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The Effectiveness of Integrating Artificial Intelligence and Strategic Management in Developing Higher Education Institutions (An Applied Study of University Students in the Kingdom of Saudi Arabia in the View of 2030 Vision)

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Abstract:

This study aims to assess the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions in the Kingdom of Saudi Arabia, in light of the ambitious goals outlined in the Saudi Vision 2030. This study adopts an integrative approach, combining artificial intelligence as an advanced technological tool with the principles of strategic management as an organizational and planning framework that guides higher education institutions toward progress and sustainability. The study was field-applied to a sample of Saudi university students to gauge their views on the impact of artificial intelligence and strategic management on the development of their educational institutions, as well as the extent to which this impact has been reflected in the quality of educational services, aligning with labor market requirements. The study employed a descriptive-analytical approach and utilized a questionnaire as the primary data collection tool. The results were statistically analyzed to test hypotheses and interpret the relationship between variables. The study demonstrated a statistically significant relationship between the integration of AI and strategic management and the development of higher education institutions, in terms of improving the quality of educational outcomes and forecasting the future in line with Vision 2030.

Keywords: Artificial Intelligence, Strategic Management, Development of Higher Education Institutions, 2030 Vision

1. Introduction:

Modern technology, with all its applications, is considered one of the most prominent factors that have shaped development features in various fields, particularly the higher education sector. The world is currently in a rapid digital revolution, with artificial intelligence at its prominent axis, playing a pivotal role in improving the quality of education and upgrading management efficiency in educational institutions. Its importance lies in how modern technology can be integrated with strategic management to achieve educational and development goals.

Higher education in Saudi Arabia is undergoing a major transformation in line with the Kingdom's vision, which seeks to achieve a comprehensive digital transformation across all sectors, including education. The vision sets an ambitious goal to enhance the quality of education in Saudi universities, aligning with the needs of both the local and global labor markets.

1.1. Study problem:

The study problem is represented in the following main question:

- How effective is the integration of artificial intelligence and strategic management in developing higher education institutions? The following questions arise from this:
- To what extent is artificial intelligence (AI) being utilized in higher education institutions?
- How is strategic management applied in higher education institutions?
- What is the degree of integration between artificial intelligence and strategic management?
- What is the impact of this integration on the quality of education and educational services in higher education institutions?
- What is the level of student awareness of the importance of integration between artificial intelligence and strategic management in higher education institutions?

1.2. Importance of the study:

This study is a contemporary topic that warrants further research and critical thinking, particularly given the growing importance of technology in education and its direct impact on students and the performance of academic institutions. The importance of this study lies in the following:

- Scientific importance: The research contributes to bridging the knowledge gap regarding the integration of artificial intelligence with strategic management in higher education institutions, due to the scarcity of published research in this field.

- Practical significance: The study presents several scientific recommendations and proposals for decision-makers in higher education institutions to benefit from achieving digital transformation and developing institutional performance in line with the 2030 Vision.

1.3. Study hypotheses:

The study seeks to test the following hypotheses:

1- There is a statistically significant relationship between artificial intelligence in higher education and the quality of higher education.

2- There is a statistically significant relationship between strategic management practices and the quality of higher education.

3- There is a statistically significant relationship between the integration of artificial intelligence and strategic management and the quality of higher education.

4- There is a statistically significant relationship between integration in the vision of 2030 Vision and the quality of higher education.

1.4. Study objectives:

The study aims to achieve the following objectives:

1- Identify the utilization level of artificial intelligence in higher education institutions in the Kingdom of Saudi Arabia.

2- Analyze the effectiveness of the integration between artificial intelligence and strategic management in higher education institutions.

3- Measure student awareness of the importance of integration between artificial intelligence and strategic management.

4- Provide recommendations for improving integration, which will contribute to achieving the goals of the Kingdom 2030 Vision in higher education.

1.5. Study variables:

Independent variable: Artificial intelligence - strategic management.

Dependent variable: Development of higher education institutions.

1.6. Study delimitations:

Subject limits: This study examines the effectiveness of integrating artificial intelligence and strategic management in enhancing the development of higher education institutions.

Spatial delimitations: The research was conducted among students enrolled in various disciplines at Saudi universities.

Temporal delimitations: The study was carried out during the year 2025.

2. Previous studies:

1- Hang, H., & Lu, Y. (2019) (*Integrating Artificial Intelligence in Strategic Decision-Making: A Framework for Organizations*

The study proposed a conceptual framework for integrating artificial intelligence into the strategic decision-making process within organizations, aiming to reduce uncertainty and enhance the effectiveness of available options. The study demonstrated that artificial intelligence can be used as a decision-making support tool by providing multiple perspectives on future scenarios and reducing human bias in choosing alternatives.

2- Wade, M. (2020) *(Strategic Alignment and the Role of Artificial Intelligence in Organizations)*

This study aimed to examine the extent to which artificial intelligence aligns with organizations' strategic orientations and analyze its role in improving organizational adaptation to environmental changes. The study concluded that organizations with a clear artificial intelligence adoption strategy achieve higher levels of organizational efficiency and exhibit greater flexibility in their adoption in response to market changes.

3- Westerman, G., & Ancona, D. (2021) *(Artificial Intelligence and Strategic Management: Challenges and Opportunities)*

The study aimed to analyze the growing role of artificial intelligence in supporting strategic management by identifying the challenges and opportunities that integration presents at the enterprise level. The study concluded that artificial intelligence is an effective tool in enhancing organizational flexibility, improving strategic prediction processes, and enabling leaders to make more accurate decisions, which contributes to achieving a sustainable competitive advantage.

4- Veletsianos, G., & Johnson, N. (2021). *(Artificial Intelligence in Higher Education: Strategic Implications and Institutional Readiness*)

The study covered the analysis of the readiness un higher education institutions to strategically adopt artificial intelligence and identify the factors that hinder or facilitate such adoption. The study concluded that the most important success factors for the adoption of artificial intelligence are supportive institutional leadership, a clear strategic vision, and the availability of technical

infrastructure. It also highlighted the need for comprehensive strategies that combine technology with a human and ethical perspective.

