artificial intelligence technologies can be used as a supportive tool to promote e-governance within sports institutions. This can be fulfilled by establishing an administrative system grounded in transparency and accountability, improving the quality of decision-making, and developing administrative performance. Moreover, it contributes to enhancing the quality of services provided through accurate and rapid decisions based on clear data and intelligent technological systems.

1. Methodological Procedures Adopted in the Study

1.1. Method and Tools

1.1.1. Explanatory Study:

In this study, a field visit was carried out to the Directorates of Youth and Sports in the provinces of M'sila and Laghouat. Interviews were conducted and a preliminary questionnaire was distributed to a sample of administrators working in these two directorates, estimated at eight (8) administrators, with the aim of identifying the study sample and collecting the necessary data associate with the research topic.

1.1.2. Research Method:

The descriptive method was adopted due to its suitability for the nature of the study.

1.1.3. Study Population:

The study population consisted of all administrators working in the Directorates of Youth and Sports in the provinces of M'sila and Laghouat, totaling 40 administrators.

1.1.4. Study Sample and Selection Method:

The study sample consisted of 40 administrators distributed across the Directorates of Youth and Sports in the provinces of M'sila and Laghouat. They were selected employing the comprehensive survey method due to the small size of the study population.

1.1.5. Study Delimitations:

- **Temporal Delimitation:** The study was conducted from January 2026 to March 2026.
- **Spatial Delimitation:** The study was limited to the Directorates of Youth and Sports in the provinces of M'sila and Laghouat.
- **Human Delimitation:** Questionnaires were distributed to administrators working in the Directorates of Youth and Sports.

1.1.6. Data Collection Tools:

Two questionnaires were used to collect the necessary information and data. The first questionnaire addressed the items related to the independent variable and consisted of seven (7) items. The second questionnaire concerned the dependent variable and included fourteen (14) items. This questionnaire was divided into

two dimensions: accountability and transparency, and administrative decision-making, with seven (7) items allocated to each dimension. A five-point Likert scale was adopted for measurement.

1.1.7. Scientific Conditions of the Instrument

A. Reliability and Validity of the Questionnaire for the Independent Variable (Artificial Intelligence Technologies):

1. Reliability:

To calculate the reliability coefficient, the internal consistency method (Cronbach's Alpha) was utilized.

Table (01): Illustrates the reliability of the independent variable questionnaire utilizing Cronbach's Alpha.

Items of the Independent Variable: Artificial Intelligence Technologies	Cronbach's Alpha Coefficient	Items N ^o
Artificial Intelligence Technologies	0.950	10

Source: Prepared by the researcher

This table indicates that the Cronbach's Alpha coefficient for the dimension reached 0.95, which demonstrates that the questionnaire has high reliability and that there is strong consistency and coherence among its items.

2. Validity: Internal Consistency Method

- Correlation between the individual items and the total score of the questionnaire as a whole:

Table (02): Shows the correlation matrix of the dependent variable with its total score

All items	The section as a whole
	0.942
The correlation is significant at (0.05).	

By calculating internal consistency, it was found that the Pearson correlation coefficient was statistically significant. Therefore, this questionnaire is considered valid, as its items are consistent with each other and with the questionnaire as a whole.

B. Reliability and Validity of the Questionnaire (E-Governance):

1. Reliability:

Table (03): Indicates the reliability of the dependent variable questionnaire employing Cronbach's Alpha.

Sports Marketing Items	Cronbach's Alpha Coefficient	Items N ^o
Accountability and Transparency	0.947	07
Administrative Decision-Making	0.968	07
Total	0.957	14

Source: Prepared by the researcher

From the table above, it is evident that the questionnaire indicates high reliability, as the Cronbach's Alpha coefficient reached 0.957, demonstrating strong consistency and coherence among its items.

2. Validity: Internal Consistency Method

- Correlation between the dimensions and the total score of the questionnaire as a whole:

Table (04): Shows the correlations of the dependent variable dimension with its total score

Dimensions	Total Score
Accountability and Transparency	0.862
Administrative Decision-Making	0.882
The correlation is significant at $\alpha = 0.01$.	

Source: Prepared by the researcher

Table 4 indicated that the Pearson correlation coefficient between the total score of the Transparency and Accountability dimension and the total score of the questionnaire as a whole was 0.862, while the correlation between the total score of the Administrative Decision-Making dimension and the total score of the questionnaire was 0.882. Both values are statistically significant, demonstrating that the questionnaire is valid, as its dimensions are consistent with the questionnaire as a whole.

1.1.8. Statistical Methods Utilized in the Study: The study relied on the Statistical Package for the Social Sciences (SPSS v25) and employed several statistical methods:

- Pearson correlation coefficient and Cronbach's Alpha
- Simple linear regression
- F-test for statistical significance to detect differences
- T-test for comparing two different samples
- Levene's test for homogeneity of variances

2. Presentation, Interpretation, and Discussion of Results

2.1. Presentation and Analysis of the Study Variables

Independent Variable (Artificial Intelligence Technologies):

Table 5: Presents the means and standard deviations of the items associated with artificial intelligence technologies.

