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Exploring The Role of Effective Use of AI In Improving Strategic Performance Under the Digital Transformation of Higher Education Institutions

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Abstract

This study aims to diagnose the role of the effective use of Artificial Intelligence (EFUS) in enhancing strategic performance (STPE) within the context of digital transformation in higher education institutions. Grounded in the Theory of Effective Use, the research conceptualizes EFUS through key behavioral and system-based dimensions, while STPE is assessed via a balanced set of organizational performance indicators. A quantitative approach was employed using a structured electronic questionnaire administered to a random sample of 243 faculty members at the University of Kufa. Data were analyzed using Structural Equation Modeling to examine the hypothesized relationships between EFUS and STPE. The findings reveal a strong and positive association, emphasizing the strategic importance of moving from basic AI adoption to purposeful and effective integration. The study contributes to the theoretical advancement of effective AI utilization in educational contexts and provides practical guidance for institutional leaders aiming to align technological innovation with long-term strategic objectives. Ethical and governance considerations are also highlighted as critical for the responsible use of AI in higher education.

Keywords: *Artificial Intelligence; Effective Use; Strategic Performance; Digital Transformation; Higher Education Institutions.*

1. Introduction

Artificial intelligence combines two words: intelligence and artificial. Intelligence refers to the ability to think, generate new ideas, perceive, and learn. As for artificial, it means unreal. Artificial intelligence is a field of computer science that mainly focuses on making intelligent machines that operate and give feedback like humans, which is a combination of many activities that include artificial design in computers, such as speech recognition, learning, planning, and problem solving. When any system adapts to its environment, it is considered intelligent. In other words, it can be defined as programming machines that can think and act with a certain level of human intelligence known as artificial intelligence, meaning the effective use of limited resources by creating computer programs to solve complex problems. It is also divided into two parts: the first is to solve complex problems by machine, and the second is the same as humans (Verma, 2018). So, Artificial Intelligence (AI) is the ability of a computer to imitate intelligent human behavior. Through AI, devices can analyze images, understand speech, interact naturally, and make predictions using data (Antosz et al., 2020). Artificial Intelligence (AI) has a profound influence on higher education institutions. The system offers numerous advantages, including tailored learning experiences, adaptive assessments, predictive analytics, and chatbots for educational and research purposes (Drach et al., 2023). AI increases the accessibility of education, breaks down barriers due to distance and financial constraints, and promotes tailored learning experiences (Wang et al., 2023). According to Guerrero-Quiñonez et al. (2023), automating administrative processes, enabling data analysis, and promoting evidence-based decision-making contribute to greater efficiency and quality in higher education. AI equips graduates with new skills for their future careers. It revolutionizes education by personalizing learning and providing instant feedback, automating administrative tasks (Zouhaier, 2023). However, addressing the ethical and privacy challenges associated with the use of AI is crucial, including data protection for students and issues related to fairness and transparency. Higher education institutions should incorporate AI more extensively into their curriculum to enhance graduates' preparedness for the future labor market. AI can revolutionize higher education and facilitate the acquisition of novel skills for graduates. Integrating AI into the human resources (HR) service has brought about a technological revolution in traditional HR processes, changing how organizations manage their workforce. AI-powered technologies have significantly impacted various aspects of HR, from recruitment and onboarding to employee engagement and retention. Digital

