

# The Impact of Adopting Artificial Intelligence Systems on the Efficiency of Knowledge Management Processes: An Applied Study at Noon Saudi Arabia

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## ABSTRACT:

This study aimed to investigate the effect of implementing artificial intelligence (AI) systems on the efficiency of knowledge management (KM) processes at Noon Saudi Arabia, one of the largest e-commerce companies in the region. The study employed a descriptive-analytical methodology, utilizing a structured questionnaire administered to a random sample of 120 employees. It focused on four core dimensions of KM: knowledge creation, knowledge storage, knowledge sharing, and knowledge application, with the adoption of AI systems as the independent variable. The study results revealed a significant positive effect of AI adoption on all KM dimensions, with varying degrees. The strongest impact was observed on knowledge creation, followed by storage and sharing, while the weakest effect was found in knowledge application. The findings highlight AI as a strategic enabler of KM processes in digital enterprises, though optimal results depend on organizational and human readiness. The study recommended investing in digital infrastructure, staff training, and fostering a culture of knowledge sharing.

*Keywords: Artificial Intelligence, Knowledge Management, Noon Saudi Arabia, Knowledge Creation, Knowledge Application.*

## 1. Introduction

The contemporary organizational landscape is undergoing a profound transformation driven by the rapid advancement of artificial intelligence (AI). Beyond its traditional perception as a technical or operational tool, AI has increasingly emerged as a strategic managerial resource that supports organizational learning, enhances decision-making quality, and strengthens institutional knowledge capabilities. In knowledge-based and digitally oriented organizations, AI-driven analytics play a critical role in transforming dispersed individual expertise into structured organizational knowledge by integrating data, identifying patterns, and supporting evidence-based managerial decisions. Consequently, AI contributes not only to operational efficiency but also to the institutionalization of knowledge as a core strategic asset that underpins sustainable innovation and long-term organizational competitiveness.

Knowledge Management (KM) is regarded as one of the key pillars of institutional excellence. It aims to generate, store, share, and apply organizational knowledge in a manner that improves the overall performance of the organization. With the advent of AI technologies, knowledge management methodologies have been reshaped, allowing for the automation of data collection and analysis, the discovery of hidden patterns, and the facilitation of knowledge flow among individuals and departments, thereby increasing the

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efficiency and accuracy of administrative processes. Several Arab studies — such as Bukhari (2023), Khantit (2020), and Al-Najjar (2025) have shown that integrating AI into knowledge management processes has contributed to improved decision-making and increased organizational innovation.

In the Saudi context, the adoption of AI systems aligns with Vision 2030, which emphasizes digital transformation, the enhancement of technological infrastructure, and innovation in both public and private institutions. Major companies including Noon Saudi Arabia seek to leverage AI to improve operational efficiency and institutional knowledge management in order to enhance customer experience and increase organizational effectiveness. Al-Ruba'ān (2025) indicated that the intelligent use of robots and smart systems in Saudi institutions has become a key factor in improving knowledge management performance and raising operational quality, while Al-Ghamdi and Al-Dhurman (2022) emphasized the importance of integrating AI software into Saudi projects to enhance knowledge sharing and accelerate task execution.

Accordingly, the importance of this study stems from its attempt to address a noticeable gap in Arabic academic literature concerning the impact of artificial intelligence adoption within large-scale digital enterprises, particularly in the private commercial sector. While focusing on Noon Saudi Arabia allows for an in-depth examination of AI-supported knowledge management in a digitally mature organization, the findings should be interpreted within their contextual boundaries. Therefore, the study acknowledges that its focus on a single e-commerce company may limit the generalizability of results, highlighting the need for future comparative research across different sectors and organizational contexts.

### 1.1 Study Problem

Although many organizations in the Kingdom of Saudi Arabia have begun implementing AI systems as part of their digital strategies, the extent of these systems' impact on the efficiency of knowledge management processes remains unclear. Some studies suggest that the successful implementation of AI does not solely depend on technological availability, but also on the extent to which it is integrated with organizational culture, employees' readiness for adoption, and the mechanisms for knowledge sharing within the workplace (Al-Qa'id et al., 2022).

Based on the foregoing, the primary research problem can be formulated as the following question: **What is the impact of implementing artificial intelligence systems on the efficiency of knowledge management processes at Noon Saudi Arabia?**

### 1.2 Objectives of the study:

This study aims to identify the impact of adopting AI systems on the efficiency of knowledge management processes in Noon Saudi Arabia, by achieving the following objectives:

- 1) To identify the impact of adopting AI systems on knowledge generation within Noon Saudi Arabia.
- 2) To examine the impact of adopting AI systems on the storage and organization of knowledge in the company's work environment.

- 3) To investigate the impact of adopting AI systems on knowledge sharing among employees at Noon Saudi Arabia.
- 4) To analyze the impact of adopting AI systems on the application and use of knowledge in the company's operational processes.
- 5) To measure the overall impact of AI systems adoption on the efficiency of knowledge management processes at Noon Saudi Arabia.

### **1.3 Research Questions:**

This study aims to identify the impact of adopting AI systems on the efficiency of knowledge management processes in Noon Saudi Arabia, by achieving the following objectives:

- 1- What is the impact of adopting AI systems on the process of knowledge generation at Noon Saudi Arabia?
- 2- What is the impact of adopting AI systems on the storage and organization of knowledge at Noon Saudi Arabia?
- 3- What is the impact of adopting AI systems on knowledge sharing among employees at Noon Saudi Arabia?
- 4- What is the impact of adopting AI systems on the application and use of knowledge at Noon Saudi Arabia?
- 5- What is the impact of adopting AI systems on the overall efficiency of knowledge management at Noon Saudi Arabia?

#### **1.3.1 Scientific study**

- **Scientific Significance:** The academic value of this study lies in its contribution to contemporary Arabic research by bridging artificial intelligence and knowledge management within a practical organizational setting. By examining these two fields together in the context of a digitally advanced commercial enterprise, the study adds depth to existing literature that has predominantly focused on educational, healthcare, or governmental institutions. The selection of Noon Saudi Arabia as a case study provides a novel perspective on how AI-driven knowledge practices operate within large-scale digital business environments. Consequently, this research supports the development of an updated conceptual framework that clarifies the role of artificial intelligence technologies in enhancing the efficiency of knowledge management processes in modern digital organizations.
- **Practical Significance:** From a practical standpoint, the study offers actionable insights that can support Saudi organizations in strengthening their administrative performance and knowledge capabilities through intelligent digital transformation. The findings are intended to guide executives, managers, and decision-makers in designing and implementing effective strategies for integrating artificial intelligence systems into knowledge management practices. Such integration can contribute to improved operational efficiency, enhanced organizational effectiveness, and more informed decision-making. In addition, the study aligns with the objectives of Saudi Vision 2030 by supporting initiatives related to digital innovation and technological advancement. It may also serve as a useful reference for policymakers and organizational leaders in developing evaluation standards and

performance indicators to assess the effectiveness of artificial intelligence applications in knowledge management across both public and private sectors.

#### 1.4 Research hypotheses:

The research hypotheses were formulated in direct accordance with the theoretical framework, ensuring consistency between the conceptual model and the empirical testing of the study variables. The study is built upon the following main hypothesis:

• **Main Null Hypothesis (H<sub>0</sub>):** There is no statistically significant relationship between the adoption of artificial intelligence systems and the efficiency of knowledge management processes at Noon Saudi Arabia.

