

# The Role of Artificial Intelligence and Information Technology in Promoting Knowledge Management in Business Firms: A Review

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## ABSTRACT

Knowledge Management appears to be more advanced and sophisticated in the twenty-first century, as a result of the advancement of information technology and artificial intelligence technologies. Several academic and commercial scholars have been studying, exploring, and discussing knowledge management for a long time, owing to the importance of this topic for the success of companies in both the public and private sectors. In addition, many prominent firms throughout the world have used a variety of knowledge management methods to ensure that they remain one step ahead of their competitors in today's highly competitive business environment, including businesses that are constantly looking for methods to improve their knowledge management strategies. There have been some studies undertaken to gain a more in-depth grasp of the most recent research trend in knowledge management procedures and best practices in businesses. This subject, on the other hand, demands deeper examination from a variety of angles. The impact of using Artificial Intelligence (AI) and Information Technology (IT) concepts and techniques on the efficiency of knowledge management in modern businesses, particularly has been overlooked by many prior studies. The current study reviews the role of artificial intelligence and information technology in promoting knowledge management in business firms.

**Keywords--** Artificial Intelligence (AI), Information Technology (IT), Knowledge Management, Business, Industry 4.0

management. Artificial Intelligence (AI) is one of the technical advancements included in Industry 4.0, and it is expected to simplify many activities, particularly in the managerial role, as well as enable manual workers to go through easier processes and produce more efficiently. A knowledge-based economy tends to be a source of competitiveness for businesses and countries that demonstrate their ability to innovate, as evidenced by the fact that new and fresh connections are being forged, as well as the development of new methods and procedures. There is an urgent need for commercial establishments and organizational structures to build innovative and problem-solving methods to promote the spread of knowledge about the digitalization of business firms in this digital age.

The introduction of digital documents, which are credited with the invention of knowledge management systems (Mhamdi, Al-Emran & Salloum, 2018), ushered in a ground-breaking revolution in information administration during the twentieth century. AI has been introduced as a cornerstone in knowledge management in the twenty-first century because it has evolved knowledge gaining, developing, and sharing as well as effective utilization within businesses (Alhashmi, Salloum & Abdallah, 2019). AI has evolved knowledge gaining, developing, and sharing as well as effective utilization within businesses. Several studies have been undertaken to investigate the most recent advancements in knowledge management systems, procedures, and best practices, as well as the implications of these advancements for businesses. Knowledge management processes, on the other hand, have demonstrated their usefulness in the adoption of instructional technology (Al-Emran & Mezhuhev, 2019).

Knowing how to define the term "Knowledge Management" is difficult since it is multifaceted and is used in a variety of circumstances by a variety of individuals. Following Dalkir (2013), for example, knowledge management encompasses the processes that are utilized to identify, collect, and reinforce knowledge. Knowledge management, on the other hand, is defined by Mao et al. (2016) as a field that systematically improves expertise and content to increase an organization's

## I. INTRODUCTION

Knowledge Management has become increasingly important as a source of value for businesses in the twenty-first century, as evidenced by the economic shifts that have occurred. This has been recognized around the world, particularly in countries where knowledge and information are at the center of economic development (Renukappa, Suresh & Jallow, 2020). As a result of technology improvements, new patterns of labor and business processes are being developed to improve knowledge

competency, responsiveness, efficacy, and innovation over time. As an additional point of clarification, Jimenez-Jimenez et al. (2019) point out that knowledge management is all about controlling the flow of information, which ensures that the appropriate people receive the appropriate information at the appropriate time. According to Shannak, Zu'bi & Alshurideh (2012), the most important characteristics of knowledge management that can be deduced from these definitions are that knowledge is embedded in processes, services, and products and that it is presented in databases and documents.

