

Faculty Members' Acceptance of Digital Knowledge Management through AI-based Learning Management Systems in Universities according to the Unified Theory of Acceptance and Use of Technology

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Manuscript received January 2, 2026; revised February 27, 2026; accepted April 7, 2026; published August 18, 2026

Abstract—This study aimed to investigate the degree of faculty members' acceptance of digital knowledge management through Artificial Intelligence (AI)-based Learning Management Systems (LMS) in Jordanian universities, based on the Unified Theory of Acceptance and Use of Technology (UTAUT). The researchers adopted a descriptive-analytical approach to assess the effectiveness of AI-based LMS as an independent variable on the dependent variable of digital knowledge management. A questionnaire was used as the primary data collection instrument and was distributed randomly through Google applications to a sample of 320 faculty members from universities in northern Jordan. The study results indicated that faculty members exhibited a high level of acceptance of digital knowledge management through AI-based e-learning systems. Furthermore, the findings revealed that key UTAUT constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions—had a significant positive impact on faculty members' intention to use AI-based LMS for digital knowledge management. The researchers recommend encouraging faculty members to integrate AI applications into educational management, particularly in digital knowledge management, while considering theoretical models such as UTAUT to enhance adoption and implementation.

Keywords—digital knowledge management, learning management systems, Artificial Intelligence (AI), Unified Theory of Acceptance and Use of Technology (UTAUT), faculty members

I. INTRODUCTION

The world today is witnessing a series of changes, developments, and transformations that impact various aspects of life, particularly human resources. The growing emphasis on human capital has become a fundamental priority for organizations and institutions in this era of rapid technological advancement and intense competition. These transformations have influenced managerial thought, aligning it with scientific and technological developments, highlighting the critical role of digital knowledge management in executing and applying various activities to enhance organizational performance.

Digital knowledge management relies on a structured approach where technology plays a central role in developing knowledge and information. By systematically leveraging knowledge resources, modern digital technologies contribute significantly to fostering a highly qualified workforce capable of innovation, creativity, and effective human interaction in challenging and unexpected situations. Such scenarios require advanced thinking skills, including

problem-solving and critical thinking, to ensure continuous institutional development and sustainability [1]. This principle also applies to academic institutions, where information centers, libraries, research institutes, and scientific academies serve as the cornerstone for knowledge production, management, and dissemination. These institutions reflect the university's academic and societal environment, benefiting students, faculty members, and administrative staff alike [2]. According to Al-Twlbah [3], knowledge management must align with the rapid technological transformations occurring globally, whether through adopting new technologies or upgrading and modernizing existing systems. Consequently, Learning Management Systems (LMS) have emerged as a significant advancement within web-based educational environments. These systems facilitate a dynamic and interactive educational experience for all users, necessitating the adoption of innovations in information and communication technology to bridge the digital divide and transition into a knowledge-based digital economy. This shift requires the integration of digital transformation technologies, particularly administrative systems such as LMS and educational content management systems, which enable the delivery and management of learning content through diverse software tools that support online learning administration and performance management [4].

All these advancements have significantly contributed to the organization and management of knowledge production, ensuring its accessibility to faculty members, who form the foundation of higher education. To maximize the benefits of these technologies, faculty members require continuous training, professional development, and active engagement in discussions and experiences related to technology integration. This approach enables effective management and application of vast amounts of information in higher education, ultimately leading to the production of academically and technically qualified graduates. A key component of this change is the adoption of artificial intelligence applications in educational administration. In many facets of life, including education and learning, Artificial Intelligence (AI) has been crucial. AI-powered robots and intelligent systems tailored to each student's learning requirements are gradually replacing the traditional classroom setting. AI-supported learning tools, which offer flexibility and continuity in learning, are anticipated to benefit a significant portion of students. Artificial

intelligence technologies also contribute to enhancing the learning experience engagingly and effectively, leading to improved knowledge acquisition and cognitive abilities among students [5].

Even though Jordanian universities have made strides in integrating LMS and AI applications, it is still difficult to keep up with this digital revolution. Strong infrastructure, human and financial resources, and modifications to educational management techniques are all necessary for the implementation of these systems. Additionally, faculty and institutional willingness to adopt and use AI-enhanced learning management systems is critical to successful adoption [6]. Several models and theories have been proposed to support the adoption and application of digital transformation technologies in education to address this issue. One of the most well-known of these frameworks is the "Unified Model for Technology Acceptance and Use" (UTAUT), which was created by fusing eight distinct theoretical models. This theory aims to explain users' behavioral intentions toward technology adoption through a unified conceptual model. Accordingly, this study aims to examine the impact of AI-based learning management systems on digital knowledge management among faculty members in Jordanian universities, based on the UTAUT framework [7].

The research problem manifests as a strategic and implementation gap within Jordanian universities. While the rapid transformations in 21st-century skills necessitate the adoption of innovation as a fundamental pillar of sustainable development, the actual attention given to digital knowledge management remains below the desired level [8, 9]. The danger here lies in the fact that this deficiency may hinder universities' ability to keep pace with the rapid development of knowledge and to manage their human and technological resources efficiently in an academic environment where competition is intensifying [3, 10, 11].