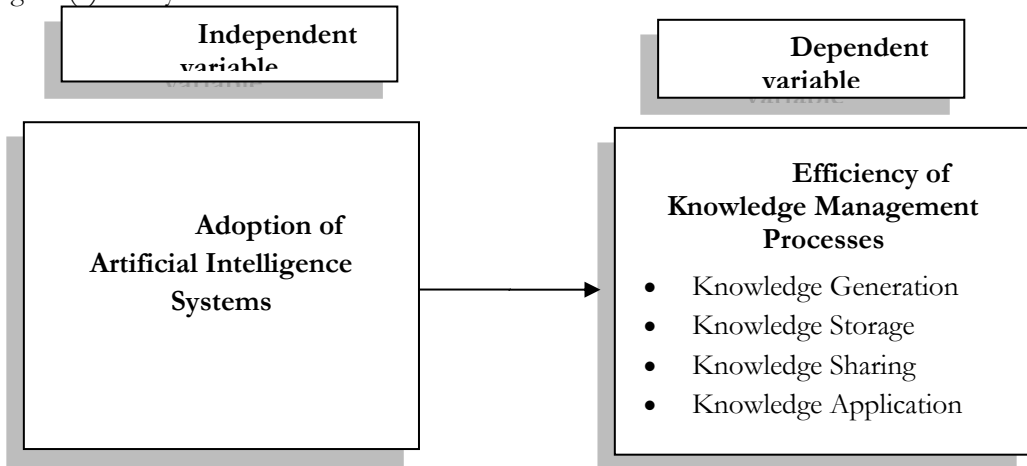
• **Sub-null Hypotheses:**

- **(H<sub>01</sub>):** There is no statistically significant effect of the adoption of artificial intelligence systems on knowledge generation at Noon Saudi Arabia.
- **(H<sub>02</sub>):** There is no statistically significant effect of the adoption of artificial intelligence systems on knowledge storage and organization at Noon Saudi Arabia.
- **(H<sub>03</sub>):** There is no statistically significant effect of the adoption of artificial intelligence systems on knowledge sharing among employees at Noon Saudi Arabia.
- **(H<sub>04</sub>):** There is no statistically significant effect of the adoption of artificial intelligence systems on knowledge application and utilization at Noon Saudi Arabia.

#### 1.5 Study model.

To accomplish the study's aim and achieve its specific objectives, the researchers developed the theoretical model of the study, as illustrated in Figure 1.

Figure (1): Study model



The proposed theoretical model conceptualizes the adoption of artificial intelligence systems as a key driver influencing the efficiency of knowledge management processes, including knowledge generation, storage, sharing, and application. These dimensions are not viewed as isolated or linear processes; rather, they are interdependent and mutually reinforcing. For instance, effective knowledge generation is often enhanced through active knowledge sharing, while the application of knowledge relies on the availability and

accessibility of stored organizational knowledge. This integrative perspective reflects the dynamic nature of knowledge management within complex organizational systems.

### **1.6 Study methodology:**

The present study adopted a descriptive survey approach, as this method is well suited to examining and interpreting the relationship between the adoption of artificial intelligence systems and the efficiency of knowledge management processes within Noon Saudi Arabia. To achieve the research objectives, primary data were collected using a structured questionnaire designed to capture employees' perceptions of AI usage and its influence on knowledge-related practices. This approach enabled the researchers to obtain reliable and relevant data necessary for analyzing the study variables.

The study population consisted of all employees working at Noon Saudi Arabia, from which a sample of 104 respondents was selected using a simple random sampling technique to ensure fair representation. The research was conducted within clearly defined boundaries. From an objective perspective, the study focused exclusively on assessing the impact of artificial intelligence systems on the efficiency of knowledge management processes. Spatially, the investigation was limited to Noon Saudi Arabia, given its prominent role in adopting advanced AI technologies within the Saudi market. In terms of human scope, the analysis was restricted to company employees, excluding customers and external stakeholders. Temporally, the data collection and application of the study took place during the year 1447 AH / 2025 AD.

For conceptual clarity, key terms were defined both theoretically and operationally. Artificial intelligence systems are understood as a collection of computational algorithms and technical mechanisms that enable machines to perform tasks resembling human cognitive functions (Amir & Bouhanan, 2023). Within the context of this study, the term refers specifically to AI-driven tools and software utilized by the organization to support managerial decision-making and automate operational activities. Knowledge management, on the other hand, is defined as an organized managerial process concerned with the creation, organization, sharing, and application of knowledge to enhance organizational performance and achieve strategic objectives (Al-Hababi, 2024). Operationally, it denotes the set of practices implemented across company departments to ensure effective use of information and knowledge in alignment with institutional goals and desired knowledge behaviors. Theoretical Framework and Previous Studies

### **1.7 Theoretical Framework:**

The theoretical framework provides the conceptual basis for the research hypotheses by linking artificial intelligence adoption directly to the core dimensions of knowledge management examined in this study. The theoretical framework of the present study is structured as follows:

#### **1.7.1 Artificial Intelligence: Concept, Importance, and Application Adoption**

##### **Concept of Artificial Intelligence:**

Artificial Intelligence (AI) is a technological and scientific field aimed at designing computer systems and software capable of simulating human cognitive abilities such as

learning, reasoning, problem-solving, and decision-making. Modern AI systems rely on advanced techniques like Machine Learning, Deep Neural Networks, and Natural Language Processing (NLP), enabling them to detect patterns in big data and adapt to new inputs in a way that mimics human intelligence (Taherdoost & Madanchian, 2023).

### **Importance of Artificial Intelligence in Organizations:**

AI has become one of the most strategic tools for enhancing organizational competitiveness and achieving operational efficiency. Modern organizations invest in AI solutions to automate routine tasks, reduce errors, and analyze vast volumes of data to extract actionable insights for decision-making. AI has evolved from being a mere IT tool to a core component in decision-making, organizational learning, customer experience, and knowledge resource management.

Studies indicate that integrating Artificial Intelligence technologies significantly improves knowledge and organizational processes. For example, a Gartner report (2023) revealed that AI applications could increase knowledge process efficiency by up to 40% (Al-Farazi & Al-Shawi, 2024). Additionally, a McKinsey study (2022) found that organizations adopting AI-supported knowledge management saw about a 20% increase in employee productivity, confirming AI's crucial role in enhancing institutional performance (Al-Farazi & Al-Shawi, 2024).

### **Levels of AI Adoption and Applications:**

The extent of AI adoption varies across organizations depending on technological maturity, organizational culture, and investment levels. AI adoption is typically classified into the following levels:

- **Initial Stage:** Limited experimentation with technologies like chatbots or simple analytics.
- **Intermediate Stage:** AI is integrated into specific operations to enhance parts of the workflow (e.g., automated customer service or invoicing).
- **Advanced Stage:** AI becomes an integral part of organizational structure, supporting strategic decisions and future forecasting (Al-Ameen & Wael, 2025).

Common AI applications in modern business environments include predictive machine learning systems for trend forecasting, virtual assistants (e.g., chatbots) for customer interaction, smart robots in production lines and supply chains, and expert systems to support complex decision-making (Al-Ameen & Wael, 2025).

## **1.7.2 Knowledge Management: Concept and Dimensions**

### **Concept of Knowledge Management:**

Knowledge Management (KM) is a systematic managerial process aimed at generating, storing, organizing, sharing, and applying knowledge effectively to achieve institutional goals and improve performance (Al-Hababi, 2024). Hamid & Belkacem (2015) define KM as processes that facilitate the generation, acquisition, organization, and presentation of information to support various organizational activities such as problem-solving, strategic planning, and learning.

### **Dimensions of Knowledge Management (Processes):**

KM includes four interrelated core processes representing the knowledge lifecycle within organizations:

- **Knowledge Generation:** Refers to creating or acquiring new knowledge through R&D activities, expert learning, or external sourcing such as training and partnerships. This

phase involves transforming individual expertise into institutional knowledge (Khantit, 2020).

- **Knowledge Storage:** Involves systematically documenting and organizing knowledge for future retrieval and use. It includes digital repositories, databases, and archiving systems to preserve explicit knowledge, regularly maintained and updated to build a sustainable knowledge base (Al-Dossary & Al-Nouh, 2024).
- **Knowledge Sharing:** Refers to distributing knowledge among individuals and teams through formal methods (meetings, training workshops, electronic knowledge bases) and informal methods (personal communication and expert networks). Effective sharing breaks down silos and ensures timely access to relevant knowledge (Khantit, 2020).
- **Knowledge Application:** The practical use of knowledge in solving problems, making decisions, and improving operations. This phase transforms theoretical knowledge into actionable practices that enhance performance and foster innovation (Al-Najjar, 2025).