N°	Independent Variable Items (Artificial Intelligence Technologies)	Sample Size	Mean	Standard Deviation
01	There is encouragement to use artificial intelligence tools.	40	3.18	1.037
02	There is a readiness to implement artificial intelligence tools.	40	3.39	1.092
03	Your organization has accurate databases.	40	2.90	1.164
04	Training programs related to artificial intelligence tools are provided to you.	40	3.17	1.047
05	Using artificial intelligence tools contributes to improving your efficiency.	40	2.82	1.175
06	Efforts are made to provide the material and technical requirements to encourage the use of artificial intelligence tools.	40	3.18	1.245
07	Focus on building the necessary digital competencies.	40	2.68	1.152
Dimension as a whole		40	21.35	2.902

Based on the means and standard deviations obtained, it is apparent that all items fall within the moderate range (2.60–3.40). Item number 2, which states, “There is a readiness to apply artificial intelligence tools,” ranked first with a mean of 3.39 and a standard deviation of 1.092. This demonstrates a positive response concerning the current significance of effectively using artificial

intelligence tools and being optimally prepared to implement them in sports institutions to facilitate administrative work. Such readiness enables the creation of an advanced digital environment that contributes to promoting e-governance and fulfilling its objectives.

Given the overall mean, the attitudes of the study sample are positive, indicating agreement that the level of readiness of human competencies to use artificial intelligence tools for enhancing e-governance is moderate.

As for the Dependent Variable (Enhancing E-Governance):

A. First Dimension (Accountability and Transparency):

Table 6: Illustrates the means and standard deviations of the items within this dimension.

Nº	Dimension 1 Items (Accountability and Transparency)	Sample Size	Mean	Standard Deviation
08	Artificial intelligence tools contribute to creating a transparent and accountable environment.	40	3.71	1.133
09	Artificial intelligence tools help detect administrative corruption.	40	2.84	1.157
10	Artificial intelligence contributes to presenting financial and administrative reports clearly.	40	3.42	1.051
11	Ensuring problems within the organization are solved transparently and openly.	40	3.56	1.081
12	Artificial intelligence tools enhance the application of e-governance with transparency.	40	2.84	1.086
13	Helps detect violations and anomalies in the data.	40	3.59	1.019
14	Allows providing information that is transparent while protecting privacy.	40	3.07	1.158
Dimension as a whole		40	23.06	2.996

Based on the means and standard deviations obtained, it was noticed that items 8, 10, 11, and 13 fall within the high range (3.40–4.20). Item number 8, which states, “Artificial intelligence tools contribute to creating a transparent and accountable environment,” ranked first with the highest mean of 3.71 and a standard deviation of 1.133. This demonstrates a strong level of agreement among respondents, emphasizing that artificial intelligence tools facilitate the provision and accurate processing of information and data through e-governance. In turn, this contributes to detecting errors and irregularities, thereby promoting accountability and supporting the effective implementation and fostering of e-governance principles.

Considering the overall mean of the second dimension, which reached 23.06, the attitudes of the study sample are positive, revealing that respondents agree that artificial intelligence tools contribute to enhancing transparency and accountability in the sports institutions under study.

B. Second Dimension (Decision-Making):

Table 7: Indicates the means and standard deviations of the items within this dimension.

N°	Dimension 2 Items (Administrative Decision-Making):	Sample Size	Mean	Standard Deviation
15	Decisions in your organization are made based on accurate and clear information.	40	3.17	1.016
16	Artificial intelligence tools provide deep insights into the available data.	40	3.54	1.053
17	Artificial intelligence contributes to tracking administrative steps and decisions.	40	2.87	1.303
18	Adopting artificial intelligence technologies help facilitate decision-making.	40	2.84	1.198
19	It enables the organization to analyze big data quickly and accurately, assisting in making informed decisions.	40	3.06	1.258
20	Helps you predict the future and provide a vision for better decision-making.	40	2.90	1.122
21	Artificial intelligence helps you build well-planned strategies.	40	3.64	0.997
Dimension as a whole		40	22.04	3.036

Based on the means and standard deviations calculated, it was observed that items 16 and 21 fall within the high range (3.40–4.20). Item number 21, which states, “Artificial intelligence helps you develop carefully considered strategies,” ranked first with the highest mean of 3.64 and a standard deviation of 0.997. This shows a strong level of agreement, suggesting that artificial intelligence

tools, within the framework of e-governance, assist in developing well-planned strategies by analyzing multiple data and information, predicting future trends and potential risks, and thereby providing a clear vision for making accurate administrative decisions.