Furthermore, the lack of clarity in the mechanisms linking digital knowledge management with modern technological tools is a significant issue. Despite the quantitative expansion in Jordanian universities, there is a scarcity of studies addressing how to leverage faculty capabilities through an AI-based intermediate environment. The main research gap lies in the lack of a deep understanding of the role of AI-Based LMS as a medium that can enhance knowledge management practices and transform them from their traditional context into an innovative digital model [12]. Based on the above, the problem of the study is the urgent need to explore the extent of digital knowledge management applications, with a special focus on the "mediating effect" of AI-LMS systems. This study aims to close the gap by examining faculty members' responses and the rationale for their acceptance of such smart systems. It provides a qualitative scientific contribution that goes beyond the mere description of technology and explains its deeper implications and role in enhancing academic productivity and evolving the methodologies in alignment with the new digital era of education.

This study's novelty lies in its analytical response to the strategic gap concerning Jordanian universities; it goes beyond the mere technological adoption description to provide a constructive theoretical contribution through the

creation of a digital knowledge management framework with AI-LMS as a mediating variable. The study's scientific contribution is seen in its capacity to provide a new and expanded framework on the models of technology acceptance (especially the UTAUT model) and apply it to a particular geo-political context, thus contributing to the relatively less researched area in the Arab World on how to convert faculty members' potential into digital innovative assets. Moreover, this study's practical significance lies in its provision of a practical framework for the decision makers of higher learning institutions, and it goes beyond the mere description of the situation to emphasize the motivational and structural elements that support the optimum use of artificial intelligence in improving academic work and thereby increasing the competitive position of universities in the ever-evolving digital education environment.

Thus, this study seeks to answer the following questions:

- What is the degree of faculty members' acceptance of digital knowledge management through Artificial Intelligence-based e-learning systems in Jordanian universities?
- What is the influence of (Performance Expectancy - Effort Expectancy - Social Influence - Facilitating Conditions) on the intention to use AI-based e-learning systems for digital knowledge management by faculty members?

This study is aimed at:

- Establish the level of acceptance of faculty members at Jordanian universities regarding digital knowledge management through Artificial Intelligence-based e-learning systems.
- To determine the impact of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions on the intention of faculty members to use AI-based e-learning systems for digital knowledge management.

II. LITERATURE REVIEW

A. LMS and Artificial Intelligence

E-learning primarily relies on computer-based e-learning management systems, which are essential tools for organizing the educational process, as they require effective communication between all stakeholders in the educational system. These systems act as supportive and complementary means to traditional education, forming an integrated framework that assumes responsibility for managing the educational process, including admission and registration processes, course and cost management, monitoring student progress, and organizing examinations [8]. Therefore, LMS are considered a fundamental pillar in e-learning, as they represent comprehensive platforms that facilitate education via the Internet and networks, and are classified as one of the most important innovations in modern education [13]. A LMS is defined as a software application designed to facilitate learning, training, communication, monitoring, evaluation, and comprehensive management of the educational process electronically, in accordance with international standards. This system was also designed as an integrated digital environment that provides high-value services to all stakeholders, enabling them to perform their roles efficiently remotely and asynchronously using a variety

of tools. These systems provide teaching staff with study schedules, educational materials, and costs, and facilitate the delivery of curricula in both synchronous and asynchronous ways, manage assessments, and simplify administrative tasks to enhance efficiency in educational management [14]. LMS are designed to meet the specific requirements of each educational institution, encompassing administrative functions such as course assignment for individual students or groups, student affairs management, performance and achievement reports, and the provision of diverse services to all stakeholders within the educational system [15]. LMS are designed to meet the specific requirements of each educational institution. Researchers believe that LMS contribute significantly to creating interactive learning environments by acting as a communication hub for all stakeholders, and that they adapt to technological developments by integrating modern digital tools into educational practices. In addition, these systems work to enhance the engagement of faculty members, staff, and students by facilitating access to academic resources and tasks, and by stimulating cooperation and interaction through support for file sharing and integration with complementary software applications. With the spread of e-learning, multiple solutions for LMS have emerged, including open-source systems such as Moodle and proprietary (commercial) systems such as Blackboard and Web CT. Digital learning platforms like "My School Platform," Google apps, and Microsoft tools are also used by many educational institutions. Studies have demonstrated how well these platforms work to improve educational management efficiency, particularly when combined with AI applications [4, 16]. Students can now engage in interactive problem-solving exercises that mimic real-world learning environments thanks to the integration of Artificial Intelligence (AI), which has greatly improved intelligent learning environments [17, 18].

The use of artificial intelligence technology in education and assessment has received more attention recently as a cutting-edge substitute for conventional teaching and evaluation techniques. Artificial intelligence can be used to measure more than just academic performance; it can also be used to analyze learners' behavioral and cognitive traits, such as persistence, motivation to learn, and involvement in academic tasks and activities [19].

Scientists confirm that AI-supported education systems have become an indispensable element in modern education, ensuring the effectiveness and success of learning management platforms. These technologies enhance student participation and motivation by providing interactive content, diversifying learning experiences through the development of critical thinking and creativity, and accelerating learning processes through the involvement of various stakeholders.