5- Dr. Fahd Al-Zahrani (2022) *(The impact of artificial intelligence on improving strategic performance in higher education institutions)*

A field study on Saudi universities. The study aimed to assess the impact of artificial intelligence technologies on the efficiency of strategic management in Saudi universities, in light of the digital transformation requirements outlined in the Kingdom's 2030 Vision. The results indicated a statistically significant direct relationship between the use of artificial intelligence and the efficiency of strategic management in universities, particularly in areas such as planning, decision-making, and performance monitoring.

2.1. Annotation on previous studies:

The current study drew on previous studies to formulate the research problem, develop theoretical concepts, design the study tool, and establish the data analysis method, ultimately extracting the most prominent findings and recommendations. The current study distinguishes itself from previous studies in the target community in terms of the method used for sampling, the interpretation of study results, and the provision of practical recommendations for educational institutions' responsible personnel to develop them using artificial intelligence and strategic management concepts in the context of the 2030 Vision.

3. Theoretical framework of the study: Basic concepts of study variables:

3.1. The concept of artificial intelligence:

John McCarthy defines artificial intelligence as the engineering science of constructing intelligent tools, particularly computer programs. It is based on the establishment of capable hardware and software of think in the same way the human brain does and mimicking human behavior (Abdullaoui, 2021).

Artificial intelligence is also defined as the ability of a tool or device to perform some activities that require intelligence, such as actual reasoning and self-repair. (Omar, 2008)

3.2. Artificial intelligence applications:

These are systems that possess intellectual capabilities similar to those of humans, such as thinking, discovering meaning, generalizing, and learning from past experiences. A computer or robot that is controlled by a computer can perform tasks typically associated with living organisms (Barua et al., 2022).

3.3. Strategic management concept:

Strategic management, as defined by Higgins, is the framework that encompasses the strategy and works to achieve it. It is a sequential process that manages the organization's mission and defines its relationship with the environment. It is represented by the process of implementing and fulfilling the organization's mission, which is the true reason for its existence and the primary purpose for which it was created.

Sharplin also defined it as the process of formulating and implementing plans and actions related to fundamental and comprehensive issues of continuing importance to the organization as an entity (Dodin, 2024, 27).

3.4. Higher education concept:

Higher education is defined as all types of education (academic, vocational, technical, artistic, pedagogical, and distance education) provided by universities, technological institutes, teacher training colleges, etc., which are usually intended for students who have completed their secondary education and aim to obtain a title, degree, certificate, or diploma of higher education. (Al-Baradei, 2002, 87).

3.5. Higher education development definition:

It is a comprehensive process aimed at modernizing and improving the components of the educational system in higher education institutions, including curricula, teaching methods, scientific research, infrastructure, and administration, in order to keep up with scientific and technological developments and meet the needs of society and the labor market. (Qassim, 2009,

4. Study Methodology:

The study aims to assess the effectiveness of integrating artificial intelligence and strategic management in the development of higher education institutions. The applied study focuses on university students in the Kingdom of Saudi Arabia, in view of the 2030 Vision. The researcher employed a descriptive analytical approach in conducting the study, as it is the most appropriate and suitable for the phenomenon under investigation, without the researcher interfering in the research process.

4.1. Study community:

The study community consists of university students in the Kingdom of Saudi Arabia, with a sample size of 223.

4.2. Study tool:

A questionnaire was designed for the study to collect the required information. The following stages were followed:

1. Preparing a preliminary questionnaire for use in collecting the required data and information.

2. Presenting the questionnaire to a group of arbitrators, who provided advice and guidance. Any necessary modifications or deletions were made.

3. The questionnaire was distributed to all members of the study community. It was divided into two sections, as follows:

Section one: This section contains a set of questions related to the personal characteristics of the sample members.

Section two: This section discusses the five study axes: (Artificial Intelligence in Higher Education - Strategic Management Practices - Integration between Artificial Intelligence and Strategic Management - Quality of Higher Education - Integration in the view of 2030 Vision). An answer to each item was based on a (five-point Likert) scale.

4.3. Study scale:

Possible responses to the items were measured on a five-point Likert scale, ranging from "strongly agree" to "strongly disagree."

4.4. Scale tools evaluation:

Testing the internal consistency and reliability of the scales used in the study:

Stability refers to the (Constancy of the scale and its lack of self-contradiction, meaning that the scale gives the same results with an equal probability to the coefficient value if reapplied to the same sample). Therefore, it leads to the same or consistent results each time the measurement is repeated. The higher the degree of stability and constancy of the tool, the greater the confidence in it. Several methods to verify the stability of the scale, including the split-half method and Cronbach's alpha method to ensure the internal consistency of the scales. (Cronbach's alpha) coefficient was used, which takes values ranging from zero to one.

If there is no stability in the data, the coefficient value is equal to zero. Conversely, if the data exhibits complete stability, the value of the coefficient equals one. In other words, an increase in Cronbach's alpha coefficient indicates an improvement in the credibility of the data, as it reflects the sample results more accurately within the study community.

Additionally, a value less than 0.60 indicates low internal consistency. The results indicate that the value of Cronbach's alpha coefficient for the study concepts reached 0.95, indicating high stability in the questionnaire.

4.5. Analysis of the study sample characteristics:

To describe the characteristics of the study sample's items, the researcher used:

a. Frequency distribution of questionnaire items' expressions:

To identify the general trend of the sample's items for each variable separately.

b. Variance Analysis:

To measure the differences between the respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions, according to the study sample's characteristics (Gender, Age category, Academic degree, educational level, University name, and Faculty name).

First: Gender

- Gender distribution in the study sample:

The questionnaire included a question related to the gender of the respondents. The gender was divided into (male, female). The results obtained are shown in Table No. (1).

Table No. (1). distribution of gender groups according to the study sample

Kind	Frequency	Percentage
Male	91	40.8
Female	132	59.2
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table No. (1) We find that the percentage of females is 59.2% of the study sample, and the percentage of males is 40.8%. Therefore, the highest percentage is of females.

Second: age group:

- Age category distribution in the study sample:

The questionnaire included a question regarding the respondent's age. Age was divided into age groups with a five-year range, ranging from 20 to 31 years and older. The results obtained are shown in Table No. (2).