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transformation has become omnipresent in professional activities, disrupting and impacting all core processes. IT can produce visible impacts among organizations and employees when integrated with the enterprise ecosystem. Digital transformation has already produced its effects through not only use but effective use to transform the world into a modern one characterized by data sovereignty in every business activity. Data is no longer limited to data centers, and with the effective use of devices, any object or environment can now measure and produce data. There is no doubt that the technological, industrial, and digital revolutions have had a significant financial impact on almost every aspect of our society, including our lives, businesses, and employment (Wamba-Taguimdje et al., 2020). The mere use of AI is no longer sufficient. Instead, it is necessary to shift from mere use to effective use, which the current study addresses to reap the benefits of artificial intelligence. Performance management in organizations is a growing phenomenon worldwide and raises increasing questions about its effectiveness in achieving organizational goals. Research has shown questionable benefits and many obstacles, challenges, and problems in implementing and measuring performance management in organizations. This is due to the lack of focus on technology in performance measurement and implementation management processes (Goh, 2012). Strategic performance is a multi-step process that involves directing, designing, and reviewing the strategic performance management system. It combines strategic planning and performance management by creating an organizational structure based on strategies and functions, aligning resources with the structure, addressing human capital and productivity, and establishing performance measures (Adler, 2022). Despite the many research efforts on the subject of strategic performance, Arab and global, Arab attempts in particular still need significant enrichment due to the importance of this topic and the importance of digital transformation and advanced management based on the use of AI. This calls for the necessity of following up on these changes, especially in the field of strategic performance. Most institutions in developing countries seek development and progress, due to their inability to interact and deal with the data of this era, at a time when there is no longer any other alternative for these institutions except to turn to AI. It is a new style and different from traditional management, and it has become difficult to dispense with it, because most departments rely on modern technology in all administrative work, including planning, organizing, directing, and electronic control. Hence, the technology literature has called for highlighting the use of AI in developing strategic performance and shifting from studying mere use to effective use (Burton-Jones & Grange, 2013). In addition, the study contributes to expanding the theory of effective use by exploring new relationships with the variable of practical use, which represents the essence of this theory, and helping higher education institutions in general and the institution under study in particular achieve the benefits expected from AI through effective use by the teaching staff. The tremendous development in digital transformation has contributed to the development of methods for providing information with certain specifications that serve the needs of higher education institutions in strategic planning and performance processes. The ability to link strategic performance and methods of using AI is crucial for the creation of management systems in institutions of higher education. The need to develop an adequate information system to deliver information in a precise time to fulfill the information purposes of the teaching staff is becoming increasingly clear, and one of the main issues they are currently grappling with is the issue of the excessive amount of information conveyed to them.

2. Literature Review

2.1. Effective Use of Information Technology

Effective use of information technology refers to the purposeful application of technology to accomplish specific organizational objectives. Unlike passive adoption, effective use ensures that digital tools are utilized to replace traditional, manual processes in ways that maximize productivity and deliver value (Ercan, 2010; Chen et al., 2020; Agarwal et al., 2010). In the age of artificial intelligence (AI), these principles have gained increasing importance as AI proves to be one of the most influential technological forces amid digital transformation. As Wang (2019) notes, the mere use of AI does not guarantee success—only its strategic and effective deployment can deliver true benefits to institutions. Effective use generates two forms of benefits. Primary benefits emerge when users can engage with systems to construct faithful representations of their environment. These, in turn, enable secondary benefits such as improved organizational performance (Nosrati, 2019). Despite the abundance of literature addressing AI usage, limited research has

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explored what defines effective use and its drivers. Moving from mere use to effective use requires a foundational understanding of AI's purpose and its alignment with information systems theory. This study is grounded in representation theory, which considers information systems as composed of interrelated structures that represent the real world and must be understood by users and stakeholders (Burton-Jones & Grange, 2013). Within the context of digital transformation, the central challenge for higher education institutions is to ensure that AI is applied in ways that enhance educational outcomes and administrative efficiency (Recker et al., 2019). Practical use contributes to both internal administrative performance and external competitiveness. At the individual level, it fosters user effectiveness and efficiency. The importance of technology in education has now been highlighted significantly during the COVID-19 pandemic and has exposed the impact of AI on enhancing teacher efficiency, teaching styles, and student engagement (Merhi & Bregu, 2020).

2.2. Dimensions of Effective Use of Information Technology

Three interrelated dimensions make up what Burton-Jones and Grange (2013) refer to as effective use: dimensions of Transparent Interaction (TI), Representational Validity (RE), and Informed Action (IA). The dimensions create a hierarchical structure in which transparency that enables valid representation is achieved, enabling informed decision-making (Eden et al., 2020).

2.2.1. Transparent Interaction

Transparent Interaction (TI) defines a user's capability to access system content without being impeded by technological complexity. A natural UI helps to focus users on the relevant task (Bailey, 2018). Transparency-based collaborative systems enhance human performance and allow us to achieve what was once impossible. In addition to this, studies establish that AI is capable of higher task accuracy and can outperform humans with fewer errors (Bagheri, et al., 2022).