B. Digital Knowledge Management

Digital knowledge management is a comprehensive administrative process that focuses on strategic goals and monitoring institutional processes based on information technology standards in acquiring, transferring, disseminating, and sharing different types of knowledge across various fields. Digital knowledge management is also considered one of the main factors in achieving

organizational goals through the effective use of knowledge; moreover, it represents a quantitative and qualitative transformation for most institutions and organizations. Digital knowledge management focuses primarily on leveraging human expertise in management and improving tools by enabling, engaging, and utilizing collective knowledge [20].

Knowledge management is defined as the process through which institutions analyze, select, organize, disseminate, transfer, and share knowledge and information. In universities, digital knowledge management enables problem-solving, dynamic learning, strategic planning, and decision-making processes [21]. According to Ayada [22], digital knowledge management involves several elements: knowledge creation, knowledge sharing, and knowledge acquisition. Samhan [23] asserts that digital knowledge management begins with the creation, storage, transfer, sharing, and use of knowledge, to enhance institutional performance and provide a competitive edge.

Given that higher education institutions, especially universities, are central to society's ongoing efforts to acquire and disseminate knowledge, the importance of digital knowledge management in universities is highlighted by the strong connections it creates between individuals in the community, new knowledge processes, and information sources. This is achieved through the provision of various methods and techniques that help universities share and manage their members' knowledge [24].

Digital knowledge management in universities is defined as both the practical application and theoretical development of practices that empower university staff, especially faculty members, to shift from traditional administrative practices to digital practices. This transformation aims to gather, apply, share, and transfer diverse knowledge, skills, and information, thereby positively impacting organizational behavior and enhancing the service quality offered within the university [25].

Universities can enable learners to become integral parts of the knowledge creation, generation, dissemination, and application process. Therefore, university members bear responsibility for actively engaging with the knowledge domain, not merely being passive consumers. This point is of great importance, especially considering the widespread use of technology, which is no longer just a tool or means of communication but has become an organizational approach for developing educational institutions. Accordingly, universities must utilize technology, including LMS, to deliver and apply knowledge effectively. Faculty members also play a pivotal role in analyzing, developing, and applying the knowledge contained in the curricula, making them the primary agents responsible for applying and transferring knowledge to students [26].

The importance of digital knowledge management in universities lies in its contribution to promoting creativity and innovation and preserving information and expertise through the continuous updating of knowledge. This, in turn, works to develop skills and expertise, and to find effective ways to manage and use information that can then be re-shared and disseminated to stimulate creativity among stakeholders. In addition, this process helps to reduce operational costs within universities without neglecting the

need to implement activities that are in line with the university's goals, which ultimately leads to achieving excellence [27]. To implement digital knowledge management, several core requirements must be met, including the availability of data and information that define how knowledge is acquired from its primary sources, whether tacit (informal, non-written knowledge stored in individuals' minds) or explicit (formal, documented knowledge stored in files and records). Accessing this knowledge requires a robust technological infrastructure, including devices, equipment, software, and knowledge resources that serve as the source of data and information. Moreover, human resources are the key element in managing digital knowledge [28]. Al-Sayani and Mohsen [11] highlight the four key elements of digital knowledge management in universities:

Knowledge Generation: The creation of knowledge through collective participation in work processes to generate new knowledge that can contribute to innovative problem-solving, ultimately enhancing organizational excellence and achievement.

Knowledge Storage: The process of collecting, analyzing, organizing, and categorizing knowledge for optimal storage.

Knowledge Dissemination: An interactive process that transfers knowledge to the target audience to be used in effecting change, achieving excellence, and success in institutional activities.

Knowledge Application: The process of utilizing knowledge to support the institution's products and activities to achieve its goals.

The importance of knowledge management has grown in the digital age, where vast amounts of information are generated and stored daily. Knowledge management ensures the provision of the necessary tools and technologies for collecting, analyzing, and organizing this information, enabling organizations to use it effectively to make better decisions. Moreover, technological developments in the digital age are accelerating at an astonishing pace, and institutions must keep up with these developments and benefit from them. Digital transformation is an urgent necessity for institutions today, where knowledge management plays a pivotal role in making this transformation a tangible reality through improving processes, developing services, and effectively applying digital technologies [29].

C. UTAUT

The UTAUT is a comprehensive analytical framework that integrates the most influential variables from eight leading models and theories in the field of human and technological behavior. This theory is based on an integrated mix of: technology acceptance model, causal event theory, planned behavior theory, motivation model, computer usage model, innovation diffusion theory, and social cognitive theory, making it a potent analytical tool that can precisely understand why people adopt contemporary technologies [30]. The four main pillars of the UTAUT serve as the guidelines for people's adoption of new technologies. The first and most important pillar is expected performance, which represents the person's conviction that technology will increase his productivity based on observable advantages,

relative advantages, and intended practical outcomes [31].

