

The Mediating Role of Artificial Intelligence in the Relationship between Effectiveness of Management Information System and Knowledge Acquisition

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Abstract

The study aims to investigate the mediating role of artificial intelligence technical skill (*AI*) on the relationship between effectiveness of management information system (*MIS*) and knowledge acquisition (*KA*) in Jazan University, the study used descriptive and analysis methods, A questionnaires used for data collection, (229) questionnaires were distributed, (177) valid questionnaires are returned about (% 77.29) of the sample size, Several statistical methods have been used. The study found that there is positive and significant relationship between *MIS* effectiveness and *AI* technical skills, the study found that *AI* technical skill mediating the relationship between effectiveness of *MIS* and *KA* acquisition. These findings demonstrate the importance of *AI* in driving the effectiveness of *KA*. For future, the study recommends to apply difference dimensions of *AI* with difference dimensions of *KA* in other sectors.

Keywords: *MIS* effectiveness, *AI* technical skills, and *KA* acquisition.

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INTRODUCTION

Jazan university is a leading Saudi Arabian university that established in 2006. It offers a wide range of academic disciplines and aims to provide high-quality education, promote research, and serve the community. The university relies on advanced information systems to enhance the learning experience. These systems include student management systems for registration and academic information, human resources management systems for employee data, library management systems for organizing research sources, and electronic portals for accessing important information and communication. Information systems play a vital role in facilitating knowledge acquisition and improving efficiency in academic and administrative processes at Jazan university (Jazan university, 2024).

Artificial intelligence (*AI*) indeed plays importance role in knowledge acquisition for employees in Saudi universities. By leveraging *AI*, Saudi universities can enhance knowledge acquisition, improve employee performance, and foster effective communication and interaction within the academic environment. *AI* can analyze vast amounts of data, develop machine learning and self-learning systems,

utilize robotics and automation, and improve communication and interaction through various techniques such as natural language processing. These advancements enable the acquisition of knowledge, enhance employee performance, and create a more efficient and interactive academic environment in Saudi universities.

Objective of the Study:

The main objective of this study is to evaluate how *AI* technical skills mediates the relationship between effectiveness of *MIS* and *KA* acquisition at Jazan university.

1. To know the relationship between *AI* technical skills and *KA* acquisition.
2. To evaluate how effectiveness of *MIS* influenced in *AI* technical skills in Jazan university.
3. To measure the *AI* technical skills and it affect *KA* acquisition.
4. To investigate that *AI* technical skills affect the relationship between effectiveness of *MIS* and *KA* acquisition.

Significant of the Study:

1. Utilizing management information systems to acquire knowledge.
2. The extent to which university employees use artificial intelligence skills.
3. Verifying the extent of knowledge acquisition among employees at Jazan university.

Statement of the Problem:

The study of artificial intelligence in universities faces a significant challenge: a lack of the skills and expertise required to effectively implement and apply AI techniques. This issue can attributed to a shortage of technical skills needed to keep pace with the rapidly advancing field, resulting in a gap between the knowledge acquired and the ever-changing technological landscape.

To address this, universities should establish stronger connections with industry partners to bridge the gap between academia and real-world applications. Collaborations, research projects, and internships can provide students with practical experiences and relevant skills. Additionally, promoting lifelong learning and continuous professional development is crucial for AI professionals to stay updated with the latest advancements in the field.

Research Questions:

To address the identified research gaps, this study aims to investigate the following questions and specific research questions for each individual article:

1. Does effectiveness of MIS have an impact on AI technical skill?

2. Does AI technical skill have an impact on KA acquisition?
3. Does AI technical skill mediate the relationship between effectiveness of MIS and KA acquisition?

Research conceptual framework:

This research conceptual framework developed based on a careful review of prior studies that examined various perspectives and variables. The independent variable of these studies focused on the effectiveness of Management Information Systems (MIS), while the dependent variable was the knowledge acquisition (KA). Additionally, these studies highlighted the role of artificial intelligence (AI) as a mediating variable in the relationship between the effectiveness of MIS (independent variable) and KA acquisition (dependent variable) in the current study. By drawing upon the findings of these previous research studies, the model aims to provide a comprehensive understanding of the complex dynamics between MIS effectiveness, AI and KA acquisition. The inclusion of AI as a mediating variable allows for a deeper exploration of how the effectiveness of MIS influences KA acquisition, with AI serving as an intermediary factor in this relationship.