### 1.7.3 The Relationship Between AI and Knowledge Management

There is a strong, integrative relationship between AI technologies and KM processes. Theoretically, Artificial Intelligence provides powerful tools to collect, organize, and derive insights from knowledge, enhancing each phase of the KM lifecycle. For example, machine learning can analyze massive datasets to discover new knowledge and relationships that humans may overlook, boosting organizational knowledge generation (Al-Dossary & Al-Nouh, 2024).

AI systems also automate the indexing and categorization of content in digital repositories, improving the efficiency of knowledge storage and retrieval. In terms of knowledge sharing, AI-enhanced platforms (e.g., smart recommendation systems) offer personalized suggestions to users about experts or relevant documents, ensuring faster access to needed knowledge and strengthening internal knowledge networks.

Furthermore, intelligent decision support systems enable managers to analyze alternatives and predict outcomes, facilitating well-informed, knowledge-based decisions. NLP technologies extract tacit knowledge from unstructured texts and convert it into shareable formats, while automated reasoning engines apply logical rules to existing knowledge bases to generate new insights. These capabilities position AI as a cornerstone for modern knowledge management (Taherdoost & Madanchian, 2023).

### 1.7.4 The Role of AI in Enhancing KM Process Efficiency

Empirical and theoretical studies affirm AI's pivotal role in improving the efficiency of KM processes by optimizing each dimension and accelerating knowledge flow. Below is a breakdown of AI's contribution to each KM process:

- **Supporting Knowledge Generation:**

AI expands the scope of knowledge generation through advanced analytics and machine learning algorithms that uncover hidden patterns and opportunities in organizational big data. Studies like Harvard Business Review (2020) highlight a 25% innovation increase in companies integrating AI into their processes (Al-Farazi & Al-Shawi, 2024).

- **Supporting Knowledge Storage:**

AI applications automate knowledge classification and archiving using NLP techniques, ensuring consistent and accurate organization. Smart information retrieval algorithms enable rapid searches through knowledge bases by interpreting user intent.

A Saudi government sector study found that poor use of AI tools correlates with inefficient information storage and retrieval, underscoring the need for investment in AI-powered archiving and semantic search systems (Al-Dossary & Al-Nouh, 2024).

▪ **Supporting Knowledge Sharing:**

AI promotes a culture of knowledge sharing by offering tools that link knowledge seekers with experts and relevant content. Expert locator systems and smart collaboration platforms (e.g., Q&A bots or online communities of practice) streamline knowledge distribution. Social network analysis tools also help identify barriers to knowledge sharing, allowing targeted interventions. Al-Ghamdi & Al-Dhurman (2022) emphasized that AI integration fosters open communication environments.

▪ **Supporting Knowledge Application:**

AI enhances the practical use of knowledge by enabling real-time analysis of decision alternatives and generating optimal solutions. Intelligent systems automate decisions based on accumulated knowledge and predictive models. A PwC report (2022) found that 72% of institutions using AI in KM processes experienced better decision-making outcomes. This integration leads to more effective and reliable decisions, boosting overall organizational performance (Al-Farazi & Al-Shawi, 2024).

### 1.8 Previous studies:

The researcher surveyed a range of Arabic and international academic databases to identify and analyze the relevant literature and scholarly theses related to the study topic. The review indicates that although numerous previous studies have examined the topic from various angles, only a limited number—within the researcher. However, based on the researcher's knowledge, few have directly investigated the impact of adopting artificial intelligence (AI) systems on the efficiency of knowledge management processes. The literature review revealed ten relevant studies: seven in Arabic and three in English, all addressing issues related to AI and knowledge management. Given the novelty of the study topic, the reviewed studies were limited to those published between 2020 and 2025. These studies are presented chronologically, from the most recent to the oldest, with a summary of each study's findings and a clarification of the research gap, as well as how this study benefits from the existing literature.

Al-Najjar (2025) *The Impact of Using AI Applications on Enhancing Innovative Behavior in Egyptian Hotels Through the Mediation of Knowledge Management.*

This study aimed to explore how AI applications support employees' innovative behavior via knowledge management processes. Based on a survey of 414 hotel employees, findings showed a positive and statistically significant relationship between AI use, knowledge management dimensions, and employee innovation. The effect of AI applications on innovative behavior was amplified when mediated by knowledge management.

Al-Ameen & Wael (2025) *The Impact of Artificial Intelligence on Knowledge Management Systems*

Conducted as a case study at Abdel Hafid Boulasouf University Center, this research used descriptive and case study approaches with a sample of faculty members. Results indicated a significant positive impact of AI on knowledge management, especially

in decision-making, innovation, and employee performance. The study highlighted challenges such as lack of digital awareness and infrastructure and recommended digital training and AI integration strategies.

Al-Dosari & Al-Nouh (2024) *The Reality of AI Utilization in Knowledge Management Processes at the Saudi Ministry of Education*

This study aimed to identify the extent to which AI is employed in applying knowledge management processes (knowledge generation, storage, sharing, and application) at the Saudi Ministry of Education. Using a descriptive survey approach, a questionnaire was administered to (160) ministry leaders. The findings showed that the overall level of AI utilization in knowledge management processes was low, with an overall mean of 2.25 out of 5. Knowledge storage ranked highest (mean = 2.40), followed by knowledge generation (2.29) and knowledge sharing (2.27), while knowledge application ranked last (2.07). The results indicate that the ministry is still in the early stages of adopting AI to support knowledge management, particularly in applying generated knowledge to improve practices.

Al-Fazari & Al-Shawi (2024) *The Role of AI in Knowledge Management Implementation*

Through literature review, the study emphasized AI's role in improving knowledge transfer, decision-making, and organizational communication. It cited data from Gartner (2023), McKinsey (2022), and PwC (2022), affirming AI's impact on innovation and decision quality. However, it noted resistance to organizational change and infrastructure limitations as key challenges.

Madouri & Ould Said (2024) *The Role of AI Applications in Enhancing Knowledge Management Processes*

This analytical study found that AI supports big data analysis, pattern discovery, and knowledge memory building. It emphasized the importance of human-AI collaboration and recommended participatory learning approaches and responsible AI use in knowledge management.

Al-Qayed et al. (2022) *The Reality of Knowledge Management Practices in E-Learning Environments in Light of AI Developments at King Abdulaziz University*

Using mixed methods on a random sample of faculty members, findings revealed high levels of knowledge management practices and statistically significant relationships between faculty AI skills and knowledge management processes. Recommendations included expanding AI use in education and enhancing staff competencies.

Dhleimy & Abu Sharha (2021) *Using AI in Knowledge Management Applications in the General Authority for Meteorology and Environmental Protection in Saudi Arabia*

This study combined documentary and case study methods to evaluate knowledge practices. It found stronger formal knowledge resources than tacit ones and recommended converting implicit knowledge to explicit, increasing employee participation, and leveraging AI in knowledge organization.

Jarrahi et al. (2023) *AI and Knowledge Management: A Human-AI Partnership*

The study emphasized that AI complements rather than replaces human abilities in knowledge processes (creation, storage, retrieval, sharing, and application). It recommended focusing on people, infrastructure, and processes to ensure sustainable human-AI synergy in organizational knowledge management.

Taherdoost & Madanchian (2023) *AI and Knowledge Management: Impacts, Benefits, and Applications*

A critical review of studies (2012–2022) analyzing AI's role in improving knowledge management, especially amid remote/hybrid work trends. The study concluded that AI fills current knowledge management system gaps and proposed future research directions involving deep learning and generative AI.

Al-Mansoori et al. (2021) *The Impact of AI and IT on Knowledge Management Efficiency in Modern Organizations: A Systematic Review*

Reviewing 15 key papers, this study examined how AI and IT enhance data collection, processing, storage, and use in knowledge management. It highlighted improvements in innovation and performance while noting challenges like implementation barriers and called for future research into integrating AI with knowledge systems.

#### Commentary on Previous Studies

The reviewed studies both Arabic and foreign—focus on leveraging AI to improve knowledge management efficiency. However, differences exist in context, methodology, and sectoral focus. Arabic studies largely emphasize educational and governmental sectors, while foreign studies focus more on theoretical frameworks and strategic integration.