Knowledge management has become less expensive, more standardized, more widespread, and more successful in responding to the requirements of individuals as a result of recent technological breakthroughs. The

capabilities of Artificial Intelligence technologies contribute significantly to the advancement of knowledge management to a higher level of effectiveness. It enables employees to obtain the desired information in a fraction of a second and to make more informed decisions in real-time. Businesses can also benefit from it by improving their ability to track processes and records more effectively. Artificial Intelligence can go even further than that, as it can be used to develop and extract knowledge from a large quantity of structured and unstructured data, as well as to forecast the future trends in the corporate environment. As a result, Artificial Intelligence technologies have been widely used to raise the performance of knowledge management systems in the majority of modern businesses to improve their overall performance (Kasemsap, 2018).

**Table 1:** The research questions of this study

RQ 1	What is the role of knowledge management in the age of IT?
RQ 2	What is the role of AI and IT in promoting knowledge management in businesses?
RQ3	What are the challenges to the application of AI in knowledge management?

Several study gaps have been identified in the literature about the outcomes, problems, and limitations of integrating information technology and artificial intelligence principles in knowledge management at modern businesses. Thus, the current study aims to explore the role of AI and information technology in promoting knowledge management in business firms where it focuses on the outcomes, problems, and limitations. This study aims to add to the field of knowledge in this domain by responding to the four research questions illustrated in Table 1. This study is organized as follows: first, literature review of artificial intelligence and how artificial intelligence is related to the business environment. Then, the method used in this research. After that is the results are reported and finally discussion and conclusion.

## II. LITERATURE REVIEW

This section highlights the contribution of some research studies that are related to the topic of this study. It discusses AI and IT proposed approaches and challenges to knowledge management activities at businesses.

### 2.1 Artificial Intelligence

The term "artificial intelligence" dates only to the 1950s, however, its origin stretches back thousands of years, into the earliest studies of the nature of knowledge and reasoning. Intelligent work of art appears in Greek mythology; the idea of developing ways to perform reasoning mechanically, and efforts to build machines to do tasks such as game-playing, date back hundreds of years. Psychologists have long studied human cognition,

helping to increase knowledge about the nature of human intelligence. Philosophers have investigated the nature of knowledge, have studied the mind-body problem of how mental states relate to physical processes and have investigated proper frameworks for developing conclusions (Haenlein and Kaplan, 2019).

However, the advent of electronic computers revolutionized the ability to study intelligence by creating intelligent artifacts—systems capable of performing complicated reasoning tasks—and observing and experimenting with their behavior to deduce essential principles. In 1950, Alan Turing published a seminal paper arguing "for the feasibility of developing intelligent computing systems" (Muggleton, 2014). Turing's study presented a simple test for evaluating the intellectual ability of humans and artificial intelligence systems, which has become known as the "Turing Test."

The Turing Test's meaning has been a source of contention. Some, both inside and outside AI, have argued that the goal of AI should be to construct a system that passes the Turing Test. On the other hand, others oppose the idea of building systems that mimic human behavior.

The fundamental AI research rapidly developed systems capable of performing a wide variety of tasks frequently associated with human intelligence, including geometry theorem-proving, symbolic integration, equation solving, and even analogical reasoning problems of the type occasionally found on human intelligence tests. Nonetheless, studies indicated that methods that performed well on small sample domains may not scale up to larger and richer tasks, creating an impression of the enormous

difficulty of the problems addressed by the area. A common example is an early work in machine translation, which was realized as a far more difficult problem than anticipated in the 1960s, resulting in the discontinuation of funding for machine translation research (Yang, 2012).

Two impediments to the widespread use of early AI systems were their ad hoc procedures and a dearth of expertise. While evaluating all alternatives thoroughly may be appropriate for small jobs, specialized knowledge is required to focus reasoning on complex ones. This work sparked research on knowledge-based systems, which recognized that there is a significant class of issues that require deep but narrow knowledge and that systems that capture this information in the form of rules can perform at an expert level for these tasks. DENDRAL, a pioneering example, used mass spectrometry and other data to speculate chemical complex structures. It attained expert-level performance using only simple inference approaches and was the source of results reported in the chemical literature. These systems laid the groundwork for various applied AI systems. The continuing study revealed the need for additional approaches for tasks such as gaining knowledge for systems to use, dealing with missing or ambiguous data, and adapting automatically to new tasks and settings (Lindsay et al., 1993).