This approach enhances the model's ability to capture the multifaceted interactions between these variables and contributes to a more nuanced understanding of their interrelationships. By building upon the findings of previous research, the model expands our knowledge and provides valuable insights into the impact of MIS effectiveness, AI and KA acquisition.

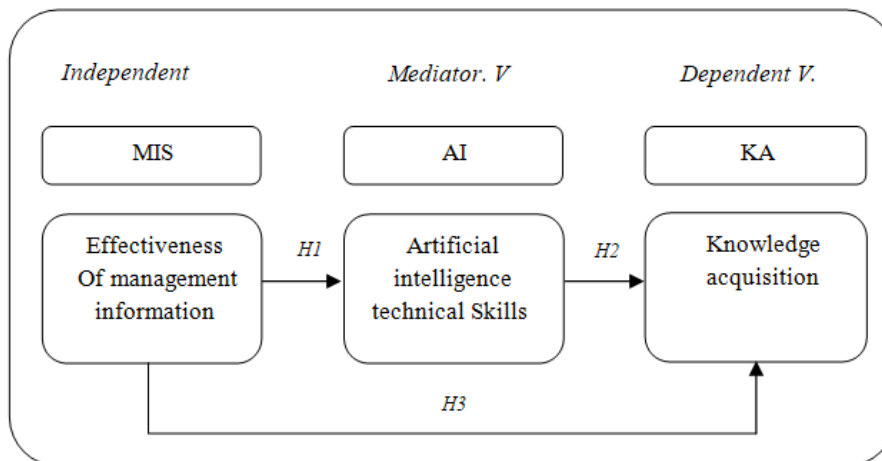


Fig 1: Research conceptual framework

Source: The researcher, 2024

Research hypotheses:

The main hypotheses represent in:

AI technical skill mediates the relationship between MIS Effectiveness and KA acquisition, with some sub-hypotheses:

1. There is positive and significant relationship between effectiveness of the management information system (MIS) and artificial intelligence technical skill (AI).

2. There is positive and significant relationship between artificial intelligence technical skills (*AI*) and knowledge acquisition (*KA*).
3. There is positive and significant relationship between *MIS* effectiveness and (*KA*) technical skill.

LITERATURE REVIEW

Artificial Intelligent:

There are various definitions of artificial intelligence (*AI*) provided by researchers and experts in the field. One such definition is that *AI* is the science of creating intelligent machines that can perform tasks that typically require human intelligence. The rapid advancement of *AI* has driven by the availability of large amounts of data and the development of sophisticated techniques and infrastructure (Mikalef, P., and Gupta, M., 2021, PP: 1-17). According to (Stryker, C., and Kavlakoglu, E., 2024), IBM, artificial intelligence involves leveraging computers and machines to replicate the problem-solving and decision-making abilities of the human mind. *AI* has become a top priority for organizations in recent years due to its potential to revolutionize processes, enhance decision-making, and unlock new opportunities. *AI* is having a significant impact across industries, offering several key benefits, including enhanced data analysis, automation and efficiency, personalized customer experiences, intelligent virtual assistants, predictive maintenance, healthcare diagnostics and treatment, fraud detection and cyber security, autonomous vehicles, natural language processing, and robotics and automation. As *AI* continues to evolve, it holds the potential to transform industries and drive innovation (OECD, report, Artificial Intelligence, 2021, pp: 15-20). However, it is essential to address ethical considerations, data privacy, and ensure transparency and accountability in *AI* systems is fully harness its benefits. Being mindful of these aspects will help ensure responsible and beneficial use of *AI* technology.

Technical Skills

When discussing technical *AI* skills, we are referring to the abilities required to handle the implementation and execution of *AI* algorithms, manage the infrastructure necessary to support such initiatives, and ensure that *AI* applications align with their intended objectives. These skills encompass various specific areas, including: algorithm development, programming, machine learning and deep learning, data preparation and analysis, cloud computing and infrastructure management, natural language Processing (NLP), computer vision, model evaluation and optimization, software engineering and version control (Michael, J., and Ma, S., 2019, pp: 11-15).