The findings of this study are consistent with prior international research that highlights the positive role of artificial intelligence in enhancing knowledge management processes, particularly knowledge generation and storage. However, the present study extends existing literature by providing empirical evidence from a Saudi private-sector context, specifically within a large digital e-commerce organization. By doing so, it contributes region-specific validation to global discussions on AI-driven knowledge management and addresses a notable gap in Arabic empirical research focused on private digital enterprises.

## Conclusion

Previous studies confirm the significant potential of AI in enhancing knowledge management processes, while also stressing the importance of organizational readiness, training, and a knowledge-sharing culture. Building on these insights, the current study seeks to provide both theoretical and practical contributions by examining AI-supported knowledge management in a digitally mature Saudi e-commerce company. Overall, the study demonstrates coherence between its theoretical foundation, hypotheses, and empirical results, reinforcing the validity of the proposed research model.

## 2. Methodology and Study Procedures

This axis shows the methodology of the study and the procedures that were followed in conducting the study. It also shows the different contexts of the steps that the researchers took to achieve the objectives of the study and answer its questions. In addition to clarifying the type, nature and strategy of the study that was used, describing the study population, and determining the sampling method. Methods and methods for collecting study data, the stages of developing the study tool, demonstrating the validity and reliability of the study tool, and determining the statistical methods used in the study to analyze the data to reach the results.

### 3.1 Study methodology:

The study employed the descriptive survey method, as it is suitable for the nature of the research, which aims to describe and analyze the relationship between the adoption of artificial intelligence systems and the efficiency of knowledge management processes at Noon Saudi Arabia. The appropriate data collection tools (such as the questionnaire) were used to obtain the necessary information and data to achieve the study's objectives.

### 3.2 Study tool:

The initial version of the study instrument was developed by reviewing the theoretical framework and tools used in prior related studies. The statements were formulated in alignment with the operational definitions of each dimension and benefited from phrasing found in previous research tools, particularly those from Al-Qarni (2024), Al-Najjar (2025), and Al-Fazari & Al-Shawi (2024).

The study tool uses a five-point Likert scale as follows: (strongly agree - agree - neutral - disagree - strongly disagree).

#### Questionnaire sections:

- **Section One:** Demographic data (gender, age, educational qualification).
- **Section Two:** Includes 24 statements representing the study's variables and dimensions:
  - **Independent Variable:** Adoption of Artificial Intelligence Systems — 8 statements.
  - **Dependent Variable:** Efficiency of Knowledge Management Processes — 16 statements, distributed across the following four dimensions:
    - Knowledge Generation: 4 statements
    - Knowledge Storage: 4 statements
    - Knowledge Sharing: 4 statements
    - Knowledge Application: 4 statements

### 3.3 Data collection methods

Two types of information sources were relied upon:

- A- **Secondary data:** Secondary data were obtained from library resources and a review of relevant previous studies in order to establish the scientific foundations and theoretical framework of the study, such as:
- (1) Books and academic references in the fields of knowledge management, Artificial Intelligence Systems.
  - (2) In addition, master's theses and doctoral dissertations related to the study topic were reviewed.
  - (3) specialized scientific journals and periodicals addressing issues relevant to the subject of the research.

**Primary data:** Primary data were collected through a structured questionnaire specifically designed for the purposes of this study. The questionnaire covered all dimensions discussed in the theoretical framework, as well as the study questions and hypotheses. It was distributed to the study sample consisting of employees working at Noon Saudi Arabia.

### 3.4 Statistical processing:

After completing the data collection process, the responses were coded and entered into a computer for statistical analysis using the Statistical Package for the Social Sciences (SPSS). The data obtained from the study sample were analyzed using the following statistical techniques:

- **Frequencies and Percentages:** Used to describe the demographic characteristics of the respondents and the distribution of responses to the questionnaire items.
- **Arithmetic Mean:** Used as a central tendency measure to determine the average responses of the sample.
- **Standard Deviation:** Used to measure the dispersion of responses around the mean.
- **Cronbach's Alpha Test:** Used to assess the reliability (internal consistency) of the questionnaire.
- **Pearson Correlation Test:** Used to examine the correlation between individual items and the total score of the instrument.
- **Simple Linear Regression test:** to test the effect of the independent variable on one dependent variable for testing sub-hypotheses.

### 3.5 Reliability and validity of the instrument

#### 3.5.1 Reliability Coefficient

The stability of the study tool was confirmed using the value of Cronbach's Alpha for internal consistency, to ensure the stability of the study tool. Table No. (1) shows the stability coefficient for the study variables.

**Table (1):** The value of the reliability coefficient for the study variables

| Variables type                                  | Variables  | No. of phrases | Cronbach's alpha |
|---|--|----------------|------------------|
| Independent variable                            | <b>Adoption of Artificial Intelligence Systems</b> | 8              | 0.790            |
| Dependent variable                              | Knowledge Generation                               | 4              | 0.772            |
|   | Knowledge Storage                                  | 4              | 0.706            |
|   | Knowledge Sharing                                  | 4              | 0.789            |
|   | Knowledge Application                              | 4              | 0.724            |
|   | <b>Knowledge Management Processes</b>              | 16             | 0.846            |
| <b>Overall reliability of the questionnaire</b> |  | <b>24</b>      | <b>0.872</b>     |

Table No. (1) shows that the overall reliability coefficient for the 24 questionnaire items reached 0.872, with individual dimensions ranging between 0.706 (minimum) and 0.846 (maximum). This confirms that the instrument is highly reliable and suitable for field

application, based on Nunnally's standard which considers 0.70 as the minimum acceptable reliability threshold (Nunnally & Bernstein, 1994).

**3.5.2 Internal consistency validity:**

The internal consistency validity of the questionnaire was assessed by calculating the Pearson correlation coefficient between the score of each item within the five axes and the total score of the axis to which the item belongs, using the SPSS statistical software (Version 25). The following tables present the correlation coefficients for each item in relation to the total score of its corresponding axis.

**Table No. (2):** Correlation coefficients between the score of each item and the total score of the axis to which it belongs:

| Adoption of AI Systems |                         | Knowledge Generation |                         | Knowledge Storage |                         | Knowledge Sharing |                         | Knowledge Application |                         |
|------------------------|-------------------------|----------------------|-------------------------|-------------------|-------------------------|-------------------|-------------------------|-----------------------|-------------------------|
|                        | Correlation coefficient |                      | Correlation coefficient |                   | Correlation coefficient |                   | Correlation coefficient |                       | Correlation coefficient |
|                        | 0.744**                 |                      | 0.738**                 | 3                 | .659**                  | 7                 | .762**                  | 1                     | .720**                  |
|                        | 0.712**                 | 0                    | .762**                  | 4                 | .686**                  | 8                 | .724**                  | 2                     | .799**                  |
|                        | 0.761**                 | 1                    | .803**                  | 5                 | .616**                  | 9                 | .752**                  | 3                     | .738**                  |
|                        | 0.719**                 | 2                    | .793**                  | 6                 | .635**                  | 0                 | .636**                  | 4                     | .701**                  |
|                        | 0.731**                 |                      |                         |                   |                         |                   |                         |                       |                         |
|                        | 0.711**                 |                      |                         |                   |                         |                   |                         |                       |                         |
|                        | 0.549**                 |                      |                         |                   |                         |                   |                         |                       |                         |
|                        | 0.300**                 |                      |                         |                   |                         |                   |                         |                       |                         |

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

The correlation analysis revealed that all Pearson coefficients among the five variables (AI adoption, knowledge generation, knowledge storage, knowledge sharing, and knowledge application) and the sum of the scores for each dimension were statistically significant at the 0.01 level. The correlation coefficients ranged from the lowest to the highest for each dimension as follows: AI adoption (0.300–0.761), knowledge generation (0.648–0.824), knowledge storage (0.616–0.686), knowledge sharing (0.636–0.762), and knowledge application (0.701–0.799). These results indicate that all elements are internally consistent with their respective dimensions, thus confirming the internal validity of each dimension of the study.