Artificial intelligence technology has had a significant impact. AI components are embedded in a variety of products, such as copy machines that use a combination of case-based and fuzzy reasoning to change the copier automatically to maintain copy quality. Additionally, artificial intelligence systems are used regularly to do jobs such as detecting credit card fraud, configuring items, assisting with difficult planning tasks, and advising clinicians. AI is becoming increasingly important in corporate knowledge management, enabling the acquisition and reprocessing of expert information. Intelligent tutoring solutions enable teachers to deliver more individualized attention to pupils and even for the computer to listen to and respond to what youngsters say. AI-developed cognitive models can also suggest principles for effective human learning support, directing the design of educational systems (Lu et al., 2018).

Artificial intelligence is being employed in autonomous agents that monitor their surroundings, make judgments, and act autonomously to accomplish their goals without human interference. For instance, in space research, the communication latency between earth and probes necessitates that robotic space probes be capable of autonomous decision-making— Depending on the earth's and Mars' relative positions, one-way communication can take more than 20 minutes. In a 1999 experiment, an artificial intelligence system was given primary control of a NASA spacecraft, Deep Space 1, 60,000,000 miles from Earth, as the first step toward autonomous robotic space

exploration. Additionally, methods from autonomous systems have the potential to give critical technology to assist humans. For example, in a 1996 experiment dubbed "No Hands Across America," the RALPH system, a vision-based adaptive system for learning road features, was used to drive a vehicle for 98 percent of the trip between Washington, D.C., and San Diego, maintaining an average speed of 63 mph in daytime, dusk, and night driving conditions. Not only may such systems be utilized for driverless vehicles, but also for safety systems that alert drivers when their vehicles veer off a safe course (Chien et al., 2006).

Constant exploration of fundamental features of intelligence indicates a broader impact as well. For instance, researchers are examining the nature of creativity and how to develop creative computer systems, presenting compelling evidence that artificial systems can reach creativity. Numerous programs have been built to accomplish tasks considered creative in humans, such as uncovering surprising mathematical notions in AM, painting in Aaron, and performing creative explanations in SWALE. AM's mission, for example, was not to prove mathematical truths but to discover novel notions. The software was given just critical basic knowledge from number theory (for example, the definition of sets), as well as heuristics for refining current concepts and selecting potential topics to investigate. It developed fundamental ideas such as addition, multiplication, and prime numbers based on this understanding. It even resurrected a well-known mathematical assumption that the programmer was unaware of Goldbach's conjecture, "the conjecture that any even integer bigger than two can be expressed as the sum of two primes." Buchanan (2005) analyzes many "significant machine creativity efforts" and argues for their possible impact on the future of artificial intelligence.

Additionally, throughout the history of AI, AI research has contributed to the field of computer science in general. For example, John McCarthy's 1958 computer language Lisp enabled the development of early AI systems through symbolic computation; it has stayed in use to the present day, both within and outside AI, and has had a significant impact on the field of programming languages. A later study in artificial intelligence resulted in the development of the computer language Prolog, which is used for logic programming. A key principle of logic programming is that the programmer should specify simply the problem to be addressed and the constraints on its solution, leaving the details of how the solution should be reached to the system (Morgenstern and McIlraith, 2011).

## 2.2 AI in Business Environment

Businesses in the digital age require shorter waiting periods and, as a result, greater awareness of the market environment, which is changing at a faster rate than

in past decades. As a result of this perspective, some firms have adopted emerging technologies that are intended to provide high performance as well as a competitive advantage (Akhtar et al., 2019). AI has played a crucial role in many of these breakthroughs and has attracted the interest of both academics and the industrial sector. Artificial intelligence (AI) is defined as the ability of a machine to learn from experience, adapt to new inputs, and perform activities that are similar to those performed by humans (Duan, Edwards, & Dwivedi, 2019). According to Duan et al. (2019), AI may now be the innovation entity with the most potential for disruption. AI is also the core multi-purpose technology in the area, particularly when it comes to machine learning tools, as demonstrated by Lichtenthaler (2020).