Table No. (2) distribution of age groups according to the study sample:

Age Group	Frequency	Percentage
Less than 20 years	43	19.3
21 – 25 years	151	67.7
26 – 30 years	16	7.2
31 years and more	13	5.8
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table No. (2), We find that 67.7% of the study sample represents the age group of 21-25 years, the age category (less than 20 years) reached 19.3%, the age category (26-30) reached 7.2%, while the age category (31 and more) reached 5.8%, where we note that the largest percentage of the study sample items are from the age category whose ages range between (21-25) years.

b/ Variance analysis: To measure the non-existence of differences between the averages of respondents' views of the effectiveness of the integration of artificial intelligence and strategic management in developing higher education institutions according to the age category variable, a one-way analysis of variance (ANOVA) was used to determine whether there were statistically significant differences between the averages of respondents' views at the universities in the Kingdom of Saudi Arabia according to the age category variable. The results obtained are presented in Table 3.

Table No. (3) Analysis of variance for the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions according to the age group in the study sample:

Axis	Source of variance	Square total	Mean of Square Total	Freedom degree	F Value	Significance level
First	Between groups	.0160	.0050	3	.2050	.8930
	Within groups	5.606	.0260	219		
	Total	5.622		222		
Second	Between groups	.1220	.0410	3	1.375	.2510
	Within groups	6.466	.0300	219		
	Total	6.588		222		
Third	Between groups	.2330	.0780	3	2.514	.0590

	Within groups	6.774	.0310	219		
	Total	7.007		222		
Fourth	Between groups	.0110	.0040	3	.1570	.9250
	Within groups	5.338	.0240	219		
	Total	5.349		222		
Fifth	Between groups	.0290	.0100	3	.3040	.822
	Within groups	6.961	.0320	219		
	Total	6.990		222		

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

The results in Table 3 showed that there were no statistically significant differences at a significance level of 0.05 that could be attributed to the age variable between the respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions. The results obtained indicate that there were no statistically significant differences between the averages of the respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions across age categories. The calculated F (Statistical value) was not significant at (0.05), and the obtained statistical significance level was (0.893, 0.251, 0.059, 0.925, 0.822), respectively, which are greater than (0.05). Therefore, this result can be explained by the absence of statistically significant differences, confirming that respondents of different ages do not differ in their views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions.

Third: Academic degree

- Distribution of the academic degrees in the study sample:

The questionnaire included a question related to the respondent's academic degree, which was divided into (diploma, bachelor's, master's). The results obtained are shown in Table No. (4).

Table No. (4) Distribution of academic degrees according to the study sample:

Qualification	Percentage	Frequency
Diploma	28	12.6
Bachelor	182	81.6
Master	13	5.8
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

From Table 4, we note that 81.6% of the study sample are pursuing a bachelor's degree, while 12.6% are pursuing a diploma, and 5.8% are pursuing a master's degree.

b/ Variance analysis: To measure the non-existence of differences between the averages of respondents' views of the effectiveness of the integration of artificial intelligence and strategic management in developing higher education institutions according to the variable of academic degree, a one-way analysis of variance (ANOVA) was used to determine whether there were statistically significant differences between the averages of respondents' views at the universities in the Kingdom of Saudi Arabia according to the variable of academic degree. The results obtained are shown in Table No. (5).

Table No. (5) Analysis of variance for the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions according to the academic degree in the study sample:

Axis	Source of variance	Square total	Mean of Square Total	Freedom degree	F Value	Significance level
First	Between groups	.0140	.0070	2	.2710	.7630
	Within groups	5.608	.0250	220		
	Total	5.622		222		
Second	Between groups	.0810	.0400	2	1.362	.2580
	Within groups	6.507	.030	220		
	Total	6.588		222		
Third	Between groups	.0520	.026	2	.8290	.4380
	Within groups	6.955	.032	220		
	Total	7.007		222		
Fourth	Between groups	.0390	.0200	2	.8140	.4440
	Within groups	5.310	.024	220		
	Total	5.349		222		
Fifth	Between groups	.0260	.0130	2	.4030	.6690
	Within groups	6.965	.0320	220		
	Total	6.990				

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

The results in Table 5 showed that there were no statistically significant differences at a significance level of 0.05 that could be attributed to the variable of academic degree between the respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions. The obtained results indicate that there are no statistically significant differences between the averages of the respondents' views in universities in the Kingdom of Saudi Arabia regarding the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions, according to the variation in academic degree. The calculated value of the statistic (F) was not significant at 0.05, and the level of obtained statistical significance was (0.763, 0.258, 0.438, 0.669, 0.444), respectively, which are greater than 0.05. Therefore, this result can be explained by the absence of statistically significant differences, confirming that respondents, regardless of their qualifications, do not differ in their views on the effectiveness of integrating artificial intelligence and strategic management in the development of higher education institutions.

Fourth: Educational level

- Distribution of educational level in the study sample:

The questionnaire included a question related to the respondent's educational level. The educational level was divided into categories (first year – fourth year, and postgraduate studies). The results obtained are presented in Table 6.

Table No. (6) Distribution of Educational Level by Study Sample:

Duration	Percentage	Frequency
First Year	20	9.0
Second Year	45	20.2
Third Year	99	44.4
Fourth Year	42	18.8
Postgraduate studies	17	7.6
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 6, we find that 44.4% of the study sample is in the third year, 20.2% is in the second year, 18.8% is in the fourth year, and 9% is in the first year. Graduate students comprise the smallest percentage of the study sample, at 7.6%.

b/ Variance analysis: To measure the non-existence of differences between the averages of respondents' views of the effectiveness of the integration of artificial intelligence and strategic management in developing higher education institutions according to the variable of academic level, a one-way analysis of variance (ANOVA) was used to determine whether there were statistically significant differences between the averages of respondents' views in the universities in the Kingdom of Saudi Arabia according to academic level. The results are shown in Table 7.