The second factor that assesses how simple and easy it is to use technology in the workplace is the expected effort. Research has shown that there is a strong correlation between lowering effort and accelerating system adoption [32]. Another factor that emphasizes how an individual's decisions about use are shaped by their surroundings and the views of powerful individuals is social influence [33]. Lastly, the availability of technical support and the required infrastructure are important factors. The more the user perceives the possibilities as being available, the more likely it is that their desire will result in actual and ongoing use [30]. The likelihood that a user's desire will result in actual and ongoing use increases with the number of options they perceive. This theory's value resides in its exceptional capacity to offer a thorough analytical framework that delves deeper into comprehending the underlying motivations that influence an individual's behavior, particularly within the educational system, rather than just observing the apparent use of technology. The interdependence of the four pillars of the theory—expected benefits (performance expectations), ease of using the technology (effort expectations), interactive environment pressures (social influence), and infrastructure and support availability (facilitating circumstances)—gives the theory its strength.

The importance of the (UTAUT) theory, according to Liu *et al.* [34], is evident in its ability to analyze the factors affecting users' decisions (such as performance and effort expectations), and to improve the user experience through the design of smooth educational platforms, which raises the rates of dependency between teachers and students. It also contributes to increasing the efficiency of resource utilization and guiding decision-makers towards continuous development and innovation to enhance the quality of educational solutions.

This theory is distinguished by advantages that make it superior to previous models; It is characterized by the comprehensiveness of the theoretical approach through the integration of variables from theories of social psychology, planned behavior, and the dissemination of innovations, which enhances the ability to predict usage patterns [35]. It also considers contextual and environmental factors through four mediating variables that govern the acceptance process, in addition to its high potential for expansion, practical application, and adaptability across different research and marketing environments. Thus, UTAUT constitutes an effective strategic tool for studying the impact of key variables on technological systems in institutional and societal contexts [36]. UTAUT [37] presented a theoretical development of his original model, in which he focused on integrating artificial intelligence into organizational environments through four essential dimensions that explain the dependency process. He classified the influencing factors into three groups: individual (such as competence and personal characteristics), contextual (such as organizational culture and infrastructure), and technological (such as ease of use and reliability). Since its emergence in 2003, the theory has become a major reference framework in diverse fields such as banking, education, and digital commerce [38]. Studies have also demonstrated its high efficiency and significant explanatory power regarding the determinants of

acceptance and digital transformation across diverse geographical and social environments, while considering cultural and professional differences [35].

In the educational context, previous studies have investigated the effectiveness and determinants of technology acceptance using this theory; Ibrahim [39] sought to measure the effectiveness of a learning environment based on the (UTAUT) theory in developing interactive video production skills among students. While Ghashim and Daak [40] focused on identifying the factors influencing teachers' acceptance of artificial intelligence applications, he emphasized the crucial roles of both expected performance and effort. In a related vein, Al-Ghamdi [41] sought to develop a vision for enhancing educational quality through technology integration and teacher training in Saudi institutions, while Al-Rahili and Al-Anzi [42] examined the factors influencing teachers' acceptance of the unified education system. Finally, Younis [43] examined the attitudes of Egyptian university faculty members toward the use of Internet of Things applications in higher education, considering the theory's dimensions.

III. CONCEPTUAL FRAMEWORK

In this case, the study develops its framework from the UTAUT to analyze what determines the faculty members' use of AI-based LMS for digital knowledge management in Jordanian universities. The framework indicates that faculty acceptance of AI-learning management systems is driven by the four main constructs of the UTAUT theory: performance expectancy, effort expectancy, social influence, and facilitating conditions.

Performance Expectancy: This is the belief that the use of an AI-based learning management system promotes the performance of users in managing digital knowledge.

Effort Expectancy: This is the belief that the use of such systems is easy.

Social Influence: This refers to the belief that faculty members' positions within the organizational hierarchy influence their adoption of such systems.

Facilitating Conditions: This is the availability of the resources and support that faculty members need to use the systems.

The researcher hopes that these variables will create the intention of the faculty members to use the AI-based learning management systems in managing digital knowledge, and in more advanced ways, digital knowledge management helps in the educational process. Digital knowledge management is the process of creation, storage, sharing, and application of knowledge in the digital context.

The Digital Knowledge Management framework states that when performance, effort, and social impacts are positive, and the environment is good, faculty members are more likely to adopt Intelligent Learning Management systems, and this will improve the management and dissemination of digital knowledge in their institutions.

The researcher utilized a descriptive-analytical methodology, which involves a thorough examination of a specific event or behavior. This methodology requires event observations and an accurate and objective description of it, followed by various interpretations and analyses aimed at deriving conclusions to approaches that enhance or improve

that event.

This study reviews the UTAUT model as one of the technology acceptance theories developed to examine the ability of users to accept technology and the intentions of faculty members at Jordanian universities to adopt new technology. The researcher believes that the factors of the Unified Theory of Acceptance and Use of Technology have influenced the study in the following ways Fig. 1.