These technical *AI* skills are critical for individuals involved in implementing *AI* algorithms, managing infrastructure, and ensuring the successful

deployment of *AI* applications that align with organizational goals. Indeed, a strong foundation in several key areas of mathematics and computer science is highly beneficial for pursuing a career in the technical aspects of *AI*. Here are some of the important disciplines and skills that are often required (Lesgold, A., 2019, pp: 16- 33).The *AI* sector requires professionals with a variety of key skills. Some prominent skills include machine learning, deep learning, programming, Data science and analytics, natural language processing (NLP), reinforcement learning, problem-solving and critical thinking, and ethical and responsible *AI*. These skills may vary in depth and specialization depending on specific roles. However, having a combination of these skills is highly advantageous for success in the *AI* field. Continuous learning, staying updated with the latest advancements, and actively participating in *AI* projects and research are crucial for long-term success in this rapidly evolving domain (Sofiat, O, *et al.*, 2021, pp: 133-156). It is worth noting that the *AI* field is rapidly evolving, and new skills and technologies continue to emerge. Continuous learning and staying updated with the latest advancements are essential for *AI* professionals to thrive in this dynamic industry (Lo, S., 2020, pp: 1-7).

Effectiveness of *MIS*:

Management Information Systems (*MIS*) have garnered significant attention from researchers in the fields of business management and information technology. This can attributed to several factors as the importance of data and information in management processes, Technological advancements, Increasing competitiveness and the need for innovation, and digital transformation and big data analytics. *MIS* stands for management information System is a collection of systems, tools, network, procedures, store to produce useful information for every organization (Awan, A., and Khan, F., 2016, pp: 2-19). The topic the effectiveness of management information System topic. It discusses the role of Management Information Systems (*MIS*) in supporting the *KA* acquisition. Here is a summary of the key points mentioned in the article (Mary, M, *et al.*, 2018, pp: 13-20), their study focused on the management of information systems in Nigerian universities. It found that poor *MIS* design identified as a bottleneck in effective university management. The study suggests that proper orientation and in service, training should provide to managers and secretaries to ensure the proper and adequate use of *MIS* facilities for generating and disseminating information.

Ref. (Yousef, A, *et al.*, 2023, pp: 1281-1287) conducted a literature review on using *MIS* of information technology, people, and business processes to record, store and process data to produce data-driven information that helps managers to derive decisions for the organizations. The decision consciously taken from a variety of alternatives and the consent of many based on the goal of achieving the desired outcome. *MIS* can be

defined as a collection of systems, hardware, procedures, and people that all work together to process, store, and produce information that is useful to the organization (Elmohammed, E., 2023, pp: 1258-1281). Overall, the article highlights the significance of *MIS* in decision-making and organizational effectiveness. It emphasizes the need for proper design, training, coordination, and the provision of credible information to ensure the effective use of *MIS* in generating relevant information for decision-making processes. In summary, an *MIS* is a comprehensive system that integrates various components to collect, process, store, and produce valuable information for an organization. It plays a crucial role in supporting decision-making, improving operational efficiency, and fostering communication within the organization.

Knowledge management (KM):

Knowledge management (*KM*) encompasses a range of methods aimed at creating, sharing, acquisition, utilizing, and effectively managing the knowledge and information within an organization. It represents a multidisciplinary approach to achieving organizational objectives by harnessing the full potential of knowledge; *KM* involves systematic processes for collecting, organizing, and storing knowledge and information, ensuring easy access for employees throughout the organization. It encompasses both tacit knowledge, which is personal and experience-based, and explicit knowledge, which is codified and documented (Mohammed, A, *et al.*, 2019, pp: 104-114).

Knowledge management, decision-making style and organizational performance, knowledge management (*KM*) is the process of identifying, organizing, storing and disseminating information within an organization (Nicpan, M., *et al.*, 2024). The majority of literature and concepts dealt with knowledge management as a process. In addition, most researchers in the field of knowledge management pointed to this (Ali, A., and Yagoub, A., *et al.*, 2021, pp: 86-95). Believes that the diagnosis of knowledge is one of the important matters in any knowledge management program. In addition, in the light of this diagnosis, policies and programs for other operations put in place, because one of the results of the diagnosis process is determining the type of knowledge available and comparing it with what is required to know in order to determine the gap. The knowledge and effort that the organization needs to continue the new knowledge investment process, as well as among the results of the diagnostic process, discovering the organization's knowledge and identifying the people who hold it and their locations. According to researcher (Yu, Q, *et al.*, 2022, pp: 1-13). show Knowledge management processes operate in a cyclical and iterative manner, where they not only depend on and integrate with each other but also support the overall knowledge management framework.

Knowledge management processes interact and integrate as (*Knowledge Creation, Knowledge Capture, Knowledge Organization and Storage, Acquiring knowledge, Knowledge Sharing and Dissemination, Knowledge Application and Utilization, Knowledge Evaluation and Feedback*). Overall, these knowledge management processes operate in a continuous loop, with each process depending on, integrating with, and supporting the others. They form an interconnected and interdependent system that enables the effective management and utilization of knowledge within an organization.