According to the overall mean of the third dimension, which reached 22.04, the attitudes of the study sample are positive, demonstrating that respondents agree that artificial intelligence tools contribute to enhancing administrative decision-making in the sports institutions under study within the context of e-governance.

2.2. Interpretation and Discussion of the Findings

To verify the main hypothesis, several statistical methods were used, and the results were as follows:

Table 8: Illustrates the interactive relationship between artificial intelligence technologies and e-governance.

Study Variables		E-Governance	Variance (F)	Effect Size	Coefficient of Determination	Interpretation
Artificial Intelligence Technologies	Pearson's Correlation Coefficient	0.881	95.817	0.655	0.616	The effect size is very large.
	Significance Level	0.00	0.00			
	Sample Size	40				
The correlation is statistically significant at the significance level $\alpha = 0.01$.						

Based on the findings presented in the table above, it is clear that the F-value reached 95.81, which is statistically significant, showing an interaction between

the two variables. This is further confirmed by the coefficient of determination (R^2), which reached 0.61, exceeding the threshold of 0.14. Furthermore, the Pearson correlation coefficient between the Artificial Intelligence Technologies questionnaire and the E-Governance questionnaire is strong and positive, revealing a direct correlation. The effect size reached 0.65, which also demonstrates a very large effect, as it exceeds 0.20. Considering the statistical significance of this interaction at $\alpha = 0.01$, it can be concluded that this result supports our research hypothesis that artificial intelligence technologies play a crucial role in promoting e-governance in sports institutions.

Examining the various findings obtained, all of which align with the general hypothesis and are statistically significant, confirms that artificial intelligence technologies have a major role in enhancing e-governance in sports institutions. This occurs through promoting transparency and accountability by monitoring the different phases of administrative processes within sports administration, which increases transparency and reduces opportunities for administrative corruption. It also ensures the clarity and accuracy of information and data, while helping to identify irregularities, thereby further fostering accountability. This result is supported by Bayan Ahmed (2024), who concluded that “artificial intelligence technologies strongly contribute to enhancing transparency and accountability.” Similarly, the study by Zeghlache et al. (2026) found that “artificial intelligence contributes to improving the level of transparency within the Directorates of Youth and Sports.” Moreover, artificial intelligence technologies were found to play a crucial role in decision-making, providing

deep insights into collected data and available information. This helps decision-makers anticipate future trends and develop clear strategies, enabling better, faster, and more effective decisions to fulfill the objectives of sports institutions. This is supported by Bayan Ahmed (2024), who stated that “artificial intelligence applications offer a comprehensive, multidimensional approach that integrates technology, management, and law, ensuring precise administrative decisions and urgent solutions.” Similarly, Samar Haider Amasha (2025) concluded that “integrating artificial intelligence into management has a positive impact on increasing transparency and facilitating administrative decision-making.”

Based on the above, the researcher emphasizes the importance of relying on artificial intelligence technologies, which have become among the most prominent technological innovations, creating a qualitative transition in e-governance. AI serves as a supportive tool to promote and implement its principales, ensuring the optimal use of modern technologies and fulfilling strategic alignment between digital resources and the objectives of sports institutions. These objectives include improving efficiency and effectiveness in performance and leveraging the latest technological advancements. Therefore, sports institutions must exert greater efforts to build a suitable digital environment by using human, material, and technological resources within the framework of e-governance. The findings align with several studies, encompassing Bayan Ahmed (2025), who demonstrated that “there is a broad positive impact of artificial intelligence applications on enhancing e-governance in business organizations,” and Al-Sayebah (2022), who confirmed that “e-

governance and digital maturity explain a significant proportion of variance in institutional performance, reflecting the effect of these practices on improving multiple services and operations.”

3. Conclusions and Recommendations:

This study examined the role of AI technologies in enhancing e-governance. It was conducted among administrative staff working in the Directorates of Youth and Sports in the provinces of M'sila and Laghouat. The research concluded the following:

- AI technologies play a crucial role in promoting e-governance in sports institutions.
- The readiness of administrative competencies in sports institutions to use AI for enhancing e-governance is moderate.
- The use of AI in sports institutions has a positive effect on transparency and accountability.
- AI technologies contribute to enhancing decision-making processes in sports institutions within the framework of e-governance.
- The study emphasized the contributions of e-governance in improving the effectiveness of modern sports management.
- The study found that administrations with the most advanced digital environments are better able to use AI, implement e-governance, and fulfill their desired objectives.

Based on these findings, numerous key recommendations are proposed:

- Sports institutions should focus on developing digital human competencies necessary to leverage the capabilities of AI in e-governance.
- Sports institutions should adopt a strategic vision for utilizing AI technologies and integrate them into management and administration.
- Training programs should be implemented for leaders and administrative staff in sports institutions on applying e-governance in the context of AI.
- Sports institutions must ensure the provision of financial and technological resources necessary to benefit from AI technologies.
- Further research should be conducted on the significance of AI technologies and their impact on e-governance.

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