2.2.2. Faithful Representation

Faithful Representation (RE): It is the degree to which the output of a system reflects the real-world domain that it is intended to represent (Almagtome et al., 2020). It is being emphasized in representation theory that systems should have accurate and comprehensible structures to facilitate knowledge building and contribute to the decision-making process (Burton-Jones et al., 2017). Users are always looking for better system design that allows them to create more suitable representations (Bonaretti & Piccoli, 2018).

2.2.3. Informed Action

Informed Action (IA) refers to how individuals interpret system-generated representations into real-world actions (Almagtome et al., 2020). This is critical for learning and practical application because this dimension assesses the degree to which knowledge, skill, and judgment converge on task performance. In educational settings, informed action is a pathway to leadership, engagement of learners, and capacity of self and organization (Daneels, 2016).

2.3. Strategic Performance

In the ever-changing and highly competitive landscape that we live in today, strategic performance serves as a vital measure of an organization's adaptability, innovation, and value delivery across both its operational and strategic dimensions. It is a multidimensional organizational performance framework consisting of a financial perspective, customer perspective, internal process perspective, and learning and growth capability (Rajnoha & Lesníková, 2016). Strategic performance serves not only as a reflection of current success but also as a guide for long-term sustainability and strategic alignment. In its strategic form, performance requires a well-articulated vision translated into actionable objectives across departments. It involves aligning an organization's goals with its resources, capabilities, and external demands, thereby enabling responsiveness to rapid market changes and technological disruption. To remain competitive, institutions must develop and continuously revise their strategic plans, integrate performance evaluation

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tools, and ensure that all stakeholders are engaged in the performance management process (Kahwaji et al., 2020). Strategic performance also enhances transparency and fosters a shared understanding of institutional priorities. It facilitates the vertical and horizontal flow of strategic intent, from senior leadership to operational units. When implemented effectively, strategic performance allows institutions to align their initiatives, monitor results, and take corrective actions in a timely manner (Redding, 2020). Successful organizations are those that adopt performance management systems that link strategic planning to real-time execution. This integration supports strategic agility, enabling institutions to meet evolving customer demands, improve internal capabilities, and achieve long-term growth. As Striteska & Jelinkova (2015) explain, performance indicators derived from ongoing operations enable institutions to measure, track, and enhance progress towards their goals. The learning and adaptation of institutions are grounded in strategic performance. It supports organizations in devising evidence-based policies, building human capital, and providing quality services in turbulent and dynamic contexts. It encourages a constant cycle of improvement and design creativity. Other authors (Ittner et al., 2003) also stress the need for strategic performance, which is fundamentally attached to the need to leverage processes at all levels of the organization to allow for the strategy to be informed and feedback loops for the implementation strategy (Malik, 2022).

2.4. Strategic Performance Indicators

The current study relies on the' four-dimensional strategic performance indicators of previous studies (Bento et al., 2014; Muravu, 2021; Hegazy et al., 2022). Financial (FI), Customer (IC), Internal Operations (IO), and Learning and Growth (LG) are some of these indicators. Every indication vocally critically role for systematic performance from a strategic angle and enjoying a top-notch conclusion. The following describes these dimensions:

2.4.1. Financial Indicators

The financial indicators (FI) are the most classical and widely used measures in the area of organizational and managerial evaluation. These are usually comprised of operating income, revenue growth, return on investment, and liquidity ratios, depending on the type of institution and other contextual factors (Kludacz, 2012). Financial metrics show how efficient, profitable, and low-risk a business is, aiding organizations in maintaining fiscal balance and strategic decision-making. Oyewobi et al. (2015) emphasized return on sales, levels of cost-efficiency, and profitability as important performance inputs. These metrics also give management insight into deploying institutional resources and enhancing competitiveness.

2.4.2. Customer Indicators

Customer Indicators (IC). They are important for evaluating value generation from the service receiver's perspective. They derive aspects such as timeliness, service quality, responsiveness, and cost efficiency in service delivery (Al Sawalqa et al., 2011). Such indicators can help institutions assess their understanding of and response to stakeholder needs. (Sule & Amuni, 2013) Highlight relevant indicators to draw new beneficiaries and retain existing ones. They further provide feedback about internal processes and employee effectiveness, connecting human performance with customer satisfaction (Striteska & Jelinkova, 2015).