Table No. (7): Variance analysis of the Effectiveness of the Integration of Artificial Intelligence and Strategic Management in Developing Higher Education Institutions by Academic Level in the Study Sample:

Axis	Source of variance	Square total	Mean of Square Total	Freedom degree	F Value	Significance level
First	Between groups	0.095	0.932	4	0.932	0.446
	Within groups	5.528		218		
	Total	5.622		222		
Second	Between groups	0.180	1.533	4	1.533	0.194
	Within groups	6.407		218		
	Total	6.588		222		
Third	Between groups	0.079	0.620	4	0.620	0.649
	Within groups	6.929		218		
	Total	7.007		222		
Fourth	Between groups	0.056	0.581	4	0.581	0.677
	Within groups	5.293		218		
	Total	5.349		222		
Fifth	Between groups	0.107	0.847	4	0.847	0.497
	Within groups	6.883		218		
	Total	6.990		222		

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

The results in Table 7 showed that there were no statistically significant differences at a significant level of 0.05. The respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions. The obtained results indicate that there were no statistically significant differences between the averages of the respondents' views in universities across the Kingdom of Saudi Arabia regarding the effectiveness of integrating

artificial intelligence and strategic management in developing higher education institutions, according to educational levels. The calculated value of the (F) statistics was not significant at 0.05, and the obtained statistical significance levels were (0.446, 0.194, 0.649, 0.677, 0.497), respectively, which are greater than 0.05. Accordingly, this result can be explained by the absence of statistically significant differences, confirming that respondents, regardless of their educational levels, do not differ in their views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions.

Fifth: University name:

- University distribution in the study sample:

The questionnaire included a question regarding the respondent's university name. The university names were divided into (Al-Baha, Imam Abdul Rahman, Al-Majma'ah, Tabuk, Jeddah, Technical colleges, and others). The results obtained are presented in Table 8.

Table No. (8) University distribution by study sample:

Job	Percentage	Frequency
Al-Baha University	129	57.8
Imam Abdulrahman University	6	2.7
Majmaah University	19	8.5
University of Tabuk	4	1.8
Jeddah University	35	15.7
Technical colleges	7	3.1
Others	23	10.3
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

From Table 8, we note that 57.8% of the study sample was from Al Baha University, 15.7% from Jeddah University, 10.3% from various universities, 8.5% from Al Majmaah University, 3.1% from technical colleges, 2.7% from Imam Abdulrahman University, and 1.8% from Tabuk University.

b/ Variance analysis: To measure the non-existence of differences between the averages of respondents' views of the effectiveness of the integration of artificial intelligence and strategic management in developing higher education institutions, according to the university variable.

(One-way ANOVA) was used to determine whether there were statistically significant differences between the averages of respondents' views in universities in the Kingdom of Saudi Arabia, according to the university variable. The results obtained are shown in Table 9.

Table No. (9) Variance Analysis of the Effectiveness of the Integration of Artificial Intelligence and Strategic Management in Developing Higher Education Institutions by University Variable in the Study Sample:

Axis	Source of variance	Square total	Mean of Square Total	Freedom degree	F Value	Significance level
First	Between groups	.1230	.0210	6	.8080	.5640
	Within groups	5.499	.0250	216		
	Total	5.622		222		
Second	Between groups	.4610	.0770	6	2.708	.0150
	Within groups	6.127	.0280	216		
	Total	6.588		222		
Third	Between groups	.3730	.0620	6	2.026	.0630
	Within groups	6.634	.0310	216		
	Total	7.007		222		
Fourth	Between groups	.1620	.0270	6	1.122	.3500
	Within groups	5.188	.0240	216		
	Total	5.349		222		
Fifth	Between groups	.2450	.0410	6	1.306	.2560
	Within groups	6.746	.0310	216		
	Total	6.990		222		

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

The results in Table No. (9) showed that there were no statistically significant differences at a significance level of 0.05 that could be attributed to the university variable between the averages of the respondents' views on the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions. The obtained results indicate that there are no statistically significant differences between the averages of the respondents' views in universities in the Kingdom of Saudi Arabia on the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions depending on the variation in universities, as the value of the calculated statistic (F) was not significant at (0.05).

The obtained statistical significance level was (0.564, 0.015, 0.063, 0.350, 0.256), respectively, which are greater than 0.05. Accordingly, this result can be explained by the non-existence of statistically significant differences, and it confirms that respondents from different universities do not differ in their views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions.

Sixth: Faculty

- Faculty in the study sample:

The questionnaire included a question regarding the respondent's faculty name. The obtained results are shown in Table No. (10).

Table No. (10) Faculty distribution according to the study sample:

Duration	Percentage	Frequency
Medicine	2	0.9
Engineering	12	5.4
Management	178	79.8
Compute	12	5.4
Science	7	3.1
Arts	8	3.6
Education	4	1.8
Total	223	100.0

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table No. (10), We find that 79.8% of the study sample study in the faculty of management, 5.4% study in the faculty of engineering and computer Science, 3.6% study in the faculty of arts, 3.1% study in the faculty of science, 1.8% study in the faculty of education, and 0.9% study in the faculty of medicine.

Table No. (11) Variance analysis of the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions according to the faculty category in the study sample

b/ Variance analysis: To measure the non-existence of differences between the averages of respondents' views of the effectiveness of the integration of artificial intelligence and strategic management in developing higher education institutions, according to the faculty variable.

(One-way ANOVA) was used to determine whether there were statistically significant differences between the averages of respondents' views in universities in the Kingdom of Saudi Arabia by faculty name. The results obtained are presented in Table 11.

Table No. (11) Variance analysis for the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions according to the name of the faculty in the study sample:

Axis	Source of variance	Square total	Square Total Average	Freedom degree	F Value	Significance level
First	Between groups	.2510	.0420	6	1.685	.1260
	Within groups	5.371	.0250	216		
	Total	5.622		222		
Second	Between groups	.5890	.0980	6	3.538	.0020
	Within groups	5.998	.0280	216		
	Total	6.588		222		
Third	Between groups	.3190	.0530	6	1.716	.1180
	Within groups	6.689	.0310	216		
	Total	7.007		222		
Fourth	Between groups	.4120	.0690	6	3.007	.0080
	Within groups	4.937	.0230	216		
	Total	5.349		222		
Fifth	Between groups	.6410	.1070	6	3.632	.0020
	Within groups	6.350	.0290	216		
	Total	6.990		222		

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

The results in Table 11 showed that there were no statistically significant differences at a significance level of 0.05. The respondents' views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions. The results obtained indicate that there are no statistically significant differences between the averages of the respondents' view in universities in the Kingdom of Saudi Arabia regarding the effectiveness of integration between artificial intelligence and strategic management in developing higher education institutions according to the faculty variation, as the calculated statistic value (F) was not significant at 0.05, the level of statistical significance obtained were (0.126, 0.002, 0.118,

0.008, 0.002) respectively, which is greater than 0.05. Accordingly, this result can be explained by the absence of statistically significant differences, confirming that respondents, regardless of the faculty in which they study, do not differ in their views on the effectiveness of integrating artificial intelligence and strategic management in developing higher education institutions.