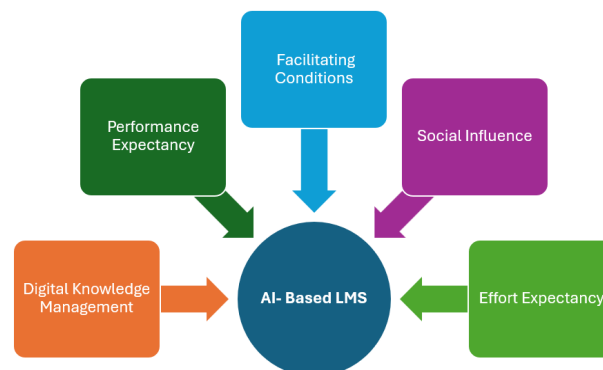


Fig. 1. Conceptual framework of AI-LMS digital knowledge management acceptance.

IV. METHODS AND PROCEDURES

The descriptive-analytical approach was selected because it best fits the objectives of this study: to describe knowledge management within the faculty and to analyze the relationships among the identified components by collecting field data and applying statistical methods.

A. Study Population and Sample

Using the descriptive analytical approach, the target population for this study was 6123 faculty members of the northern region of Jordanian universities. To ensure representativeness across all academic ranks and colleges, a simple random sample of (320) members was selected at a rate of 5% of the population. The sample size was determined using statistical methods that ensure high generalizability and eliminate the margin of error. Data collection was done electronically using Google Forms. The collection was then done through official and professional means, including the university email and academic bodies on WhatsApp and LinkedIn. Google Forms' single response option was used, and all required fields must be completed to maintain data integrity.

The distribution lasted three months, and periodic reminders were sent to participants. This process yielded (320) valid responses for analyzing data. Data was processed, and hypotheses were tested using the Statistical Package for the Social Sciences (SPSS) program. To maintain valid and reliable results, descriptive statistics, Cronbach's alpha coefficient, and regression tests were used.

B. Instrument

The researcher used questionnaires to collect information to meet the study's objectives. This method was chosen after evaluating previous studies related to the research, including studies by Al-Twlbah *et al.* [3, 6–8, 11, 44, 45].

The impact of e-learning management systems on fostering digital knowledge management through artificial intelligence among faculty members of Jordanian universities was assessed by the researcher constructing a

questionnaire. The instrument was developed based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and included 41 items organized into the following dimensions:

- Performance Expectancy (7 items)
- Effort Expectancy (6 items)
- Social Influence (8 items)
- Facilitating Conditions (9 items)
- Usage Intention (11 items)

The responses were categorized using a 5-point Likert scale (5) Strongly Agree to (1) Strongly Disagree.

C. Validity and Reliability

To ensure the validity and effectiveness of the questionnaire in addressing the study's research questions, the researcher sought feedback from 11 faculty members specializing in educational administration, educational technology, computer science, and assessment and evaluation. Their suggestions and recommendations were incorporated into the final version of the instrument.

The researcher applied the study instrument to a pilot sample consisting of (33) faculty members from Jordanian University, both from within the study community and outside the sample. This was to verify the correlation coefficients for all items and sub-dimensions of the scale with the total score, using Pearson correlation coefficients. The results are shown in the following Fig. 2.

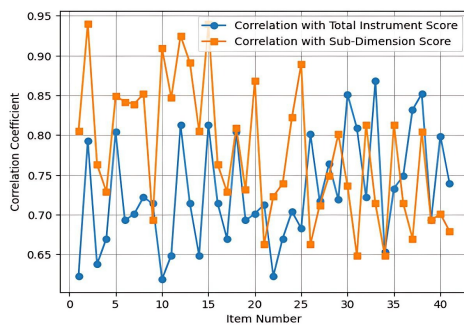


Fig. 2. Item correlation coefficient.

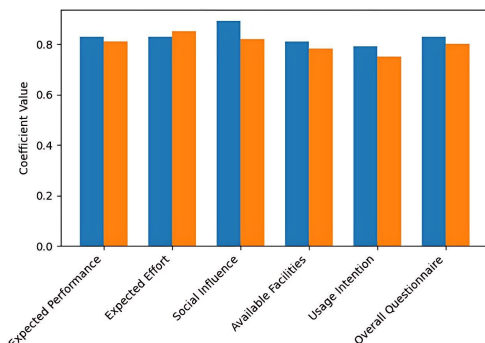


Fig. 3. Reliability coefficients of the study instrument.

From the previous figure, we can see that all the correlation coefficients between each item and the total score of the study instrument were statistically significant at the 0.05 level. These are positive and strong correlations, which indicate that the study instrument is consistent internally in all its statements.

Reliability: The researcher applied the study instrument to a sample of 33 faculty members at Jordanian University, then re-applied the same instrument to the same sample after a

time interval of 15 days. The correlation coefficients for the sample's scores in both applications were calculated, and the reliability of the study instrument was assessed using Cronbach's alpha. The results are shown in Fig. 3.

It is evident from the previous Fig. 3 that all reliability coefficient values for the subscales and the total score of the study instrument were high, indicating that the study instrument is reliable and the items are clear.

D. Implementation Procedures

Fig. 4 shows that the investigation is done in a structured and methodical way. The way the research process works. After carefully looking at the literature and choosing the right tools, the target demographic and sample are defined. Before the actual distribution and collection of data, the process includes pilot testing and confirming psychometric features to make sure everything is correct. At the end of the cycle, there is a thorough review of the findings to make suggestions that are based on evidence and point to possible areas for further research.