2.4.3. Signifiers of Internal Operations

Examples of internal operations indicators (IO): Efficiency and Effectiveness of Internal Processes. And they represent the institution's capacity to maximize work arrangements, facilitate cooperation, and provide value to stakeholders through innovation and process proficiency (Oyewobi et al., 2015). Such measures forecast performance for institutions in the future and serve the synaptic role of connecting strategy to operations. Gupta et al. (2020) suggest that operational metrics, such as innovation rates and internal service quality, can impact the customer level, including customer satisfaction and profitability.

2.4.4. Measures of Learning and Growth

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Learning and growth indicators (LG) measure an institution's ability to innovate, develop its human resources, and renew strategically. These metrics relate to staff training, leadership development, knowledge sharing, and organizational culture (Kludacz, 2012). These indicators answer questions about how institutions respond, innovate, and prepare themselves for the future. Investing in employee development and a supportive work environment is critical for an institution's sustainability and resilience (Oyewobi et al., 2015).

3. Methods

In the context of the digital transformation of higher education institutions, this study primarily aims to diagnose the role of effective artificial intelligence utilization in enhancing strategic performance. The learning objective is broken into a set of sub-objectives:

1- Check if the investigation variables have been developed at the organization under investigation.

2- Assess the direct contribution of effective use of AI to strategic performance.

Effectiveness is one of the primary outcomes of effective use (Burton-Jones & Grange, 2013), and it can be assessed through time, cost, quality, and performance (Ghalem et al., 2016). Therefore, strategic performance is an important outcome and a significant measure of institutional users in an artificial intelligence context.

Thus, the study hypothesis is:

• The effective use of AI substantially positively affects organizational strategic performance.

This hypothesis is divided into the following sub-hypotheses:

• There is a significant positive effect of transparent interaction on strategic performance.

• There is a significant positive relationship between representative honesty and strategic performance.

• There is a significant positive effect relationship between conscious action and strategic performance.

Figure 1 illustrates the study's theoretical framework, highlighting the relationship between the effective use of artificial intelligence (AI) and strategic performance in higher education institutions.

This framework conceptualizes how purposeful and structured implementation of AI can drive strategic outcomes within educational institutions.

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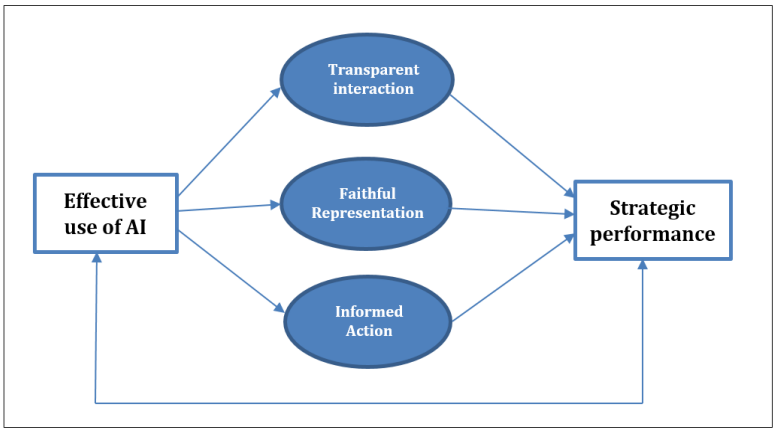

Figure 1. The Research Theoretical Model

The study population includes faculty members at the University of Kufa, totaling approximately 2,800 individuals. The sample size was determined using statistical sampling tables (Christensen et al., 2011), resulting in 254 participants. A total of 243 valid questionnaires were collected, reflecting a response rate of 96%, which is statistically acceptable. Data was collected using a structured electronic questionnaire. The tool consisted of close-ended questions measured using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The questionnaire was developed based on previous validated tools. The independent variable (EFUS) was measured through three dimensions: transparent interaction, representational honesty, and informed action, drawing from studies by Marchand & Raymond (2017), Haake et al. (2018), Torres & Sidorova (2019), and Eden et al. (2020). The dependent variable (STPE) was measured through four key dimensions: financial, customer, internal operations, and learning and growth, based on the Balanced Scorecard framework as used in the studies of Kaplan & Norton (2001), Özdemir (2021), and Rajnoha & Lesníková (2016). The data were analyzed using SPSS and AMOS (version 24). Means and standard deviations (SD) were calculated, as appropriate. Validity was assessed using the Cronbach's Alpha (Robinson et al., 1991); values of 0.70 and greater were considered acceptable. We employed Structural Equation Modeling (SEM) to investigate causal relationships between the variables. Goodness-of-fit indices such as Chi-square, RMSEA, CFI, and TLI were used to validate model fit. Additionally, R^2 values were examined to assess the explanatory power of EFUS on STPE following the criteria of Henseler et al. (2009).