5. Data analysis and study axes:

This section consists of analyzing the study's primary data to enable discussion of the research hypotheses, according to the following steps:

Frequency distribution of the research units' responses to the study expressions and statistical analysis. Chi-square test for the significance of differences:

This is achieved by summarizing the data in tables that explain the values of each variable, illustrating the most important characteristics of the sample in the form of numbers and percentages, making the study's expressions and axes easier to read and understand.

The chi-square test is used to indicate the significance of the differences between the sample members' responses to the study's expressions and axes.

1/ Frequency distribution of data and chi-square test for the first axis: Artificial intelligence in higher education:

To summarize the data and clarify the most important characteristics of the sample, the frequency distribution and chi-square test results were used for the expressions measuring the respondents' opinions about artificial intelligence in higher education. The results obtained are presented in Table 12.

Table No. (12) Frequency distribution and chi-square test for the expressions measuring the axis of artificial intelligence in higher:

No	Item	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Chi-square test	
		Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Value	Morale level
1-	The university uses artificial intelligence technologies to support the educational process.	87	39	86	38.6	29	13	12	5.4	9	4	136.439	0.000

2-	Some courses rely on artificial intelligence tools, such as data analysis, cloud computing, and ChatGPT.	75	33.6	83	37.2	46	20.6	13	5.8	6	2.7	109.623	0.000
3-	The university offers smart platforms that enable students to access educational content.	96	43	85	38.1	31	13.9	6	2.7	5	2.2	168.54	0.000
4-	Artificial intelligence technologies are utilized in providing student and administrative services.	73	32.7	78	35	48	21.5	15	6.7	9	4	91.41	0.000
5-	The use of artificial intelligence has contributed to improving the quality of the educational process.	105	47.1	81	36.3	28	12.6	4	1.8	5	2.2	189.80	0.000

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 12, we find that:

The majority of sample members agree that the university utilizes artificial intelligence technologies to support the educational process, with 77.6% in agreement. At the same time, those who are neutral reached 13%, and those who disagree reached 9.4%. The (chi-square) value reached 136.439 at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the sample members' responses, favoring those who agree with the expression that the university uses artificial intelligence technologies to support the educational process.

The majority of sample members agree that (Some courses depend on artificial intelligence tools such as data analysis, Cloud, ChatGPT), reached 70.8%, while those who are neutral reached 20.6%, and those who disagree reached 8.5%. We find that the value of (Chi-square) reached 109.623 at a statistical significance level of 0.000, and this value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members in favor of those who agree with the expression that states that (Some courses depend on artificial intelligence tools such as data analysis, Cloud - ChatGPT).

The majority of the sample members agree that the university provides smart platforms that facilitate students' access to educational content, with 81.1% in agreement, while 13.9% are neutral, and 4.7% disagree.

We find that the value of (Chi-square) reached 168.54 at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members, favoring those who agree with the expression that the university provides smart platforms that facilitate students' access to educational content.

The majority of the sample members agree that artificial intelligence technologies are used in providing student and administrative services, at 67.7%.

In comparison, the neutrals account for 21.5%, and those who disagree make up 10.7%. We find that the value of (Chi-square) reached 91.41 at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members in favor of those who agree with the expression that (Artificial intelligence technologies are utilized in providing student and administrative services).

The majority of the sample agreed that (The use of artificial intelligence has contributed to improving the quality of the educational process), reached 83.4%, while those who were neutral reached 12.6% and those who disagreed reached 4%. (The chi-square value) reached 189.80, with a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of the sample members, in favor of those who agree with the expression that (The use of artificial intelligence has contributed to improving the quality of the educational process).

2/ Frequency distribution of the data and chi-square test for the second axis: Strategic management practices in higher education:

To summarize the data and clarify the most important features of the sample, the frequency distribution and chi-square test were used to analyze the expressions measuring the respondents' opinions about strategic management practices in higher education. The obtained results are shown in Table No. (13)

Table No. (13) Frequency distribution of the Chi-square test for the statements that measure the axis of strategic management practices in higher education:

No	Item	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Chi-square test	
		Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Value	Morale level
1-	The university has a clear and declared vision and mission.	93	41.7	93	41.7	25	11.2	7	3.1	5	2.2	180.52	0.000
2-	The university develops its educational process through periodic strategic plans.	84	37.7	96	43	31	13.9	7	3.1	5	2.2	165.04	0.000
3-	The university involves the concerned parties, including students, in planning and decision-making processes.	75	33.6	76	34.1	39	17.5	21	9.4	12	5.4	79.8	0.000
4-	The university stays current with global and local developments and adjusts its strategies accordingly.	81	36.3	85	38.1	41	18.4	7	3.1	9	4	126.70	81
5-	The university uses clear performance indicators to assess the degree to which its strategic objectives are being achieved.	76	34.1	97	43.5	39	17.5	5	2.2	6	2.7	152.94	0.000

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 13, we find that the majority of sample members agree that the university has a clear and announced vision and mission, with 83.4% in agreement. Those who are neutral reached 11.2%, and those who disagree reached 5.3%. (The chi-square value) reached 180.52 at a statistical significance level of (0.000), which is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, in favor of those who agree with the expression that (The university has a clear and announced vision and mission).

The majority of sample members agree that the university applies periodic strategic plans to develop the educational process, with 80.7% in agreement, while those who are neutral account for 13.9%, and those who disagree make up 5.3%. We find that the value of (Chi-square) reached (165.04) at a statistical significance level of (0.000). This value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members, favoring those who agree with the statement that the university implements periodic strategic plans to develop the educational process.