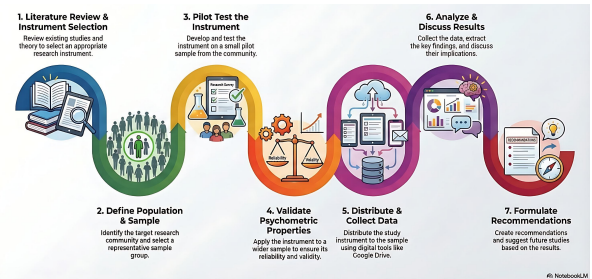


Fig. 4. The research process flows.

E. Study Variables

This study delineates two primary variables to systematically examine the integration of technology within the educational environment: An AI-based LMS is an independent variable. This variable represents technological engagement, specifically the utilization of artificial intelligence-enhanced LMS. It has automated data analytics that help people learn.

Acceptance of digital knowledge management is a dependent variable. These variables figure out what happened after the intervention. It focuses on how teachers and students will use digital platforms to create, share, and organize academic knowledge. People often use things like performance expectancy, effort expectancy, and social influence to measure this.

V. RESULTS AND DISCUSSION

Question 1: What is the degree of faculty members' acceptance of digital knowledge management through AI-based e-learning systems in Jordanian universities?

To answer this question, the means and standard deviations for each item in the study instrument were calculated, as shown in Fig. 5.

The findings presented in Fig. 5 indicate that the study sample's assessment of the degree of implementing digital knowledge management through AI-based e-learning systems in Jordanian universities, from the perspective of faculty members, was at an acceptable level.

The results show that Jordanian universities have

successfully adopted digital knowledge management, which can be explained by applying these findings to the UTAUT. It becomes clear that the outstanding performance of faculty members stems from the availability of four key pillars.

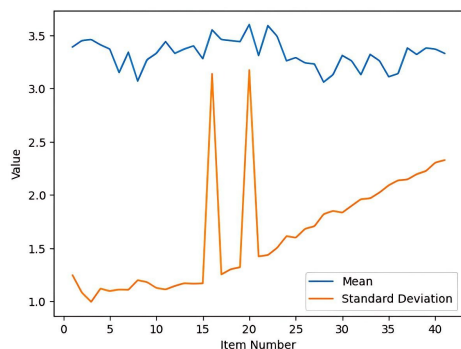


Fig. 5. Item means and standard deviations.

A. Utilitarian (Performance) Expectation and Applied Feasibility

The faculty's understanding of the value of generating, storing, and disseminating knowledge is linked directly to the pillar of "utilitarian expectation". The teaching staff perceived that the role of technology and artificial intelligence is not of a 'gadget' type, but helps in improving scientific and practical productivity. This is in line with Ref. [46] study, which corroborated a positive correlation between the researcher's clear vision and academic goals and the subsequent adoption of digital systems to achieve the desired educational objectives.

B. Expected Effort and Ease of Use

The findings indicate that the possession of the required skills and competencies to utilize the technology diminished the 'expected effort' needed to manage knowledge. LMS that are embedded with artificial intelligence offer a conducive environment for experience sharing and for the resolution of technical challenges, thereby streamlining the management of the digital knowledge resources. This finding supports Ref. [47] study, although here, we introduce a new dimension that emphasizes the impact of the 'experiential dimension' of artificial intelligence in bridging the knowledge gap and providing solutions that facilitate the realization of academic goals.

C. Enabling Conditions and Institutional Support

The results emphasized the importance of the university's environment (funding, workshops, and tech infrastructure) as an enabling factor. The university's pivot to "digital collaboration" demonstrates the institution's maturity in securing the right material and human resources. While the technology is still emergent, and the application of artificial intelligence is still in its infancy, the existence of a "culture of initiative" helps to ease implementation. This corresponds to the findings in Soelistono and Wahidin [48] study, which stressed the value of initiative in disseminating knowledge.

D. Social Impact and Knowledge Exchange

Social and academic responsibility is manifested in the "principle of cooperation" between departments and deanships. The exchange of experiences between faculty members outside of official working hours via smart systems

has created "positive pressure" or a general trend towards the digitization of knowledge. This aligns with the findings of the study by Azyabi and Alhazmi [24], which found that professional social interaction contributes to building trust in new technological systems.

The theoretical and applied value of the study:

The social and academic responsibility emerges from the "principle of collaboration" between the units and the deanships. The faculty's experience exchange, even if it is outside their official working hours, through smart systems, has created a "positive pressure" or a tendency towards knowledge digitization. This also resonates with the findings of Azyabi and Alhazmi [24], as it showed that professional social interaction aids in building confidence towards the new technological systems.

The study applies the theory by continuing to build on the UTAUT, which will help ascertain its validity for the use of the model within Arab academic situations, which have their own distinctive cultural and organizational peculiarities. The study not only confirms the model's traditional variables but also demonstrates, for the first time, the role of Artificial Intelligence (AI), which has shifted. AI is not passing technology but an important, powerful technology that transforms the perception of users regarding the cognitive effort needed to manage knowledge, and as such calls for a revision of traditional theoretical models of the knowledge economy by adding intelligent processing as a core dimension.