The large amount of data collected in a variety of formats has been acquired at a faster rate than ever in the past decade. It called for the introduction of new technologies, which culminated in the acceleration of technical breakthroughs, which included the incorporation of computational capabilities into processing capacities as well as the advancement of new artificial intelligence techniques (Božič & Dimovski, 2019). Firms are now able to handle massive amounts of data using artificial intelligence, and they can use the results to widen their purpose by entering new markets, developing new goods, and providing new services (Chen & Siau, 2020).

As a result of the intense competition that businesses face today, as well as massive amounts of data, limited resources, and the consequent need for speed in decision-making, several companies have been inspired to implement artificial intelligence tools, primarily because of the anticipated implications exhibited by leading digital businesses (Wamba-Taguimdje, 2020). Recognizing that the process of change necessitates a reexamination of business strategy, several top businesses are reexamining their strategic plans for the integration of artificial intelligence (AI) capabilities. Even though researchers have argued that more research is needed to assess the significance of artificial intelligence in organizational planning and strategy implementation (Pappas et al., 2018), this is because there are only a few theoretical and empirical findings of the creation of value propositions through AI technologies at this time. The goal of businesses is to achieve long-term performance and competitive advantage by incorporating technology into the decision-making process following their corporate strategies. The current dynamic climate requires businesses to be more adaptable and sensitive to strategic decision-making, and this is expected of them. Firms that can preserve their competitive edge will be able to outperform their competitors in the long run (Reis et al., 2020)

Only a few academics have looked at the literature on artificial intelligence from a managerial

perspective, focusing on information management, decision-making, knowledge management, and skills among other topics. So far as we know, this paper differs from previous studies in that it conducts a systematic review of the literature rather than simply synthesizing it. It also examines the current state of the relationship between artificial intelligence and organizational strategy, a topic that was not covered in the articles.

### ***2.3 Organizational Knowledge Management in the Age of Information Technology***

According to Mehri et al. (2014), technological advancements have had a substantial impact on knowledge management in a variety of ways. For example, information technology and AI enable activities in knowledge management, such as database decision support systems, management information systems, expert systems, resource planning systems, and lessons learned systems, among others. Aside from that, there are a variety of social mechanisms that promote knowledge management, including on-the-job training, learning by observation, staff rotations, and monitoring knowledge transfer.

Knowing how to manage knowledge is essential in modern companies because it allows the development of an effective organizational structure and assists in the performance of various organizational tasks and processes that have the potential to lead to the discovery of new information. It has been noted in modern businesses, according to Santoro, Vrontis, and Thrassou (2018), that increased reliance on knowledge management approaches has been observed in the formation of organizational behaviors.

Knowledge communities within firms that place high importance on knowledge management, in contrast to hierarchical businesses, are networked using groupware (Wong et al., 2015). These companies make use of groupware facilities to conduct meetings, generate multi-author documents, as well as access data and knowledge stored in their storage places or devices, among other things.

A knowledge management system comprises the integration of information technology to capture, organize, transfer, and distribute information. The implementation process is not straightforward because it involves meticulous planning to ensure accessibility, timeliness, and availability.

### ***2.4 Role of AI and it in Promoting Knowledge Management in Business***

Nowadays, people no longer regard businesses to be industries, but rather evaluate them from the standpoint of knowledge and information. According to Wang et al. (2016), information is increasingly being exploited as a resource in today's business world. In large part, this is true because the most successful businesses are those who have

been able to recognize, assess, produce, and translate the information they have into assets. The knowledge life cycle, which begins with data and progresses via information and knowledge, should be shortened to ensure that there is more value available to meet the demands of businesses and individuals. Currently, information and communications technology (ICT) is complemented by artificial intelligence (AI) skills to ensure that a business gets the most out of what these technologies have to offer.