The majority of the sample members agreed that the university involved concerned parties, including students, in the planning and decision-making processes, with 67.7% agreeing,

while 17.5% were neutral, and 14.8% disagreed. We find that the value of (Chi-square) reached 79.8 at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members, favoring those who agree with the expression that the university involves concerned parties, including students, in the planning and decision-making processes.

The majority of sample members agree that the university keeps on with global and local developments and changes in its strategies, reaching 74.4%, while those who were neutral reached 18.4% and those who disagree reached 7.1%. We find that the value of the chi-square reached 126.70 at a statistical significance level of 0.000, which is less than the conventional 5% significance level. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, favoring those who agree with the expression that the university keeps pace with global and local developments and changes in its strategies.

The majority of sample members agree that the university adopts clear performance indicators to evaluate the extent to which it achieves its strategic objectives, with 77.6% in agreement, while those who were neutral accounted for 17.5%, and those who disagreed made up 4.9%. We find that the value of (Chi-square) reached 152.94 at a statistical significance level of 0.000, and this value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members, favoring those who agree with the expression that states the university relies on clear performance indicators to evaluate the extent to which it achieves its strategic goals.

3/ Frequency distribution of data and chi-square test for the second axis: Integration between artificial intelligence and strategic management:

To summarize the data and clarify the most important features of the sample, the frequency distribution and chi-square test were used for the expressions measuring the respondents' opinions on the integration between artificial intelligence and strategic management. The results obtained are presented in Table 14.

Table No. (14) Frequency distribution and chi-square test for statements measuring the integration axis between artificial intelligence and strategic management:

No	Item	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Chi-square test	
		Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Value	Morale level
1-	Artificial intelligence is included in the university's strategic plans.	79	35.4	85	38.1	44	19.7	8	3.6	7	3.1	124.87	0.000
2-	Administrative and academic decisions are based on smart analytics derived from artificial intelligence.	62	27.8	85	38.1	53	23.8	16	7.2	7	3.1	95.0	0.000
3-	Educational policies are updated based on artificial intelligence tools.	61	27.4	83	37.2	60	26.9	12	5.4	7	3.1	99.9	0.000
4-	The university adopts administrative practices that encourage the effective use of artificial intelligence technologies.	72	32.3	87	39	43	19.3	13	5.8	8	3.6	109.6	0.000
5-	There is harmony between the use of modern technology	82	36.8	90	40.4	31	13.9	13	5.8	7	3.1	135.8	0.000

	and the university's strategic trends.												

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 14, we find that:

The majority of sample members agree that artificial intelligence should be included in the university's strategic plans, at 73.5%, while those who are neutral account for 19.7%, and those who disagree make up 6.7%. We find that the chi-square value reached 124.87 at a statistical significance level of 0.000, which is less than the conventional 5% significance level. Therefore, this indicates the presence of statistically significant differences between the sample members' responses, favoring those who agree with the expression that artificial intelligence should be included in the university's strategic plans.

The majority of sample members agree that (administrative and academic decisions are based on intelligent analyses derived from artificial intelligence), reaching 65.9%, while those who are neutral reached 23.8% and those who disagree reached 10.3%. We find that the chi-square value reached 95.0, with a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, in favor of those who agree with the expression that (administrative and academic decisions are based on smart analyses derived from artificial intelligence).

The majority of sample members agree that educational policies are updated based on artificial intelligence tools, with 64.6% in agreement, 26.9% neutral, and 8.5% disagreeing. We find that the chi-square value reached 99.9, with a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, favoring those who agree with the statement that educational policies are updated based on artificial intelligence tools.

The majority of sample members agree that the university adopts administrative practices that encourage the effective use of artificial intelligence technologies, at 71.3%. Those who were neutral accounted for 19.3%, and those who disagreed made up 9.4%. We find that the chi-square value reached 109.6, at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant

differences between the responses of the sample members, favoring those who agree with the expression that the university adopts administrative practices that encourage the effective use of artificial intelligence technologies.

The majority of the sample, 77.1% agreed that there is harmony between the use of modern technology and the university's strategic trends, while those who were neutral accounted for 13.9%, and those who disagreed made up 8.9%.

We find that the value of (Chi-square) reached 135.8 at a statistical significance level of 0.000, and this value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members in favor of those who agree with the expression that states that (there is harmony between the use of modern technology and the strategic directions of the university).

4/ Frequency distribution of data and chi-square test. Fourth axis: Quality of higher education:

To summarize the data and clarify the most important features of the sample, the frequency distribution and chi-square test were used to express the respondents' opinions about the quality of higher education. The results obtained are presented in Table 15.

Table No. (15) Frequency distribution and chi-square test for statements measuring the quality of higher education axis:

No	Item	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Chi-square test	
		Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Value	Morale level
1-	Smart technologies have simplified concepts and curricula.	111	49.8	87	39	20	9	2	0.9	3	1.3	232.2	0.000
2-	The use of modern educational technologies has enhanced interaction within the educational environment.	88	39.5	94	42.2	9	4	6	2.7	1	0.4	243.0	0.000

3-	The use of artificial intelligence has had a positive impact on the efficiency of student services.	87	39	92	41.3	30	13.5	8	3.6	6	2.7	158.9	0.000
4-	The integration of artificial intelligence and strategic management contributes to making the educational environment more qualitative and interactive.	89	39.9	99	44.4	26	11.7	5	2.2	4	1.8	190.4	0.000
5-	The university adopts systematic policies and strategies aimed at enhancing the quality of students' educational and academic experiences.	84	37.7	99	44.4	25	11.2	6	2.7	9	4	171.5	0.000

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 15, we find that:

The majority of sample members agree that smart technologies have contributed to simplifying concepts and curricula, with 88.8% in agreement, 9% neutral, and 2.2% disagreeing. We find that the chi-square value reached 232.2, at the statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the sample members' responses, in favor of those who agree with the expression that smart technologies have contributed to simplifying concepts and curricula.

The majority of sample members agree that the use of modern educational technologies has enhanced interaction within the educational environment, with 81.6% in agreement, 11.2% neutral, and 3.1% disagreeing. We find that the chi-square value reached 243.0, with a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, in favor of those who agree with the expression that (the use of modern educational technologies has enhanced interaction within the educational environment).