4. Results and Discussion

4.1. Descriptive Statistics

To ensure respondents' opinions about the variables of the current study were known, a set of descriptive analysis tests was used, adopting measures of central tendency that include the arithmetic mean, standard error, standard deviation, and contrast. The arithmetic mean was used to determine the level of spread of the dimensions of the variables of the current study. Table 1 presents the descriptive statistics for the study variables.

Table 1: Descriptive statistics

	N	Mean		Std. Dev.	Variance
	Statistic	Statistic	Std. Error	Statistic	Statistic
TI1	243	3.7	0.052	0.806	0.649
TI2	243	3.82	0.05	0.777	0.603
TI3	243	3.85	0.051	0.794	0.631
TI4	243	3.88	0.056	0.871	0.758

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TI5	243	3.84	0.053	0.833	0.694
TI		3.818	0.0524	0.8162	0.667
RE1	243	3.83	0.056	0.872	0.761
RE2	243	3.73	0.048	0.75	0.562
RE3	243	3.79	0.053	0.832	0.693
RE4	243	3.85	0.054	0.837	0.7
RE5	243	3.84	0.056	0.875	0.766
RE		3.808	0.0534	0.8332	0.6964
IA1	243	3.79	0.052	0.81	0.656
IA2	243	3.79	0.054	0.837	0.701
IA3	243	3.84	0.054	0.838	0.703
IA4	243	3.85	0.055	0.859	0.738
IA5	243	3.79	0.055	0.857	0.734
IA		3.812	0.054	0.8402	0.7064
EFUS		3.813	0.053	0.830	0.691
FI1	243	3.85	0.054	0.837	0.7
FI2	243	3.83	0.053	0.833	0.695
FI3	243	3.78	0.054	0.842	0.708
FI4	243	3.97	0.047	0.735	0.54
FI5	243	3.84	0.055	0.855	0.73
FI		3.854	0.0526	0.8204	0.6746
IC1	243	3.84	0.047	0.739	0.546
IC2	243	3.8	0.052	0.814	0.663
IC3	243	3.63	0.056	0.873	0.762
IC4	243	3.6	0.06	0.937	0.877
IC5	243	3.81	0.051	0.796	0.633
IC		3.736	0.0532	0.8318	0.6962
IO1	243	3.6	0.057	0.882	0.778
IO2	243	3.65	0.063	0.981	0.963
IO3	243	3.51	0.061	0.951	0.904
IO4	243	3.53	0.061	0.95	0.903
IO5	243	3.5	0.059	0.92	0.846
IO		3.558	0.0602	0.9368	0.8788
LG1	243	3.82	0.05	0.78	0.609
LG2	243	3.92	0.058	0.901	0.811
LG3	243	4.01	0.049	0.758	0.574
LG4	243	4.15	0.048	0.753	0.568
LG5	243	3.89	0.052	0.813	0.661
LG		3.958	0.0514	0.801	0.6446
STPE		3.7765	0.05435	0.8475	0.72355
		3.795	0.054	0.839	0.707

Table (1) indicates the level of effective use of artificial intelligence for a sample of faculty at the University of Kufa, which is the responding sample. The arithmetic mean for this variable is (3.795), the standard error is (0.054), the standard deviation is (0.839) and the variance is (0.707), so it is an indication that the answers were consistent and homogeneous. It was found that the arithmetic means for all dimensions and variables of the study exceeded the hypothesized mean for the five-point Likert scale gradient, which is 3. This indicates the presence of a spread of these variables and dimensions in the investigated institution (University of Kufa), according to the respondents' opinions. This indicates that their opinions on the study variables are given good attention, which has led to a positive reflection in their answers in the current study's questionnaire.