Knowledge acquisition (KA):

Acquiring knowledge is crucial for intellectual growth and innovation. It involves eliciting, collecting, analyzing, modeling, and validating knowledge. Elicitation involves extracting knowledge from various sources, while collection involves gathering information from different sources. Analysis involves evaluating the collected knowledge to identify patterns and insights. Modeling is the process of structuring and representing knowledge, and validation ensures the accuracy and relevance of the acquired knowledge. Through these processes, individuals and organizations can expand their understanding, foster innovation, and make informed decisions (Jesus, H., and Gonçalves, P, *et al.*, 2020, pp: 140-149). Accordingly, knowledge acquisition could defined as learning through experiences and experiments. Knowledge acquisition refers to the process of acquiring, assimilating, and integrating new knowledge and information. It involves actively seeking and obtaining knowledge through various means such as reading, research, training, and learning experiences. Knowledge acquisition enables individuals to expand their understanding and expertise in specific areas or domains (Gorge, P., 1991, p: 88). Knowledge acquisition refers to the process of generating new knowledge or insights that not previously known or understood. It involves transforming information, data, and existing knowledge into new ideas, concepts, or theories that have value and relevance (Mehdi, M, *et al.*, 2022, pp: 1-15). In additional study the artificial intelligence driven talent management system, they found that *AI* has the potential to improve strategies to talent management by implementing advanced automated systems for workforce management. *AI* can make this improvement a reality. The objective of this study is to discover the new requirements for generating a new *AI* oriented artefact so that the issues pertaining to talent management effectively addressed (Faqihi, A., and Miah, S., 2022, pp: 1-18). Talent acquisition, also known as recruitment, is a critical function within organizations that focuses on selecting and acquiring qualified candidates who possess the necessary skills and abilities to meet the organization's needs and contribute to its success. In recent years, technological advancements have significantly transformed the talent acquisition process, making it more efficient and effective.

Research Gap Identified

Indeed, studies on the topic of artificial intelligence (AI) have explored various aspects as perceived by researchers. AI is a broad field that encompasses diverse subfields and applications, leading to a wide range of research perspectives. Researchers have approached artificial intelligence (AI) from multiple perspectives. The field of AI is vast and multidimensional, leading to diverse research viewpoints. Management information systems variable found a great significant from the researchers; (Mikalef, P., and Gupta, M., 2021) conducted a comprehensive study on the capability of artificial intelligence (AI) with a specific focus on its impact on organizational creativity and firm performance. The study encompassed several key areas, including conceptualization, measurement calibration, and empirical analysis, (Hakami, M, *et al.*, 2020). conducted a cross-sectional study that examined the impact of Artificial Intelligence (AI) on the preference of radiology as a future specialty among medical students at Jazan university. The study aimed to assess the attitudes and perspectives of medical students towards AI in radiology and its potential influence on their career choices (.Michael and Ma conducted a study that explored the development and enhancement of inquiry and critical thinking skills for the next generation, with a specific focus on the relationship between artificial intelligence (AI) and human intelligence. The researchers examined the potential benefits, challenges, and implications of integrating AI into educational settings to promote these cognitive skills (Michael, J., and Ma, S., 2019). Where (Lesgold, A., 2019) showed "learning for the Age of artificial intelligence" is a thought-provoking argument that emphasizes the need for curricular changes to prepare individuals for success in a world where intelligent machine systems are increasingly prevalent. This comprehensive volume outlines eight essential competences, providing valuable insights for educational leaders, designers, researchers, and policymakers. It equips them with the necessary tools to reimagine the knowledge, skills, and learning environments required for students to excel and avoid being marginalized in our technology-driven society and workforce. Where (Sofiat, O, *et al.*, 2021) search on Artificial Intelligence

in the construction industry: A review of the Present Status, Opportunities, and Future Challenges" is a comprehensive examination of the current state of artificial intelligence (AI) adoption in the construction sector. The review delves into the various applications of AI within the industry, identifies the opportunities it presents, and addresses the challenges that lie ahead. From the other side (Awan, A., and Khan, F., 2016). investigated impact of management information system on the performance of the organization. Also (Baker, A, *et al.*, 2023), review the effectiveness of management information system in decision-making. (Elmohammed, E., 2023) investigate the mediating role of information quality on the relationship between Knowledge management process and effectiveness of management information system case of central bank of Sudan. (Ali, A, *et al.*, 2021) study Knowledge management and its impact on the administrative creativity of service organizations in light of the emerging corona virus epidemic crisis SARS- COV19. Additional to (Yu, Q, *et al.*, 2022), showed the impact of knowledge management process and intellectual capital on entrepreneurial orientation and innovation. From difference side (Jesus, H., 2020) study the linking knowledge management, organizational learning and memory, also (Mehdi, M, *et al.*, 2022) the effect of knowledge management on the sustainability of technology driven businesses in emerging markets: The mediating role of social media.