The practical applications of this study show the need for a more holistic approach to the integration of Artificial Intelligence in academia, as described in the study. For example, converting one-off pilot projects and individual initiatives into structural, technology-oriented, and sustainable policies is one way to engage in the process of capturing, structuring, and storing the implicit knowledge of the academic and research community in intelligent data and knowledge-driven systems. Institutionalizing practices beyond the psychological effect that comes from being organized is aimed at minimizing the loss of knowledge and time, preserving the flow of organizational memory, and liberating human resources to do more sophisticated, creative, and research activities, rather than being tied down to repetitive procedural activities.

Question 2: What is the influence of (Performance Expectancy – Effort Expectancy – Social Influence – Facilitating Conditions) on the intention to use AI-based e-learning systems for digital knowledge management by faculty members?

To answer this question, means, standard deviations, and relative weights were calculated for faculty members' responses in Jordanian universities regarding digital knowledge management through AI-based learning systems, as shown in Fig. 6.

The results presented in Fig. 6 indicate that the means and standard deviations regarding digital knowledge management through AI-based learning systems were high, with a mean score of (3.35) and a standard deviation of (1.57).

This result can be attributed to the fact that faculty members in Jordanian universities believe that AI-based LMS have facilitated the acceptance of digital knowledge

management through performance expectancy, effort expectancy, social influence, facilitating conditions, and intention to use. This aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT), which may help university administrations understand faculty members' acceptance of AI-driven LMS for digital knowledge management. Such insights could serve as an indicator for strategic planning in universities and the promotion of 21st-century skills, which emphasize the role of technology and its tools in the educational process. This, in turn, could provide decision-makers in Jordanian universities with valuable insights for formulating effective policies for planning, implementing, evaluating, and developing faculty members based on modern technological advancements.

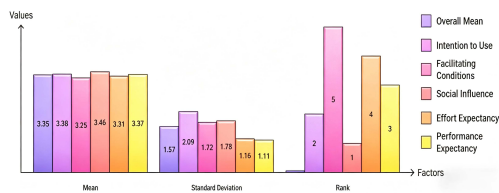


Fig. 6. Means and standard deviations of faculty members' responses.

Additionally, this can be explained by the fact that Jordanian universities adopt strategies that support knowledge management processes. Their practices in enhancing the educational process and managing knowledge are strengthened by an AI-based LMS, which contributes to generating new knowledge by providing diverse knowledge

resources. Moreover, these systems help in digitally storing, processing, analyzing, and logically organizing knowledge, making it more accessible to faculty members due to the vast capabilities of AI-driven LMS.

Furthermore, AI-based LMSs have facilitated knowledge dissemination among faculty members and their application in alignment with the policies, objectives, and mission of universities. AI applications also play a significant role in acquiring accurate information with minimal effort and spreading it among faculty and students. This highlights the alignment between university administrations and faculty members in terms of knowledge and ideas, fostering collaboration. It also reflects the developmental progress of these universities, which stems from shared strategic goals between faculty members and university administrations.

Additionally, faculty members demonstrate a strong ability to leverage systems, procedures, and regulations to enhance their skills and expertise in administrative tasks.

To examine the effect of performance expectancy on faculty members' intention to use AI-based LMS for digital knowledge management, Pearson correlation analysis was conducted, revealing a correlation coefficient of (0.750), indicating a strong relationship between performance expectancy and intention to use.

To further verify the impact of performance expectancy on intention to use, simple linear regression analysis was applied, as presented in Table 1.

Table 1. The effect of performance expectancy on faculty members' intention to use AI-based learning systems

Effect	R	R ²	F	Sig.	Beta	T	Sig.
Performance Expectancy Intention to Use	0.760	0.578	435.25	0.000	0.760	20.86	0.000

Table 1 shows that, according to the views of faculty members, there is an effect of the expected performance on the intention to use AI-based learning management systems in digital knowledge management. This result can be attributed to the fact that faculty members are convinced that expected performance is one of the strong determinants of their intention to use AI-based learning management systems in digital knowledge management. Additionally, faculty members have become aware of the benefits of AI in learning management systems after using them, such as access to multiple resources, ease of communication between students and colleagues, and the availability of various communication tools, forums, and discussion groups that allowed for direct feedback. Here, we see that faculty members who agreed to use AI-based learning management systems are the ones who are more likely to be accepted and used in the future. The expected performance was a clear indicator of the benefit that AI-based learning management systems would offer in digital knowledge management for faculty members at universities, indicating that expected performance had a positive effect on their intention to use the system.

As for the effect of expected effort on faculty members' intention to use learning management systems in digital knowledge management, Pearson's correlation coefficient was calculated, and its value was (0.824), indicating a strong correlation between expected effort and intention to use. To verify the effect of expected effort on intention to use, simple

linear regression analysis was used, as shown in Table 2.