4.2. Evaluation of the validity and reliability of the effective use of AI

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According to Robinson, Stimpson, Huefner, and Hunt (1991).The minimum agreed-upon value for Cronbach's Alpha is 0.70. In exploratory research, this percentage can decrease by 0.60, consistent with statistical indicators. Table 2 shows the evaluation of the validity and reliability scale for the dimensions of the independent variable for the current study.

Table 2: Validity and reliability results from the effective use of AI

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TI1	53.50	80.598	.640	.619	.947
TI2	53.38	79.824	.726	.832	.945
TI3	53.35	79.187	.756	.792	.945
TI4	53.32	77.293	.813	.821	.943
TI5	53.36	78.950	.733	.773	.945
TI	53.37	79.738	.642	.499	.947
RE1	53.47	80.523	.700	.649	.946
RE2	53.41	79.482	.696	.618	.946
RE3	53.35	78.701	.748	.689	.945
RE4	53.37	78.547	.721	.644	.946
RE5	53.42	79.806	.693	.677	.946
RE	53.41	78.697	.747	.848	.945
IA1	53.36	78.636	.751	.787	.945
IA2	53.35	77.931	.780	.807	.944
IA3	53.41	78.945	.711	.779	.946
IA4	53.50	80.598	.640	.619	.947
IA5	53.38	79.824	.726	.832	.945
		….			….

Table (2) reveals the relationship to the variable of effective use, which consists of three dimensions (transparent interaction, representative honesty, conscious action) and fifteen items in the current study. All scale items have high reliability and are characterized by internal consistency for each item of the study questionnaire. The values of Cronbach's Alpha are higher than (0.70), as in Table (3).

Table 3 Cronbach's Alpha results for the effective use of AI

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.949	.949	15

Table (3) shows that all the items used in the current study are pretty good, based on valuable tools with high reliability.

4.3. Evaluation of the validity and reliability of strategic performance

Table (4) shows the results of evaluating the validity and reliability measures for the strategic performance variable.

Table 4 Validity and reliability results for the strategic performance variable

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Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
FI1	71.70	104.499	.587	.514	.916
FI2	71.72	104.153	.611	.555	.916
FI3	71.77	103.666	.634	.645	.915
FI4	71.58	105.501	.609	.585	.916
FI5	71.71	103.313	.644	.603	.915
IC1	71.71	105.778	.587	.467	.917
IC2	71.75	106.147	.502	.435	.918
IC3	71.92	104.803	.541	.476	.917
IC4	71.95	103.807	.553	.536	.917
IC5	71.74	106.862	.471	.381	.919
IO1	71.95	102.890	.647	.502	.915
IO2	71.90	100.754	.687	.573	.914
IO3	72.04	101.912	.647	.569	.915
IO4	72.02	103.437	.564	.560	.917
IO5	72.05	103.431	.586	.520	.916
LG1	71.73	106.232	.522	.458	.918
LG2	71.63	105.002	.511	.480	.918
LG3	71.54	105.853	.565	.492	.917
LG4	71.40	105.712	.578	.568	.917
LG5	71.66	105.043	.572	.536	.917
		….			….

Table (4) above shows the results related to the strategic performance variable, which consists of four indicators (financial indicator, customer indicator, internal operations indicator, learning and growth indicator) and fifteen items in the current study. All scale items have high reliability and are characterized by internal consistency for each item of the study questionnaire. The values of Cronbach's Alpha are higher than (0.70), as in Table (5).

Table 5 Cronbach's Alpha results for the effective use of AI

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.920	.921	20

Table (5) shows that all the items used in the current study are pretty good, based on valuable tools with high reliability.

4.4. The Correlation analysis

The current study's central correlation hypothesis states a significant correlation between effective use and strategic performance at the aggregate level. Table (6) below shows the results of the Pearson correlation analysis. The results demonstrated that the correlation coefficient values for all variables items are positive, in addition to the correlation coefficient values for the variables of the current study (0.874), which is greater than (0.50). The correlation coefficient values are significant at the $p < 0.01$ level. This means there is a direct correlation between the independent variable, Effective Use (EFUS), and the dependent variable, Strategic Performance (STPE).