Measurements

Identify the items that used to measure the study in the questionnaire used by previous studies in refereed journals and periodicals. The researcher adopted the questionnaire which determined the responses at Jazan University allowed for each question, (Bertra, D., pp: 625–632) and (Norman, G., 2010, pp: 625–632) were rated on five-point Likert-type scales, from (strongly disagree to strongly agree), the measurement in this study will be five items evaluating on five -point scale where (1≡ strongly disagree), (2≡ disagree), (3≡ Not certain), (4≡ agree), and (5≡ strongly agree). Measures were adapted from previously studied scales. A pretest undertaken to determine specific variables used to measure AI and to measure MIS, the study used the measurement that mentioned in the Table (1).

Table 1: Variables Measurement

Variables	Code	Items	Measured by
Effectiveness of MIS	MIS	5	(Elmohammed, E., 2023)
AI technical skill.	AI	5	(Mikalef, P., and Gupta, M., 2021)
KA acquisition	KA	5	(Awan, A., and Khan, F., 2016)

Source: The researcher, 2024.

Reliability of the study tool:

The results contained in Table 2. indicate that the reliability coefficients for the MIS ranged in (0.812),

while the reliability coefficients for AI Technical skills (0.706) and KA acquisition were (0.877), these values considered acceptable for the purposes of this study.

Table 2: Reliability Test for the pilot sample before the factor analysis

Variable	Code	No. Item	Cronbach's Alpha
Effectiveness of MIS	MIS	5	0.812
AI technical skill.	AI	5	0.877
KA acquisition	KA	5	0.706

Source: The researcher, 2024.

Data presentation and analysis:

Factor analysis for variables: Table (3, 4, 5) showed that the matrix appeared in many factors and values of the rotations contributions more than (0.5), the saturation greater than (0.5), The factor analysis of the terms of the variables was performed many times, and the (cut off point) was used less than (0.475), Some of variables items with (cross loading) were also deleted. This process resulted in the deletion of a number of items for each variable.

Factor analysis for independent variable (MIS):

MIS Effectiveness used as independent variable, Statistical analysis program (SPSS V. 23) and obtained the rotation matrix shown in the Table 3.

Table 3 Shown all the remaining items has more than recommended value of at least 0.5 in measure of sample adequacy (MSA) with (KMO) above the recommended minimum level of (0.60), and Bartlett's test of sphericity is significant ($p < .05$). Thus, the items are appropriate for factor analysis. The matrix showed that the primary analysis process remain the independent variables one factors, Table 3. Also showed the items that used in the measurement of variables and the name of the corresponding variable when entering the data whether it omitted or not. As result of this process (factor analysis) has omitted one item of the variable. Where the factor includes names of items (MIS1, MIS2, MIS3, and MIS4), The factor measured the reliability of value of the Cronbach's alpha score over (0.876), after the factor analysis and values are considered acceptable for the purposes and highly reliable of this study.

Table 3: Factor analysis for independent variable (MIS)

Items Code	Result	Factor 1
MIS1	Not omitted	0.801
MIS2	Not omitted	0.733
MIS3	Not omitted	0.783
MIS4	Not omitted	0.879
MIS5	omitted	0.241
Eigen value		3.437
Variance Explained (%)		
Total Variance Explained (%)		3.707
Kaiser- Meyer OIKin (KMO)		.688
Bartlett,s Test of Spherecity		1.137E
Sig.		0.000

Extraction Method: Principal Component Analysis. a. 5 components extracted. Component Matrix^a
 Note. n = 171.

Source: prepared by researcher, 2024

Factor analysis for mediator variable (AI):

AI Technical Skill used as mediating variable:

Statistical analysis program (SPSS V. 23) and obtained the rotation matrix shown in the Table 4. Which showed all the remaining items has more than recommended value of at least 0.5 in measure of sample adequacy (MSA) with (KMO) (above the recommended minimum level of (0.60), and Bartlett's test of sphericity is significant ($p < .05$). Thus, the items are appropriate for factor analysis. The matrix showed that the primary analysis process remain the mediator variables in one factor.