Table 2. The effect of expected effort on the intention to use by faculty members

Effect	R	R Square	F	Sig.	Beta	T	Sig.
Expected Effort	0.824	0.680	674.25	0.000	0.824	25.96	0.000

Table 2 shows that there is an effect of expected effort on the intention to use AI-based learning management systems for digital knowledge management. This result is attributed to the experience faculty members have in using AI applications and knowledge management systems for managing digital knowledge. Additionally, universities provide training sessions and workshops that enhance the skills of faculty members. This indicates that faculty members have acknowledged the ease of using AI-based learning management systems for digital knowledge management. Expected effort is associated with the ease of using these systems, which suggests that expected effort has a positive impact on the intention to use.

Regarding the effect of social influence on the intention to use AI-based learning management systems for digital knowledge management, Pearson's correlation coefficient was calculated, with a value of (0.865), indicating a strong correlation between social influence and the intention to use. To verify the effect of expected performance on the intention to use, a simple linear regression analysis was conducted, as shown in Table 3.

Table 3. The effect of social influence on the intention to use by faculty members

Effect	R	R Square	F	Sig	Beta	T	Sig
Social Influence	0.866	0.749	950.74	0.000	0.866	30.83	0.000

Table 3 shows, according to the opinions of faculty members, that there is an effect of social influence on the intention to use AI-based learning management systems for digital knowledge management.

This result is attributed to the social influence, which is considered the amount of encouragement that faculty members receive from those close to them in using AI-based learning management systems for digital knowledge management. The result is also attributed to the fact that most faculty members are willing to adopt the use of AI-based learning management systems for digital knowledge management if they receive social support and incentives from university administrations and their direct supervisors.

Faculty members' perception of the encouragement and support they receive from friends, colleagues, and the administration prompted them to use learning management systems for digital knowledge management, indicating that social influence has a positive effect on the intention to use.

In terms of the effect of available facilities on the intention to use learning management systems for digital knowledge management, the Pearson correlation coefficient was calculated, and its value reached (0.909), indicating a strong correlation between available facilities and the intention to use. To verify the effect of the expected performance on the intention to use, simple linear regression analysis was applied, as shown in Table 4.

Table 4. Effect of available facilities on the intention to use learning management systems for digital knowledge management by faculty members

Effect	R	R Square	F	Sig	Beta	T	Sig
available facilities	0.909	0.827	1516.41	0.000	0.909	38.94	0.000

Table 4 shows, according to the views of faculty members, that there is an effect of the available facilities on the intention to use artificial intelligence-based learning management systems in digital knowledge management.

This result is attributed to the fact that the available facilities enabled faculty members to manage digital knowledge through the AI-based learning systems provided by universities. This indicates that the more various supporting facilities are available in the educational process, such as infrastructure, access to resources through the internet, specialized technical support, as well as workshops and training, the higher their acceptance of AI-based learning management systems in knowledge management. Universities provide a working environment and a technical support team to help faculty members overcome difficulties in using AI-based learning management systems, suggesting that the effect of the available facilities has a positive influence on the intention to use.

Based on the above, we see that AI-based learning management systems have enabled faculty members to generate, store, publish, and apply digital knowledge by managing, providing, and analyzing educational and training content with the help of AI. It helps to create content quickly, ensuring a personalized learning experience by analyzing each person's data, then creating a learning method tailored to everyone, while ensuring accuracy, speed, and objectivity in the assessment process. This results in saving time and effort while maintaining more effective interactions. This study agrees with the findings of studies by Al-Twlbah *et al.* [3, 32, 33].

VI. CONCLUSION AND RECOMMENDATIONS

This study focused on Jordanian university faculty members' acceptance level of digital knowledge management using AI-based LMS through the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. Results revealed that most faculty members demonstrated acceptance of the integration of AI-based LMS in their academic processes. Performance expectancy, effort expectancy, social influence, and

facilitating conditions were identified as crucial positive predictors of the intent to use these systems.

Importantly, in applying the UTAUT framework to the nexus of AI-based LMS and digital knowledge management in the Jordanian higher education ecosystem, the study goes into an area that is largely absent in the literature. In addressing this, the study is the first to document how new AI-based LMS technologies are evolving in knowledge management practices in evolving educational contexts.

Considering these results, the study advocates for university stakeholders to design and build an AI-ready digital ecosystem and conduct targeted and focused professional development to instill a culture of AI-based knowledge management. Moreover, this study provides a basis for stakeholders to design and build an AI-based digital ecosystem while integrating the needs of faculty members and technologically advancing educational systems.

There are several strong study findings; however, this study has several limitations.

Geographical Limitation: The study was only conducted with faculty members at universities in Northern Jordan. Therefore, the findings may not apply to the suite of Jordanian universities or the regional area of academia.

Research Instrument: The study employed a self-administered questionnaire. This is a well-documented approach, and the associated response bias or social desirability bias can severely threaten the quality of the data obtained objectively.

Design Methodology: The study utilized a cross-sectional descriptive-analytical study design. This type of design is useful to capture the data at a given point in time; however, this does not permit capturing the data to observe changes in behaviors or trends over an extended period.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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