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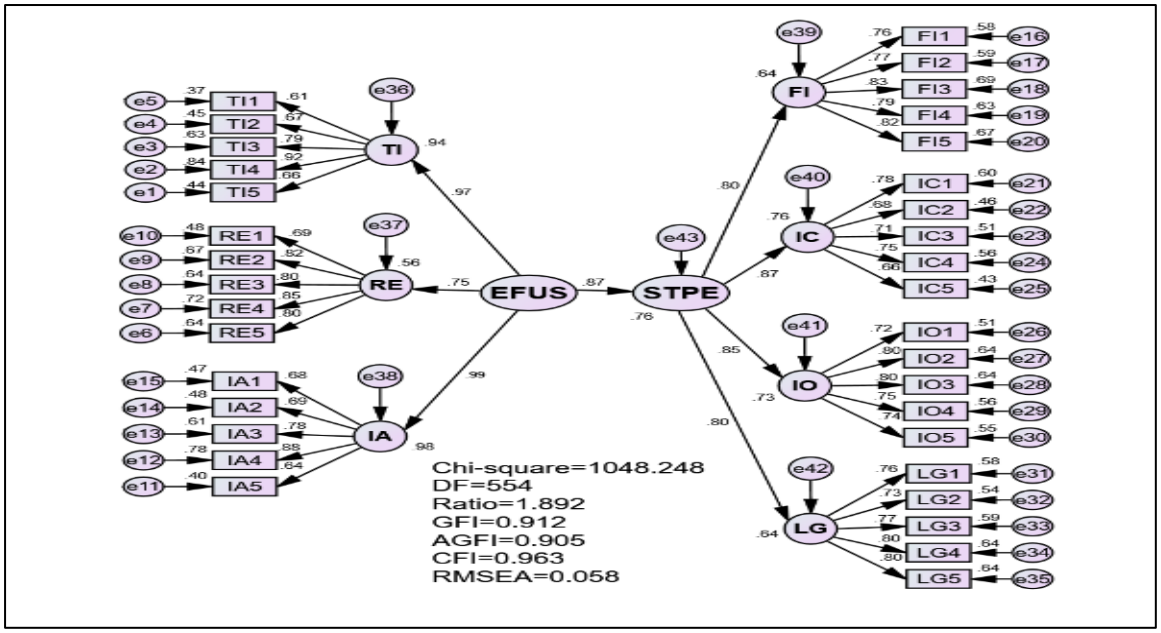
Table 6 The correlation between effective use of AI and strategic performance

Correlations			
		EFUS	STPE
EFUS	Pearson Correlation	1	.874**
	Sig. (2-tailed)		.000
	N	243	243
STPE	Pearson Correlation	.874**	1
	Sig. (2-tailed)	.000	
	N	243	243

**. Correlation is significant at the 0.01 level (2-tailed).

In this study, the influence relationships were tested between the independent variable represented by the effective use of artificial intelligence, which includes three dimensions (transparent interaction, representative honesty, and conscious work), and the dependent variable represented by strategic performance, which consists of four indicators: (the financial index, the customer index). , Internal Processes Index, Learning and Growth Index) and through several indicators, including Goodness of Fit (GOF). This means the model is invalid if the GOF result is less than or equal to 0.1. However, the model has little validity if it is higher than or equal to 0.1 and less than 0.25. The model has moderate validity if it is higher than or equal to 0.25 and less than 0.36. The model is valid if it is higher than or equal to 0.36. (Wetzels, 2009). It should be noted that the coefficient of determination (R2) is Squared Multiple Correlation, through which the variable's effective use can explain the variable's strategic performance. If the value of (R2) is higher than or equal to 0.67, then the explanation is robust. If it is less than 0.67 and higher than or equal to 0.33, the interpretation is average, and if it is less than 0.33 and higher than or equal to 0.19, then the interpretation is weak. It is an unacceptable recipe if it is less than (0.19) (Henseler et al., 2009).