In addition, Table 4. showed the items that used in the measurement of variables and the name of the corresponding variable when entering the data whether it omitted or not. As result of this process (factor analysis) has remaining all items for the variable. Where the factor includes names of items (AI1, AI2, AI3, AI4, and AI5) the factor measured the reliability of value of the Cronbach's alpha score over (0.703), after the factor analysis and values are considered acceptable for the purposes and highly reliable of this study.

Table 4: Factor analysis for mediator variable (AI)

Items Code	Result	Factor 1
AI1	Not omitted	0.923
AI2	Not omitted	0.803
AI3	Not omitted	0.703
AI4	Not omitted	0.822
AI5	Not omitted	0.901
Eigen value		4.152
Variance Explained (%)		
Total Variance Explained (%)		4.152
Kaiser- Meyer OIKin (KMO)		.891
Bartlett,s Test of Sphercity		1.114E
Sig.		0.000

Extraction Method: Principal Component Analysis.

a. 5 components extracted. Component Matrix^a

Note. n = 171.

Source: prepared by researcher, 2024

Factor analysis for dependent variable:

KA acquisition used as dependent variable. Statistical analysis program (SPSS V. 23) and obtained the rotation matrix shown in the table 5. Which shown all the remaining items has more than recommended value of at least 0.5 in measure of sample adequacy (MSA) with (KMO) (above the recommended minimum level of (0.60), and Bartlett’s test of sphericity is significant (p<.05). Thus, the items are appropriate for factor analysis. The matrix showed that the primary analysis process remain the dependent variables in one

factor. In addition, Table 5 showed the items that used in the measurement of variables and the name of the corresponding variable when entering the data whether it omitted or not. As result of this process (factor analysis) has remaining all items for the variable. Where the factor includes names of items (KA1, KA2, KA3, KA4, and KA5), The factor measured the reliability of value of the Cronbach’s Alpha score over (0.813), after the factor analysis and values are considered acceptable for the purposes and highly reliable of this study.

Table 5: Factor analysis for dependent variable KA acquisition

Items Code	Result	Factor 1
KA1	Not omitted	0.778
KA2	Not omitted	0.689
KA3	Not omitted	0.723
KA4	Not omitted	0.807
KA5	Not omitted	0.904
Eigen value		3.901
Variance Explained (%)		
Total Variance Explained (%)		3.901
Kaiser- Meyer OIKin (KMO)		.799
Bartlett,s Test of Sphercity		1.131E
Sig.		0.000

Note. n = 171.

Source: prepared by researcher, 2024

Reliability of variable after the factor analysis:

Table 6 showed the reliability of the respondents and the Alpha-Cronbach's value, after the

factor analysis process, we found that it was appropriate, acceptable and highly reliable. The is no change in conceptual framework after factor analysis.

Table 6: Reliability coefficients for each variable after the factor analysis

Variable	Code	No. Item	Cronbach’s Alpha
Effectiveness of MIS	MIS	5	0.876
AI technical skill.	AI	5	0.703
KA acquisition	KA	5	0.813

Source: The researcher, SPSS. V. 23, (2024).

Mathematical averages & St. Deviations:

After the factor analysis, the following hypotheses formulated: Table 7 mathematical averages and standard deviations of the perceptions of workers at Jazan university about the variable, Also table 7 shows that the overall mathematical average of AI technical skill amounted to (3.98) and the standard deviation of (0.91). This means that the perceptions of workers at

Jazan University about AI are high. followed by effectiveness of MIS with a mathematical average of (3.61) and a standard deviation of (0.76), followed KA acquisition with a mathematical average of (3.87) and a standard deviation of (0.72), This means that the perceptions of Jazan university about KA acquisition are high which all contribute to the achievement of Jazan university goals desired.

Table 7: Mathematical averages & St. Deviations before factor analysis

Variable	Mean	Level of mean	Standard deviation
Effectiveness of MIS	3.61	High	0.76
AI technical skill.	3.98	High	0.91
KA acquisition	3.87	High	0.72

Source: The researcher, SPSS. V. 23, (2024).

Pearson's Correlation Coefficient:

Table 8 below show the Pearson correlation coefficient provides that there is very strong positive and significant relationship between MIS with AI (r=0.786), there is very strong positive and significant relationship

between MIS with KA (r=0.809), there is strong positive and significant relationship between AI requires with KA (r=0.822**) the correlation analysis showed that the variables which are used in this study are correlated together without any interrelated.