**Scoring Criterion:**

The five-point Likert scale scoring criterion was adopted to determine the levels of responses across the different dimensions. The numerical weights were allocated as follows:

**Table (3):** Statistical Criterion for Determining the Attitudes of Noon Company Employees Toward the Questionnaire Items

| Mean        | Result            | Level of response/Importance |
|-------------|-------------------|------------------------------|
| 1.00 - 1.80 | Strongly disagree | Very low                     |
| 1.81 - 2.60 | Disagree          | Low                          |
| 2.61 - 3.40 | Neutral           | Medium                       |
| 3.41 - 4.20 | Agree             | High                         |
| 4.21 - 5.00 | Strongly agree    | Very high                    |

### 3.6 Personal characteristics of the study sample members:

This section presents the data of the study population members, which provides insight into the demographic characteristics of the sample. These characteristics were defined as follows:

**Table (4):** Distribution of study sample members according to demographic characteristics

| Statement                 | Categories          | Repetition | Percentage    |
|---------------------------|---------------------|------------|---------------|
| Gender                    | Male                | 78         | 75.0%         |
|                           | Female              | 26         | 25.0%         |
|                           | <b>Total</b>        | <b>104</b> | <b>100.0%</b> |
| Age                       | 20 to 30 years      | 39         | 37.5%         |
|                           | 31 to 40 years      | 53         | 51.0%         |
|                           | 41 to 50 years      | 9          | 8.7%          |
|                           | Older than 50 years | 3          | 2.9%          |
|                           | <b>Total</b>        | <b>104</b> | <b>100.0%</b> |
| Educational qualification | High School Diploma | 8          | 7.7%          |
|                           | Diploma             | 26         | 25.0%         |
|                           | Bachelor's Degree   | 58         | 55.8%         |
|                           | Postgraduate Degree | 12         | 11.5%         |
|                           | <b>Total</b>        | <b>104</b> | <b>100.0%</b> |
| Type of the job           | Administrative      | 59         | 56.7%         |
|                           | Technical           | 45         | 43.3%         |
|                           | <b>Total</b>        | <b>104</b> | <b>100.0%</b> |

|                            |                   |            |               |
|----------------------------|-------------------|------------|---------------|
| <b>Years of Experience</b> | Less than 3 years | 26         | 25.0%         |
|                            | 3 to 5 years      | 32         | 30.8%         |
|                            | More than 5 years | 46         | 44.2%         |
|                            | <b>Total</b>      | <b>104</b> | <b>100.0%</b> |

**3. Analysis of the study results**

**Description of the study variables:**

This part deals with a description of the study variables and the study items, where the arithmetic means and standard deviations of the items were calculated, for the purpose of judging the degree of agreement, determining the relative importance of the items, and then the relative importance of the variables. By performing these steps, the results were as follows:

**3.1 Items and Dimensions of the Independent Variable: (Adoption of Artificial Intelligence Systems):**

**Table (5)** Means, Results, and Statistics of the Independent Variable Items

|  | Paragraphs   | Mean | Standard Dev. | Result | Agreement | Relative weight | Importance & Rank |
|--|--|------|---------------|--------|-----------|-----------------|-------------------|
|  | The company relies on AI systems to analyze work data and facilitate daily decision-making.            | .194 | .777          | Agree  | A         | 4%<br>8         | High (5)<br>High  |
|  | AI technologies are used to automate routine tasks in order to reduce errors and speed up performance. | .124 | .840          | Agree  | A         | 2%<br>8         | High (7)<br>High  |
|  | AI systems help predict customer needs and improve the level of service.                               | .134 | .882          | Agree  | A         | 0%<br>8         | High (6)<br>High  |

|  |   |            |          |             |          |                |           |          |               |
|--|---|------------|----------|-------------|----------|----------------|-----------|----------|---------------|
|  | Intelligent systems provide reports and suggestions that help departments improve their performance.  | .26        | 4        | .750        | 0        | Strongly Agree | 5%        | 8        | Very High (2) |
|  | Senior management encourages the use of AI tools across various departments.                          | .25        | 4        | .833        | 0        | Strongly Agree | 5%        | 8        | Very High (3) |
|  | The company has a strong technical infrastructure that enables the efficient operation of AI systems. | .22        | 4        | .800        | 0        | Strongly Agree | 4%        | 8        | Very High (4) |
|  | Training programs are organized for employees on how to use intelligent systems in daily work tasks.  | .27        | 4        | .803        | 0        | Strongly Agree | 5%        | 8        | Very High (1) |
|  | The application of AI systems shows limited results in improving work performance.                    | .54        | 2        | .07         | 1        | Disagree       | 1%        | 5        | (8) Low       |
|  | <b>General scale</b>  | <b>.00</b> | <b>4</b> | <b>.541</b> | <b>0</b> | <b>Agree</b>   | <b>0%</b> | <b>8</b> | <b>High</b>   |

From Table (5), the means and standard deviations of the responses and opinions of the study participants regarding the items of the independent variable "Adoption of Artificial Intelligence Systems" are evident. The results show that the overall mean of participants' responses was (4.00) with a standard deviation of (0.541), indicating a general agreement among the sample that the company relies heavily on AI systems. The item means ranged between (2.54 – 4.27), and the standard deviations ranged between (0.750 – 1.07), which fall within a relatively high range, reflecting stability in participants' estimates. The modest standard deviations also indicate a good level of opinion consistency.

As for individual items, the statement "Training programs are organized for employees on how to use smart systems in daily work" ranked first with a mean of (4.27) and a percentage of (85%), reflecting clear awareness of the company's interest in building employee capabilities in dealing with smart systems. The statement "The application of AI systems shows limited results in improving work performance" ranked last with a mean of (2.54) and a percentage of (51%), indicating that most participants disagree with the limited impact of smart systems and consider them effective.

**3.2 Description of the dependent variable (Knowledge Management Processes):**

**• Dimension One: Knowledge Generation**

**Table (6): Means, Results, and Statistics for Dimension One (Knowledge Generation):**

|    | Paragraphs  | Mean | Std Dev. | Result          | Relative weight | importance & Rank |
|----|---|------|----------|-----------------|-----------------|-------------------|
| 9  | AI technologies help extract new patterns and ideas from work data.                 | 4.03 | 0.919    | Agreed          | 1%              | High (4)          |
| 10 | Smart analysis tools contribute to developing new solutions for recurring problems. | 4.29 | 0.733    | Strongly Agreed | 6%              | Very high (1)     |
| 11 | AI systems assist in converting scattered information into usable knowledge.        | 4.19 | 0.813    | Agreed          | 4%              | High (2)          |

|   |   |            |          |             |          |       |           |          |          |
|---|---|------------|----------|-------------|----------|-------|-----------|----------|----------|
| 2 | AI technologies contribute to creating new methods to improve processes and services. | .15        | 4        | .798        | 0.       | Agree | 3%        | 8        | High (3) |
|   | <b>General scale</b>  | <b>.17</b> | <b>4</b> | <b>.631</b> | <b>0</b> | Agree | <b>3%</b> | <b>8</b> | High     |

The results in Table (6) show that the overall mean for the “Knowledge Generation” dimension was (4.17) with a standard deviation of (0.631), which is a high score indicating that participants agree AI technologies effectively contribute to knowledge generation within the company. The item means ranged between (4.03 – 4.29) and the standard deviations between (0.733 – 0.919), indicating a high degree of consistency in responses and homogeneity in perspectives.

The statement “Smart analytics tools contribute to developing new solutions for recurring problems” ranked first with a mean of (4.29) and a percentage of (86%), reflecting participants’ confidence in the role of intelligent analytics in generating innovative solutions. The statement “AI technologies help extract new patterns and ideas from work data” came last with a mean of (4.03) and a percentage of (81%), though still reflecting a high appreciation of the systems’ role in knowledge generation.