*4.5. The Impact Relationship Analysis*Results should be presented in a clear and concise manner, focusing on the most important. Figure 2 shows the test of the central effect hypothesis. A model was built that explains the nature of the relationship between the dimensions of the independent variable, Effective Use of Artificial Intelligence (EFUS), which consists of fifteen items, and the dimensions of the dependent variable, Strategic Performance (STPE), which consists of twenty items. The test results show consistency in the quality of fit indicators based on Structural Equations Modeling, with the result shown in Table 7 below.



Journal of Ecohumanism
2025
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Figure 2. The Impact hypothesis testing model

Source: Amos v.24 output.

Figure (2) shows that the results of the goodness of fit in all indicators of the model testing the main effect hypothesis were higher than (0.25). This indicates the high validity of the model, as the value of (R2=0.764) is higher than (0.67), which means that the ability of the variable effective use of artificial intelligence to explain strategic performance was strong. Based on the above indicators, the test results showed a positive significant effect of the effective use of artificial intelligence on strategic performance. This confirms the validity of the hypothesis under the current study, shown in Table (7) below.

Table 7 The correlation between effective use of AI and strategic performance

Path			Estimate Standardized Regression Weights	Estimate Squared Multiple Correlations	C.R.	P
STPE	<---	EFUS	.874	.764	8.087	000

Source: Amos v.24 output.

5. Conclusions

This study explored the critical role of using artificial intelligence (EFUS) effectively in enhancing strategic performance (STPE) within the digital transformation framework in higher education institutions. The empirical findings demonstrate that the dimensions of EFUS (Transparent Interaction, Representational Validity, and Informed Action) are significant and powerful predictors of improved strategic performance. Providing a strong conceptual and empirical foundation by operationalizing EFUS under the Theory of Effective Use and situating it within a context of educational institutions seeking to achieve strategic excellence. The study demonstrates AI's, when appropriately leveraged, capability as an actual strategic lever able to impact institutional performance, enunciated by a high explanatory power ($R^2 = 0.764$). Also, the study found that despite the fact that the majority of the universities, like the University of Kufa, have the technical and intellectual potential, there is no proper use of these resources to achieve strategic results. This divergence of routine operations from performance-driven strategies illustrates the urgency of moving from AI use as business as usual, prioritizing alignment of AI applications with institutional visions and desired outcomes. The findings indicate that the effective use of AI must be bound with human capacity building, transparent governance, and ethical responsibility. To mitigate such risks and realize value, institutions must support educators with digital literacy programs, facilitate an innovation-oriented culture, and adopt AI governance frameworks emphasizing accountability. Thus, this study offers a reconceptualization of AI as not just a supplement to business strategy but a primary precursor to strategic performance in the digital age. Investing significantly in the effective utilization of AI technologies can help institutions to deliver sustainable growth, broaden education access, and introduce academic innovations to remain relevant and competitive.

6. Recommendations

Higher education institutions should aim to outgrow basic adoption of AI and move towards thoughtful, effective, institutionalized utilization. This means building AI use into institutional visions and training it to work in concert with long-term goals.

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Lugano needs to teach teachers how to build digital competencies. Institutions must offer training programs to the faculty and staff to develop the basic technological and analytical skills required to use AI productively in academic and administrative processes.

Abrogating overlapping powers with governmental bodies would allow greater autonomy to academic institutions. Improving internal governance will help institutions develop new products and services more efficiently.

When taken together, the EFUS dimensions (Transparent Interaction, Representational Validity, and Informed Action) should be seen as the mechanisms driving strategic performance, which should be monitored through planning models.

AI must be used ethically and responsibly. Comprehensive and enterprise-wide policies need to be written and adopted to promote fairness, transparency, inclusivity, and data privacy across AI-based activities in every institution.

Promoting effective adoption of AI in education: AI must be used to inform personalized learning, promote student engagement, and assist in adaptive teaching strategies. Institutions need to take the initiative to create AI-driven educational environments.

Administrative processes should be automated. This minimizes duplication of task efforts, drives up efficiency, and allows staff to focus on high-value tasks.

EFUS warrants further academic inquiry. Institutions should encourage research into its application across various contexts, disciplines, and national systems.

A national strategy for AI in education at the policy level is needed. This framework is intended to guide institutions in the ethical adoption and optimization of AI in pursuing academic excellence.

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