Table 8: Correlation Analysis between study variables

Variables	Cr	MIS	AI	KA
MIS	MIS	1		
AI	AI	.786	1	
KA	KA	.809	.822**	1

Correlation is significant at the 0.05 level (2-tailed.)

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

Testing mediation with regression analysis:

Ref. (Jill, A., 2000, pp: 415-420) and (Elazar, J., 1997, pp: 135-140, 145-154), Show the conditions of mediates of variables the relations as follow:

1. The relation between independent variable and dependent variable must be positive and significant (β_1).
2. The relation between independent variable and mediates variable must be positive and significant (β_2).

3. The relation between mediates variable and dependent mediates variable must be positive and Significant (β_3).

Conceptual framework after factor analysis:

Study conceptual framework in Fig 2 showed that conceptual framework does not changed after factor analysis, the types of between variables if it is (positive or negative) and the level of if it is (significant or non-significant) to approve the research hypnoses.

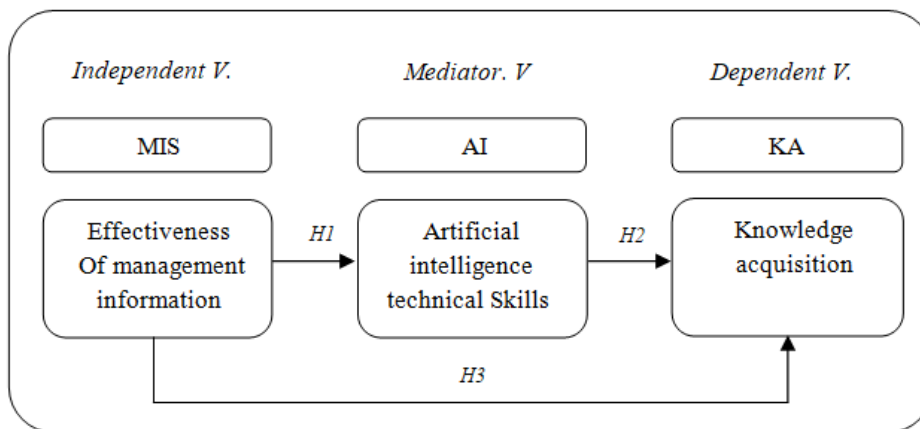


Fig 2: Research conceptual framework after factor analysis

Source: The researcher, 2024.

Testing of hypotheses and findings:

Regression (simple and multiple) has been used in this study to test the relationship levels (weak and strong), type of relationship (negative or positive), and significant level, standardized coefficient (β) value, un-standardized coefficient (β), Adjusted R Square (R^2) Change R Square, Durbin-Watson ($D. W$), and F-Test value.

Test of relationship between independents and mediates variables:

There is positive and significant relationship between MIS effectiveness and AI technical skill as flow: Table 9. Showed the test and results of multiple regression of relationship between MIS effectiveness and AI technical skill. There is positive and significant

relationship between MIS effectiveness and AI technical skill. Standardized coefficient of ($\beta= 0.789$, Sig. 0.000). In addition, R square ($R^2 = 0.692$), that mean the impact and the change in the MIS effectiveness variable was explained by AI technical skill variables of (70%) percentage and there main of percentage returned to other factor as result on random mistake. F- Test value (82.793) showed that the multiple regression model is (0.000). Durbin-Watson ($D. W$) used with at the (0.05) level ($D. W=1.133$) it explain that there is no- significant relationship between mistake random of using Durbin-Watson. the result of multiple regression showed that factor are significant according to showed results the model approve that the impact factor MIS effectiveness variable on AI technical skill.

Table 9: Test of multiple regression between Effectiveness of MIS and AI technical skill

Variables	AI technical skill	
	β	Sig
Effectiveness of MIS	.789	.000
Statistic percentage;		
R Square (R^2)	.692	
Adjusted R Square (R^2)	.625	
Change R Square ($R^2 \Delta$)	.692	
Durbin-Watson	1.133	
F-value	82.793	
Sig.	.000 ^a	

Note at the (0.05) level is (0.000)

Source: The researcher, SPSS. V. 23, (2024).