Artificial Intelligence tools and systems are widely used in most modern businesses, and they are becoming increasingly sophisticated. They are employed in the recognition of patterns, the development of search strategies, and the application of mathematical reasoning. In recent years, knowledge management has risen to the top of the list of sectors where artificial intelligence developments can be used, gaining more attention than ever before. Neural Networks, Intelligent Agents, and Genetic Algorithms are just a few of the technologies that fall under the umbrella term "Artificial Intelligence," and they provide businesses with intelligent agents for a variety of operations such as user profiling, pattern matching, text mining, and semantic analysis of texts.

Artificial Intelligence technologies enable businesses to assist and improve their knowledge management strategies using machine learning algorithms. From the perspective of artificial intelligence, the representation of knowledge necessitates the familiarization of organizational processes with the knowledge represented (Inkinen, Kianto & Vanhala, 2015). Knowledge management processes are becoming more automated, allowing computer systems to gather information and draw inferences from knowledge in a way that can be understood by machines. In recent years, there has been much discussion on the extent to which Artificial Intelligence can play a role in knowledge management. Artificial Neural Networks and Intelligent Agents are two of the most important types of Artificial Intelligence that may be used to improve knowledge management techniques.

Artificial Neural Networks (ANNs) offer a lot of potential in knowledge management in modern businesses because they operate in a way that is more like the human brain than traditional methods. They are particularly advantageous since they can complete tasks and operate with limited information (Alshurideh et al., 2019). This technology can be applied to knowledge management in order to improve the distribution and exchange of information among participants.

Intelligent search, on the other hand, is used to make the process of searching for information on multiple search programs more convenient. For example, when an employee types a term into a search engine, the intelligent search will minimize the number of results to only those

that are relevant to the employee's search, making it easier for the employee to obtain the information they are seeking (Saqib, Mohammed Din & Baluch, 2017). The search engine can be trained using examples and then used to search for information solely based on the keywords entered, as well as the content, context, and meaning of the search terms entered. Many operations in knowledge management necessitate intelligent assistance, which can be provided through the use of an intelligent agent.

The integration of information technology and artificial intelligence concepts into knowledge management methods enables entities to obtain the information they require for a more efficient decision-making process. The ultimate goal of this study is to conduct a systematic review and investigation of the articles that have been published on this topic to close research gaps and improve understanding of the aspects of information technology and AI and their impacts on knowledge management in modern businesses, specifically.

### ***2.5 Challenges to the Application of AI in Knowledge Management***

It is advantageous for businesses to implement new technology at the earliest opportunity. However, this is limited in terms of long-term viability; employees' abilities assure that this is the case. Nevertheless, the knowledge management theories highlight four critical components: knowledge, people, procedures, and technology.

The importance of technology in knowledge management has been emphasized by several studies (Sian Lee and Kelkar, 2013). The technology connected with knowledge management methods provides facilities for knowledge storage, supports a functioning knowledge architecture, allows effective usage and transfer, may serve as a multi-purpose platform, and may even contribute to knowledge creation.

Innovation and co-creation are also promoted by the IoT (Santoro, Vrontis, Thrassou, & Dezi, 2018). However, the digital infrastructure for knowledge management does not guarantee the efficiency of knowledge management techniques in and of itself; this is influenced by a variety of other factors, the most important of which is organizational culture, which is discussed further below (Bratianu, 2015).

Technological infrastructure would be simply a platform for facilitating successful knowledge management techniques (Zbucnea & Vidu, 2018). Knowledge platforms should be coupled to AI. They were published at the beginning of the twentieth century, but the first seminal research combining knowledge management with artificial intelligence was published in the 1990s (i.e., Liebowitz, 2001 and Nemati, et al., 2002).

There is a substantial body of literature studying the relationships between knowledge management and artificial intelligence, particularly works focused on specific parts of the relationship. This year's edition of the International Conference on Artificial Intelligence for Knowledge Management (AIKM) will be the seventh, and specific tracks on the topic will be offered at some academic meetings throughout the year.