The majority of sample members agree that the utilization of artificial intelligence has had a positive impact on the efficiency of student services, with 81.6% agreeing, 13.5% neutral, and 6.3% disagreeing.

We find that the chi-square value reached 158.9, with a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, favoring those who agree that the utilization of artificial intelligence has had a positive impact on the efficiency of student services.

The majority of the sample agreed that the integration of artificial intelligence and strategic management contributes to making the educational environment more quality and interactive, reaching 84.3%. Those who were neutral accounted for 11.7%, and those who disagreed accounted for 3%.

We find that the chi-square value reached 190.4, at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of the sample members, in favor of those who agree with the expression that the integration of artificial intelligence and strategic management contributes to making the educational environment more quality and interactive.

The majority of the sample members agree that the university adopts systematic policies and strategies aimed at improving the quality of students' educational and academic experience, with 82.1% in agreement, 11.2% neutral, and 6.7% disagreeing.

We find that the value of (Chi-square) reached 171.5 at a statistical significance level of 0.000, and this value is less than the statistical significance level of 5%. Accordingly, this indicates the presence of statistically significant differences between the responses of the sample members, favoring those who agree with the statement that the university adopts systematic policies and strategies aimed at improving the quality of students' educational and academic experience.

5/ Frequency distribution of data and chi-square test for the fifth axis: Integration in the view of 2030 Vision:

To summarize the data and clarify the most important features of the sample, the frequency distribution and chi-square test were used to express the respondents' opinions on integration in the context of the 2030 Vision. The results obtained are presented in Table 16.

Table No. (16) Frequency distribution and chi-square test for statements measuring the integration axis in light of Vision 2030:

No	Item	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Chi-square test	
		Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Freq.	Percentage	Value	Morale level
1-	The university contributes to achieving the 2030 vision in education.	122	54.7	61	27.4	30	13.5	21	0.4	9	4	216.1	0.000
2-	The integration of artificial intelligence and strategic management supports the national transformation orientation.	112	50.2	80	35.9	22	9.9	1	0.4	8	3.6	300.8	0.000
3-	Smart technologies represent a key tool in improving educational services and their quality.	126	56.5	66	29.6	20	9	4	1.8	7	3.1	333.5	0.000

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

In Table 16, we find that:

The majority of sample members agree that the university contributes to achieving the 2030 Vision in education, with 82.1% reaching this goal. At the same time, those who are neutral reached 13.5%, and those who disagree reached 4.4%. We find that the chi-square value reached 216.1 at a statistical significance level of 0.000, which is less than the conventional 5% significance level. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, favoring those who agree with the expression that the university contributes to achieving the 2030 Vision in education.

The majority of sample members agree that the integration of artificial intelligence and strategic management supports the national transformation orientation, with 86.1% in agreement, 9.9% neutral, and 5% disagreeing. We find that the chi-square value reached 300.8 at a statistical

significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between the responses of sample members, in favor of those who agree with the expression that the integration of artificial intelligence and strategic management supports the national transformation orientation.

The majority of sample members agree that smart technologies represent a key tool in improving educational services and their quality, with 86.1% in agreement, 9% neutral, and 4.9% disagreeing. We find that the chi-square value reached 333.5 at a statistical significance level of 0.000. This value is less than the statistical significance level of 5%. Therefore, this indicates the presence of statistically significant differences between sample members' responses, favoring those who agree with the expression that smart technologies represent a key tool in improving educational services and their quality.

6. Study hypothesis testing:

In this axis, the researcher discusses and explains the results of the field study using the information provided by the statistical data analysis tables, as well as the results of the statistical analysis, to test the following study hypotheses:

Presentation and discussion of the results of the first hypothesis:

- The first hypothesis of the study states the following:

"There is a statistically significant relationship between artificial intelligence in higher education and the quality of higher education."

To verify the validity of the hypothesis, the simple linear regression method will be used in the model construction, where artificial intelligence in higher education is an independent variable represented by (AIE) and the quality of higher education is a dependent variable represented by (QHE), as in the following table:

Table No. (17) Results of a simple linear regression analysis to measure the relationship between artificial intelligence in higher education and the quality of higher education:

	Regression coefficients	**(t) Test**	**Sigmoid value**	**Interpretation**
$\hat{B}_0$	0.11	5.62	0.000	Moral
$\hat{B}_1$	0.64	12.99	0.000	Moral

Correlation coefficient (R)	0.65	
coefficient (R^2) extermination	0.43	
(F) Test	168.73	Moral model
QHE=0.11+0.64 AIE		

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

Table No. (17) shows that:

1. The estimation results showed a direct correlation between artificial intelligence in higher education as the independent variable and the quality of higher education as the dependent variable, with a simple correlation coefficient of 0.65.

2. The determination coefficient (R^2) reached 0.43, indicating that artificial intelligence in higher education, as the independent variable, contributes 43% to the quality of higher education (the dependent variable).

3. The simple regression model was significant, with an F test value reached 168.73, which is significant at a significance level of 0.000.

4. 0.11: The average quality of higher education when artificial intelligence in higher education is equal to zero.

5. 0.64: This means that a one-unit increase in artificial intelligence in higher education increases the quality of higher education by 64%.

From the above, we conclude that the first hypothesis of the study, which stated: "There is a statistically significant relationship between artificial intelligence in higher education and the quality of higher education," has been achieved.

2- Presentation and discussion of the results of the second hypothesis:

- The second sub-hypothesis of the study states the following:

"There is a statistically significant relationship between strategic management practices and the quality of higher education."

To verify the validity of the hypothesis, the simple linear regression method will be used in the model construction, where strategic management practices are an independent variable represented by (SM) and the quality of higher education is a dependent variable represented by (QHE), as in the following table:

Table No. (18) Results of a simple linear regression analysis examining the relationship between strategic management practices and the quality of higher education:

	Regression coefficients	**(t) Test**	**Sigmoid value**	**Interpretation**
$\hat{B}_0$	0.11	6.16	0.000	Moral
$\hat{B}_1$	0.64	15.45	0.000	Moral
Correlation coefficient (R)	0.72			
Determination coefficient (R^2)	0.51			
(F) Test	238.78	Moral model		
QHE =0.11 + 0.64 SM				

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program.