Test of relationship between mediates and dependents variables:

There is positive and significant relationship between AI technical skill and KA acquisition as flow:

Table 10 showed the test and results of simple regression of relationship between AI technical skill and KA acquisition:

There is positive and significant relationship between AI technical skill and KA acquisition. Standardized coefficient of ($\beta= 0.688$, Sig 0.000). In

addition, R square ($R^2 = 0.631$). That mean the impact and change in the AI technical skill variable explained by KA acquisition variable of (63%) percentage. And there main of percentage returned to other factor as result on random mistake, F- Test value (77.811) showed that the simple regression model is (0.000). Durbin-Watson ($D. W$) used with at the (0.05) level ($D. W=1.158$) it explain that there is significant relationship between mistake random of using Durbin-Watson, the result of regression showed that the factor is significant, according to showed results the model approve that the AI technical skill impact factor on the KA acquisition.

Table 10: Test of simple regression between AI technical skill and KA acquisition

Variables	KA acquisition	
	β	Sig
Effectiveness of MIS	.688	.000
Statistic percentage;		
R Square (R^2)	.613	
Adjusted R Square (R^2)	.650	
Change R Square ($R^2 \Delta$)	.631	
Durbin-Watson	1.158	
F-value	77.811	
Sig.	.000 ^a	

Note at the (0.05) level is (0.000)

Source: The researcher, SPSS. V. 24, (2024).

Test of relationship between dependents and independents variables:

There is positive and significant relationship between MIS effectiveness and KA technical skill as flow:

Table 11 showed the test and results of simple regression of relationship between MIS effectiveness and KA acquisition, there is positive and significant relationship between MIS effectiveness and KA acquisition. Standardized coefficient of ($\beta= 0.789$, Sig. 0.000). In addition, R square ($R^2=0.741$), that mean the impact and the change in the MIS effectiveness variable was

explained by KA acquisition variable of (74%) percentage and there main of percentage returned to other factor as result on random mistake. F- Test value (73.012) showed that the simple regression model is (0.000). Durbin-Watson (D. W) used with at the (0.05) level ($D. W=1.119$) it explain that there is no- significant relationship between mistake random of using Durbin-Watson. the result of simple regression showed that factor are significant according to showed results the model approve that the impact factor MIS effectiveness variable on KA acquisition.

Table 11: Test of multiple regression between Effectiveness of MIS and KA acquisition

Variables	KA acquisition	
	<i>beta</i>	<i>Sig</i>
Effectiveness of MIS	.833	.000
Statistic percentage;		
R Square (R ²)	.741	
Adjusted R Square (R ²)	.627	
Change R Square (R ² Δ)	.741	
Durbin-Watson	1.119	
F-value	73.012	
Sig.	.000 ^a	

Note at the (0.05) level is (0.000)

Source: The researcher, SPSS. V. 23, (2024).

Results between variables according to conditions of mediates

1. There is positive and significance relationship between effectiveness MIS and AI technical skill.

2. There is positive and significance relationship between AI technical skill and KA acquisition.

Table 12: Results of test the relationship between variables: There is positive and significant relationship between

No.	Statement of hypothesis	Result
1	MIS effectiveness and AI technical skill.	Supported
2	AI technical skill and KA acquisition.	Supported
3	MIS effectiveness and KA acquisition.	Supported

Source: The researcher, SPSS. V. 23, (2024).

Table 13: Results of test of the main hypnos: AI technical skill mediates the relationship between

No.	Statement of hypothesis	Result
4	MIS Effectiveness and KA acquisition	Supported

Source: The researcher, SPSS. V. 23, (2024).

The Research findings

According to the primary data that has been analyze the findings can be summarize as follow:

1. There is positive and significant relationship between MIS Effectiveness and AI technical skill.
2. There is existent of positive and significant relationship between AI technical skill and KA acquisition.
3. AI technical skill mediates the relationship between MIS Effectiveness and KA acquisition.

RESEARCH RECOMMENDATIONS

1. The study revealed that the effectiveness of (MIS) is a crucial factor in conjunction with (KA) acquisition.
2. The findings indicate that a majority of respondents from Jazan university perceive MIS as an effective tool, particularly in the context of artificial intelligence (AI). They believe that utilizing MIS in combination with AI can enhance the effectiveness of KA acquisition, allowing managers to address ongoing challenges and issues within the monetary system of Jazan university.
3. In terms of future recommendations, the study suggests exploring various dimensions of AI as

mediators between new *MIS* implementations and different dimensions of *KA* in other sectors. This implies that applying AI in different ways can facilitate the integration of innovative *MIS* approaches with diverse aspects of *KA* across various industries or sectors.

4. By considering these recommendations, future research can further investigate the potential synergies between *AI*, *MIS*, and *KA*, and explore their applicability and impact in different domains beyond Jazan university.

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