• **Dimension Two: Knowledge Storage**

**Table (7): Means, Results, and Statistics for Dimension Two (Knowledge Storage):**

|   | Paragraphs   | Mean | Std Dev. | Result | Relative weight | Importance & Rank |
|---|--|------|----------|--------|-----------------|-------------------|
| 3 | Important information is stored in electronic systems that can be easily accessed when needed. | .08  | 4        | .942   | 0               | Agree (3) High    |
| 4 | AI technologies are used to organize and update files and information automatically.           | .12  | 4        | .998   | 0               | Agree (2) High    |
| 5 | Knowledge  | .57  | 2        | .38    | 1               | Disagree (4) Low  |

|   |  |      |       |       |     |          |
|---|--|------|-------|-------|-----|----------|
|   | systems face difficulties in storing information in an organized and continuous manner.                                  |      |       |       |     |          |
| 6 | Intelligent systems make it easier to access required information quickly without the need for lengthy manual searching. | 4.14 | 0.756 | Agree | 83% | High (1) |
|   | <b>General scale</b>   | 3.73 | 0.660 | Agree | 75% | High     |

From the results in Table (7), it is evident that the overall mean of participants' responses regarding the "Knowledge Storage" dimension was (3.73) with a standard deviation of (0.660), a score considered high, indicating a generally positive view of the role of AI in storing and organizing knowledge within the company. The item means ranged between (2.57 – 4.14) and standard deviations between (0.756 – 1.38), where the higher standard deviations indicate a relative variance in opinions on some items.

The statement "Smart systems facilitate quick access to required information without the need for lengthy manual search" ranked first with a mean of (4.14) and a percentage of (83%), indicating a clear awareness of the operational benefits of smart systems in accelerating knowledge access.

Meanwhile, the statement "Knowledge systems face difficulty in storing information in an organized and continuous manner" came last with a mean of (2.57) and a percentage of (51%), a negatively phrased item reflecting the participants' rejection of the notion of storage deficiency, reinforcing trust in the current knowledge infrastructure.

• **Dimension Three: Knowledge Sharing**

**Table (8):** Means, Results, and Statistics for Dimension Three (Knowledge Sharing):

|   | Paragraphs                          | Mean | Std Dev. | Result         | Relative weight | importance & Rank |
|---|-------------------------------------|------|----------|----------------|-----------------|-------------------|
| 7 | AI-powered digital platforms enable | 4.21 | 0.821    | Strongly agree | 84%             | Very high (2)     |

|    |  |             |              |                       |            |                  |
|----|--|-------------|--------------|-----------------------|------------|------------------|
|    | information and experience exchange between departments.   |             |              |                       |            |                  |
| 8  | The company encourages sharing knowledge generated from the use of smart technologies among employees. | 4.26        | 0.776        | Strongly agree        | 85%        | Very high (1)    |
| 9  | Smart tools help document and transfer knowledge from experienced employees to others.                 | 4.21        | 0.809        | Strongly agree        | 84%        | Very high (3)    |
| 10 | AI systems enhance collaboration and facilitate information exchange within the work environment.      | 4.13        | 0.772        | Agree                 | 83%        | High (4)         |
|    | <b>General scale</b>   | <b>4.20</b> | <b>0.571</b> | <b>Strongly agree</b> | <b>84%</b> | <b>Very high</b> |

The data in Table (8) indicates that the overall mean for the “Knowledge Sharing” dimension was (4.20) with a standard deviation of (0.571), representing a very high level and reflecting the participants’ belief that smart systems facilitate knowledge exchange between employees and departments. The item means ranged between (4.13 – 4.26) and the standard deviations between (0.772 – 0.821), which are indicators of notable consistency in responses.

The statement “The company encourages sharing knowledge resulting from the use of smart technologies among employees” ranked first with a mean of (4.26) and a percentage of (85%), indicating an organizational culture supportive of AI-enhanced knowledge exchange.

Conversely, the statement “AI systems contribute to enhancing collaboration and facilitating information exchange within the work environment” ranked last with a mean of (4.13) and a percentage of (83%), though still within the very high range, reflecting general consensus on the importance of smart systems in enhancing the knowledge-sharing environment.

• Dimension Four: Knowledge Application

Table (9): Means, Results, and Statistics for Dimension Four (Knowledge Application):

|   | Paragraphs   | Mean | Std Dev. | Result          | Relative weight | Importance & Rank |
|---|--|------|----------|-----------------|-----------------|-------------------|
| 1 | Smart analysis results are used to support business decisions and improve performance quality. | 4.16 | .777     | Agreed          | 3%              | High (3)          |
| 2 | Knowledge derived from intelligent systems is applied to develop work methods.                 | 4.06 | .846     | Agreed          | 1%              | High (4)          |
| 3 | AI applications help convert theoretical knowledge into practical, executable actions.         | 4.24 | .731     | Strongly Agreed | 5%              | Very high (2)     |
| 4 | Knowledge generated by AI contributes to improving the customer experience                     | 4.27 | .700     | Strongly Agreed | 5%              | Very high (1)     |

|  |                                    |             |              |               |            |             |
|--|------------------------------------|-------------|--------------|---------------|------------|-------------|
|  | and increasing their satisfaction. |             |              |               |            |             |
|  | <b>General scale</b>               | <b>4.18</b> | <b>0.566</b> | <b>Agreed</b> | <b>84%</b> | <b>High</b> |

The results in Table (9) show that the overall mean for the “Knowledge Application” dimension was (4.18) with a standard deviation of (0.566), indicating that participants strongly agree that the knowledge generated by smart systems is indeed used to enhance work performance within the company. Item means ranged between (4.06 – 4.27) and standard deviations between (0.700 – 0.846), indicators of high stability in estimates and good consistency in opinions.

The statement “Knowledge generated by AI contributes to improving customer experience and increasing satisfaction” ranked first with a mean of (4.27) and a percentage of (85%), reflecting strong appreciation of the practical impact of applied knowledge in enhancing customer satisfaction. The statement “Knowledge extracted from smart systems is applied in developing work methods” came last with a mean of (4.06) and a percentage of (81%), though still representing a high level of agreement, indicating broad adoption of knowledge application, albeit with varying emphasis across dimensions.

### 3.3 Testing the study hypotheses:

#### Main hypothesis test results:

H0-There is no statistically significant relationship between the adoption of artificial intelligence systems and the efficiency of knowledge management processes in Noon Company, Saudi Arabia.

This hypothesis was tested using simple regression analysis, and the results are shown in Table (10). The table illustrates the statistical test results for this model, which includes one independent variable: adoption of artificial intelligence systems, and one dependent variable: knowledge management processes. Table (10) shows that the correlation coefficient  $R = (49.3\%)$ , indicating a moderate correlation between AI adoption and enhanced efficiency of knowledge management processes in Noon Company.

**Table (10):** Results of Testing the Relationship Between (AI Systems Adoption) and (Knowledge Management Processes) in Noon Company, Saudi Arabia

| Dependent variable             | Independent variable | Standard deviation coefficients |                | Standard coefficient | T Value | Sig  |
|--------------------------------|----------------------|---------------------------------|----------------|----------------------|---------|------|
|                                |                      | B coefficients                  | Standard Error |                      |         |      |
| Knowledge management processes | Constant             | .377                            | .307           |                      | .755    | .000 |
|                                | AI Systems Adoption  | .423                            | .076           | .83                  | .45     | .000 |

|          |                      |                |              |
|----------|----------------------|----------------|--------------|
| <b>R</b> | <b>R<sup>2</sup></b> | <b>F Value</b> | <b>. Sig</b> |
| 0.483    | 0.233                | 31.032         | .000         |

\* Correlation is significant at ( $\alpha \leq 0.05$ ) Tabular F value (3.94) DF= 1/102  
 Tabular T value (1.99)

It is observed from Table (10) that there is a statistically significant relationship between the independent variable (AI systems adoption) and the dependent variable (knowledge management efficiency), based on the (T. Sig) value of (0.00), which is less than (0.05), and the calculated (T) value of (5.571), which exceeds the tabulated value (1.99). Also, the (F. Sig) value is (0.00), less than (0.05), and the calculated (F) value is (31.032), greater than the tabulated value (3.94), indicating the significance of the model at the degree of freedom (1/102). The coefficient of determination ( $R^2 = 0.233$ ) indicates that the variable (AI systems adoption) explained (23.3%) of the variance in the efficiency of knowledge management processes in Noon Company.