Table No. (18) shows:

1. The estimation results showed a strong direct correlation between strategic management practices, the independent variable, and the quality of higher education, the dependent variable, with a simple correlation coefficient of 0.72.

2. The coefficient (R^2) reached 0.51, indicating that strategic management practices, as an independent variable, contribute 51% to the quality of higher education.

3. The simple regression model is significant, with an F-test value which reached 238.78, indicating a significance level of 0.000.

4. 0.11: The average quality of higher education when the strategic management practices variable is equal to zero.

5. 0.64: A one-unit increase in strategic management practices increases the quality of higher education by 64%.

From the above, we conclude that the second hypothesis of the study, which states: "There is a statistically significant relationship between strategic management practices and the quality of higher education," has been achieved.

3- Presentation and discussion of the results of the third hypothesis:

- The third sub-hypothesis of the study states the following:

"There is a statistically significant relationship between the integration of artificial intelligence, strategic management, and the quality of higher education."

To verify the validity of the hypothesis, the simple linear regression method will be used in the model construction, where artificial intelligence and strategic management are integrated as an independent variable represented by (AIS) and the quality of higher education with problems as a dependent variable represented by (QHE), as in the following table:

Table No. (19) Results of a simple linear regression analysis examining the relationship between the integration of artificial intelligence, strategic management, and the quality of higher education:

	Regression coefficients	**(t) Test**	**Sigmoid value**	**Interpretation**
$\hat{B}_0$	0.09	5.30	0.000	Moral
$\hat{B}_1$	0.65	16.68	0.000	Moral
Correlation coefficient (R)	0.74			
Determination coefficient (R^2)	0.55			
(F) Test	278.32	Moral model		
QHE =0.11 + 0.64 SM				

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program

Table No. (19) shows that:

1. The estimation results showed a strong direct correlation between the integration of artificial intelligence and strategic management as the independent variable and the quality of higher education as the dependent variable, with a simple correlation coefficient of 0.74.

2. The determination coefficient (R^2) reached 0.55; this value indicates that the integration of artificial intelligence and strategic management as the independent variable contributes 55% to the quality of higher education (the dependent variable).

3. The simple regression model was significant, with an F-test value of 278.32, which is significant at a significant level of 0.000.

4. 0.09: The average quality of higher education when artificial intelligence and strategic management are integrated is zero.

5. 0.65: This means that a one-unit increase in the integration of artificial intelligence and strategic management increases the quality of higher education by 65%.

From the above, we conclude that the third hypothesis of the study, which states: "There is a statistically significant relationship between the integration of artificial intelligence, strategic management, and the quality of higher education," has been achieved.

Presentation and discussion of the results of the fourth hypothesis:

- The fourth sub-hypothesis of the study states the following:

"There is a statistically significant relationship between integration in the view of 2030 Vision and the quality of higher education."

To verify the validity of the hypothesis, the simple linear regression method will be used in the model construction, where it is integrated in the view of 2030 Vision as an independent variable represented by (V) and the quality of higher education with problems as a dependent variable represented by (QHE) as in the following table:

Table No. (20) Results of the simple linear regression analysis examining the relationship between integration in light of Vision 2030 and the quality of higher education:

	Regression coefficients	**(t) Test**	**Sigmoid value**	**Interpretation**
$\hat{B}_0$	0.15	9.56	0.000	Moral
$\hat{B}_1$	0.62	15.26	0.000	Moral
Correlation coefficient (R)	0.71			
Determination coefficient (R^2)	0.51			
(F) Test	232.94	Moral model		
QHE = 0.15 +0.62 V				

Source: Prepared by the researcher using the Statistical Package for Social Sciences (SPSS) program

Table No. (20) shows that:

1. The estimation results showed a strong direct correlation between integration in the view of the 2030 Vision as an independent variable and the quality of higher education as a dependent variable, with a simple correlation coefficient reached 0.71.

2. The determination coefficient (R^2) reached 0.51. This value indicates that integration in the view of the 2030 Vision as an independent variable contributes 51% to the quality of higher education (the dependent variable).

3. The simple regression model is significant, with an F-test value reaching 232.94, which is significant at a significant level of 0.000.

4. 0.15: The average quality of higher education when integration in the view of 2030 Vision equals zero.

5. 0.62: This means that an increase in integration in the view of 2030 Vision by one unit increases the quality of higher education by 62%.

From the above, we conclude that the fourth hypothesis of the study, which states: "There is a statistically significant relationship between integration in the view of 2030 Vision and the quality of higher education," has been achieved.

7. Results:

1. Integration between artificial intelligence and strategic management has led to improve higher education quality by 55%.

2. Universities utilize artificial intelligence technologies in providing services to students, contributing to the quality of the educational process.

3. Artificial intelligence has a 43% impact on the quality of higher education at universities in the Kingdom of Saudi Arabia.

4. Strategic management practices at universities in the Kingdom of Saudi Arabia have led to an improvement in higher education quality.

5. Integration, in view of the 2030 Vision, has contributed 51% to improving higher education quality.

6. Universities in the Kingdom of Saudi Arabia involve students in decision-making and depend on performance indicators to assess the extent to which they achieve their goals, thereby achieving quality in higher education in accordance with the 2030 Vision.

7. There is a strong harmony between using modern technology, artificial intelligence tools, and the strategic directions of universities.

8. Universities use artificial intelligence technologies and tools in teaching some courses.

8. Recommendations:

1. Continuous training for higher education institution staff to achieve excellence performance and the strategic objectives of universities in accordance with 2030 Vision.

2. Updating the artificial intelligence technologies and tools used in universities to keep on with their ongoing development and achieve quality in higher education.

3. Dissemination of the culture of artificial intelligence among university students through scientific conferences, workshops, and training courses.

4. Connecting various university departments to the continuous updating of artificial intelligence tools and technologies.

5. Benefit from artificial intelligence to predict administrative problems, to enable them to be processed before they occur.

6. Further studies and research on the impact of artificial intelligence on the management of the educational process in higher education institutions.

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