Accordingly, the null hypothesis (H01) is rejected, and the alternative hypothesis is accepted: "There is a statistically significant relationship at the significance level ( $\alpha \leq 0.05$ ) between the adoption of artificial intelligence systems and the efficiency of knowledge management processes in Noon Company, Saudi Arabia." This reflects that AI systems significantly contribute to enhancing the efficiency of knowledge management through intelligent informational and analytical support.

**Results of testing the sub-hypotheses:**

**Sub-Hypothesis One Testing Results:** H<sub>01</sub>: There is no statistically significant impact of adopting AI systems on the knowledge generation process in Noon Company, Saudi Arabia.

This hypothesis was tested using simple regression analysis, and the results are shown in Table (11). The table presents the statistical test results for the model including one independent variable: AI systems adoption, and one dependent variable: knowledge generation. Table (11) shows a correlation coefficient R = (57.8%), indicating a moderate correlation between AI adoption and knowledge generation in Noon Company.

**Table (11):** Results of Testing the Relationship Between (AI Systems Adoption) and (Knowledge Generation) in Noon Company, Saudi Arabia

| Dependent variable   | Independent variable | Standard deviation coefficients |                | Standard coefficients |       | T Value      | . Sig |
|----------------------|----------------------|---------------------------------|----------------|-----------------------|-------|--------------|-------|
|                      |                      | B coefficients                  | Standard Error | $\beta$ coefficient   | T     |              |       |
| Knowledge Generation | Constant             | .473                            | 1.380          | 0.342                 | 3.38  | .000         | 0.000 |
|                      | AI Systems Adoption  | .674                            | 0.094          | 0.718                 | 7.148 | .000         | 0.000 |
| <b>R</b>             |                      | <b>R<sup>2</sup></b>            |                | <b>F Value</b>        |       | <b>. Sig</b> |       |

|       |       |        |      |
|-------|-------|--------|------|
| 0.578 | 0.334 | 51.099 | .000 |
|-------|-------|--------|------|

\* Correlation is significant at ( $\alpha \leq 0.05$ ) Tabular F value (3.94) DF= 1/102  
 Tabular T value (1.99)

There is a statistically significant relationship between (AI systems adoption) and the dependent variable (knowledge generation), as indicated by the (T. Sig) value of (0.00), which is less than (0.05), and the calculated (T) value of (7.148), greater than the tabulated value (1.99). The coefficient of determination ( $R^2 = 0.334$ ) shows that (AI systems adoption) explained (33.4%) of the variance in knowledge generation in Noon Company.

Therefore, the null hypothesis (H01) is rejected, and the alternative hypothesis is accepted: "There is a statistically significant relationship at the significance level ( $\alpha \leq 0.05$ ) between AI systems adoption and knowledge generation in Noon Company." This reflects the active role of AI adoption in accelerating knowledge generation through data analysis and pattern extraction, enhancing employees' ability to build modern and continuous organizational knowledge.

**Sub-Hypothesis Two Testing Results:** H02: There is no statistically significant impact of adopting AI systems on knowledge storage and organization in Noon Company, Saudi Arabia.

This hypothesis was tested using simple regression analysis, and the results are shown in Table (12). The model includes one independent variable: AI systems adoption, and one dependent variable: knowledge storage. Table (12) shows a correlation coefficient  $R = (35.2\%)$ , indicating a moderate correlation between AI adoption and knowledge storage in Noon Company.

**Table (12):** Results of Testing the Relationship Between (AI Systems Adoption) and (Knowledge Storage) in Noon Company, Saudi Arabia

| Dependent variable | Independent variable | Standard deviation coefficients |                | Standard coefficients | T. Value | T. Sig    |
|--------------------|----------------------|---------------------------------|----------------|-----------------------|----------|-----------|
|                    |                      | B coefficients                  | Standard Error | $\beta$ coefficient   |          |           |
| Knowledge Storage  | Constant             | 2.010                           | 0.456          |                       | 4.408    | 0.000     |
|                    | AI Systems Adoption  | 0.429                           | 0.113          | 0.352                 | 3.797    | 0.000     |
| <b>R</b>           |                      | <b>R<sup>2</sup></b>            |                | <b>F Value</b>        |          | <b>F.</b> |
| 0.352              |                      | 0.124                           |                | 14.421                |          | 0.000     |

\* Correlation is significant at ( $\alpha \leq 0.05$ ) Tabular F value (3.94) DF= 1/102  
 Tabular T value (1.99)

There is a statistically significant relationship between (AI systems adoption) and the dependent variable (knowledge storage), based on the (T. Sig) value of (0.00), which is less than (0.05), and the calculated (T) value of (3.797), which exceeds the tabulated value (1.99). The coefficient of determination ( $R^2 = 0.124$ ) indicates that (AI systems adoption) explained (12.4%) of the variance in knowledge storage in Noon Company.

Thus, the null hypothesis (H02) is rejected, and the alternative hypothesis is accepted: "There is a statistically significant relationship at the significance level ( $\alpha \leq 0.05$ ) between AI systems adoption and knowledge storage in Noon Company." This shows that AI adoption facilitates organizing and storing knowledge, particularly through intelligent archiving and automated data classification systems, creating a well-structured, easily retrievable knowledge base.

**Sub-Hypothesis Three Testing Results:** H<sub>03</sub>: There is no statistically significant impact of adopting AI systems on knowledge sharing in Noon Company, Saudi Arabia.

This hypothesis was tested using simple regression analysis, and the results are shown in Table (13), which includes one independent variable: AI systems adoption, and one dependent variable: knowledge sharing. Table (13) shows a correlation coefficient R = (30.4%), indicating a moderate correlation between AI adoption and knowledge sharing in Noon Company.

**Table (13):** Results of Testing the Relationship Between (AI Systems Adoption) and (Knowledge Sharing) in Noon Company, Saudi Arabia

| Dependent variable | Independent variable | Standard deviation   |                | Standard coefficients | T. Value | T. Sig        |
|--------------------|----------------------|----------------------|----------------|-----------------------|----------|---------------|
|                    |                      | B coefficients       | Standard Error | $\beta$ coefficient   |          |               |
| Knowledge Sharing  | Constant             | 2.918                | 0.402          |                       | 7.258    | 0.000         |
|                    | AI Systems Adoption  | 0.321                | 0.100          | 0.304                 | 3.222    | 0.002         |
| <b>R</b>           |                      | <b>R<sup>2</sup></b> |                | <b>F Value</b>        |          | <b>F. Sig</b> |
| 0.304              |                      | 0.092                |                | 10.383                |          | 0.002         |

\* Correlation is significant at ( $\alpha \leq 0.05$ )      Tabular F value (3.94)      DF= 1/102  
 Tabular T value (1.99)

There is a statistically significant relationship between (AI systems adoption) and the dependent variable (knowledge sharing), indicated by a (T. Sig) value of (0.00), which is less than (0.05), and a calculated (T) value of (3.222), which exceeds the tabulated value (1.99). The coefficient of determination (R<sup>2</sup> = 0.334) shows that (AI systems adoption) explained (33.4%) of the variance in knowledge sharing in Noon Company.

Accordingly, the null hypothesis (H03) is rejected, and the alternative hypothesis is accepted: "There is a statistically significant relationship at the significance level ( $\alpha \leq 0.05$ ) between AI systems adoption and knowledge sharing in Noon Company." This reflects that AI enhances knowledge sharing channels through technologies such as auto-recommendation, collaboration platforms, and content sharing, although it still requires organizational culture and internal incentives to support knowledge dissemination.

**Sub-Hypothesis Four Testing Results:** H<sub>04</sub>: There is no statistically significant impact of adopting AI systems on the application and use of knowledge in Noon Company, Saudi Arabia.

This hypothesis was tested using simple regression analysis, and the results are shown in Table (14), which includes one independent variable: AI systems adoption, and one dependent variable: knowledge application. Table (14) shows a correlation coefficient R = (25.7%), indicating a weak correlation between AI adoption and knowledge application in Noon Company.

**Table (14):** Results of Testing the Relationship Between (AI Systems Adoption) and (Knowledge Application) in Noon Company, Saudi Arabia

| Dependent variable    | Independent variable | Standard deviation coefficients |                | Standard coefficients | T Value | Sig        |
|-----------------------|----------------------|---------------------------------|----------------|-----------------------|---------|------------|
|                       |                      | Coefficients                    | Standard Error | β coefficient         |         |            |
| Knowledge Application | Constant             | .107                            | 3404           | 0.                    | .687    | .000       |
|                       | AI Systems Adoption  | .269                            | 0100           | 0.57                  | 2.686   | .008       |
| <b>R</b>              |                      | <b>R<sup>2</sup></b>            |                | <b>F Value</b>        |         | <b>Sig</b> |
| 0.257                 |                      | 0.066                           |                | 7.216                 |         | .008       |

\* Correlation is significant at ( $\alpha \leq 0.05$ ) Tabular F value (3.94) DF= 1/102  
 Tabular T value (1.99)

There is a statistically significant relationship between (AI systems adoption) and the dependent variable (knowledge application), as indicated by the (T. Sig) value of (0.008), which is less than (0.05), and the calculated (T) value of (2.686), which exceeds the tabulated value (1.99). The coefficient of determination ( $R^2 = 0.066$ ) shows that (AI systems adoption) explained (6.6%) of the variance in knowledge application in Noon Company.

Therefore, the null hypothesis (H04) is rejected, and the alternative hypothesis is accepted: "There is a statistically significant relationship at the significance level ( $\alpha \leq 0.05$ ) between AI systems adoption and knowledge application in Noon Company." This indicates that the impact of AI on knowledge application remains relatively limited, possibly due to the need for human and organizational support factors such as institutional culture and managerial empowerment, calling for integrated programs that combine AI with field-based administrative practices.

**4. Discussing the results of the study:**

**Discussion of the First Sub-Hypothesis:** "There is no statistically significant effect of adopting artificial intelligence systems on knowledge generation at Noon Company in Saudi Arabia." The results of the hypothesis test showed a statistically significant positive relationship between adopting AI systems and knowledge generation, with a correlation coefficient of ( $R = 0.578$ ) and a T value of (7.148), statistically significant at ( $p < 0.001$ ). This leads to the rejection of the null hypothesis and the acceptance of the alternative hypothesis, indicating a meaningful positive impact of AI on knowledge generation. This implies that Noon Company's investment in AI systems effectively contributes to enhancing the processes of generating new knowledge within its organizational environment by enabling

the discovery of patterns, connecting scattered information, and producing knowledge insights that improve performance and decision-making. This result aligns with the findings of Al-Najjar (2025), which confirmed the influence of AI on innovative behavior through knowledge management, and with Jarrahi et al. (2023), who noted that AI enhances knowledge creation when used alongside human capabilities. Taherdoost & Madanchian (2023) also supported this, emphasizing that AI is a pivotal tool in bridging the gaps in traditional knowledge-generation systems.

**Discussion of the Second Sub-Hypothesis:** "There is no statistically significant effect of adopting AI systems on knowledge storage at Noon Company in Saudi Arabia."

The results confirmed a positive relationship between the two variables, with a correlation coefficient of ( $R = 0.352$ ) and a calculated  $T$  value of (3.797), statistically significant at ( $p < 0.001$ ). Hence, the null hypothesis is rejected, and the alternative is accepted. This reflects that the AI systems employed at Noon are effectively used for storing and organizing knowledge through technologies such as automated archiving, text analysis, and the development of intelligent, retrievable knowledge databases. This result aligns with the study by Al-Dosari & Al-Nouh (2024), which indicated that "knowledge storage" was among the most impacted dimensions of knowledge management when AI was implemented at the Ministry of Education. It is also supported by Madouri & Ould Said (2024), who highlighted AI's role in building organizational memory and improving data organization. Al-Mansoori et al. (2021) also emphasized how AI enhanced information storage efficiency in knowledge management.

**Discussion of the Third Sub-Hypothesis:** "There is no statistically significant effect of adopting AI systems on knowledge sharing at Noon Company in Saudi Arabia."

The results showed a statistically significant positive correlation ( $R = 0.304$ ,  $T = 3.222$ ,  $p = 0.002$ ), warranting rejection of the null hypothesis and acceptance of the alternative. This indicates that AI contributes to enhancing the knowledge-sharing environment within Noon Company through tools like smart recommendations, machine-learning-based digital platforms, and virtual assistants that facilitate knowledge exchange among employees. This result is consistent with the findings of Al-Qaed et al. (2022), who noted a relationship between academics' AI literacy and knowledge management practices, particularly in the area of sharing.

**Discussion of the Fourth Sub-Hypothesis:** "There is no statistically significant effect of adopting AI systems on knowledge application at Noon Company in Saudi Arabia."

The test results showed a positive correlation ( $R = 0.257$ ), with a statistically significant  $T$  value (2.686,  $p = 0.008$ ), leading to the rejection of the null hypothesis. This implies that AI helps—though to a lesser extent—in applying knowledge within the company through decision-support tools and data-driven recommendations. However, the impact remains limited compared to other dimensions and may be influenced by human or organizational factors that affect the actual implementation of knowledge. This finding agrees with Dulaimi & Abu Sharha (2021), who observed that knowledge application still faces challenges despite the availability of advanced knowledge technologies.

**Discussion of the Main Hypothesis:** "There is no statistically significant effect of adopting AI systems on the efficiency of knowledge management processes at Noon Company in Saudi Arabia."

The linear regression results showed that the independent variable (AI adoption) explains a significant portion of the variance in the dependent variable (knowledge management efficiency), indicating a statistically significant positive relationship between the two. This suggests that Noon Company's investment in AI technologies directly contributes to enhancing the efficiency of knowledge management by facilitating its collection, storage, sharing, and application—thus boosting the company's competitiveness in the digital business environment. This result is in agreement with most previous Arabic and international studies, such as Jarrahi et al. (2023, 2020), and Al-Fazari & Al-Shawi (2024), all of which confirmed that AI represents a strategic lever in improving knowledge management systems, provided the right infrastructure and human readiness are in place.

## **5. Conclusions and Recommendations:**

### **6.1 Conclusions:**

The relatively weaker impact of artificial intelligence adoption on knowledge application suggests that technological capability alone is insufficient to ensure effective utilization of organizational knowledge. This outcome indicates that knowledge application remains largely influenced by socio-organizational factors such as managerial empowerment, incentive structures, employee readiness, and organizational culture. In conclusion, the study demonstrates that artificial intelligence serves as a strategic enabler of knowledge management processes within digitally oriented organizations, though its impact varies across different knowledge dimensions. While AI adoption significantly enhances knowledge generation, storage, and sharing, its influence on knowledge application remains comparatively limited, reflecting organizational and human constraints. These findings underscore the importance of aligning technological investments with managerial practices, organizational culture, and employee capabilities. By integrating empirical evidence with realistic organizational considerations, the study provides actionable insights for decision-makers seeking to leverage AI for sustainable knowledge-based performance improvement.

### **6.2 Recommendations:**

Based on the findings of the study, the researcher recommends the following:

- Continue enhancing the implementation of AI applications at Noon Company, especially in data analytics and machine learning, due to their positive effect on improving knowledge management efficiency.
- Develop the digital infrastructure that supports smart knowledge storage, through the use of secure and automated content management systems.
- Promote a knowledge-sharing culture through AI platforms that facilitate professional communication and experience exchange among employees.
- Focus on continuous job training to qualify employees in the effective use of AI technologies and integrate them into daily work contexts.
- Develop organizational strategies that ensure the integration of AI into the practical application of knowledge, enhancing decision-making and task execution efficiency.
- Encourage researchers and professionals to conduct further studies that explore the relationship between AI and other managerial dimensions such as decision-making or institutional innovation.

- Propose the adoption of an integrated knowledge model at Noon Company that links AI to all stages of knowledge management to achieve maximum organizational effectiveness.

## References

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