Metaxiotis, Ergazakis, and Psarras (2005) point out that while examining the relationships between artificial intelligence and knowledge management, there are both good and negative factors to consider. Changes in the status of knowledge are determined by the interactions of various technologies and knowledge types: from tacit to

explicit, from tacit to tacit, from explicit to new knowledge, and from explicit/new to tacit knowledge.

### III. METHOD

The literature review creates the foundation to gather the information that can empower theories' expansions, fill in the gaps in the related fields of research and reveal hidden domains which were not probed thoroughly by previous research. This research follows the guided lines provided by Kitchenham and Charters (2007) for conducting systematic review studies. Accordingly, this systematic review is carried out in three different stages: the definition of inclusion and exclusion standards, data sources, search strategies as well as quality assessment procedure as shown in the below table.

**Table 2:** Inclusion and exclusion standards

Inclusion criteria	Exclusion criteria
Should include the processes of KM	Articles not focusing on KM concepts
Should include AI and IT technology	KM references highlighting other areas other than AI and IT
Should focus on business	Articles do not focus on business
Should be published in the recent 15 years	Articles published prior to 15 years
Should be written in English	Articles not written in English

These stages are briefly discussed in the following sub-sections.

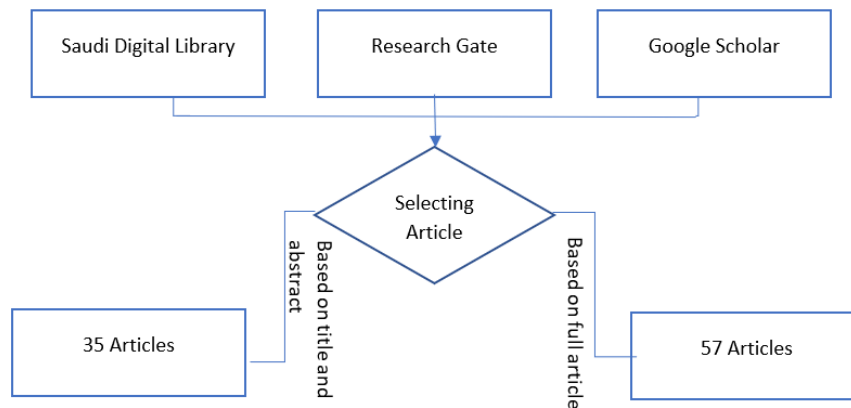
#### 3.1 Selection Criteria (Inclusion and Exclusion Standards)

This criterion aims to ensure that only the studies related to the scope of the research are used for further analysis. Using the inclusion-exclusion criterion on the mapping study, we decide if a certain article should be selected for critical investigation. The research articles meet both the inclusion and exclusion standards defined in Table 2.

#### 3.2 Search Strategy

The systematic review of this study was conducted based on highly reputed digital repositories such as Saudi Digital Library including IEEE Xplore, Springer,

Wiley, and ScienceDirect. Research Gate, and Google Scholar. The initial phase of the search strategy was to identify the main keywords forming the basis of this study: ("Knowledge Management" AND "Artificial Intelligence") OR ("Knowledge Management" AND "AI"). At this stage of the systematic review, it is important to choose the proper keywords as they affect shortlisting the articles to be investigated. According to the above-mentioned keywords, 761 articles were retrieved. As a result, the total number of articles becomes 513 after removing duplications. Hence, 15 articles were incorporated in the analytical process as they met the selection criteria. Figure 1 shows a flowchart summarizing the entire review process including the number of research articles.



**Figure 1:** A flowchart illustrating the process of literature searching

**3.3 Quality Assessment**

In this systematic review, a checklist with 5 criteria is used to assess the quality of the articles and

shortlist those that meet most of the criteria for further analysis (N = 10). The following table presents the quality assessment tool of this study.

**Table 3:** Quality assessment tool

1	Are the objectives identified?
2	Is the KM investigated by the research identified?
3	Is the AI concept investigated by the research identified?
4	Is the IT concept in KM investigated by the research identified?
5	Does the study enrich your knowledge and enhance your expertise?

According to the table above, each question was rated based on a three-point scale that is 1 if the answer is “Yes”, 0 if the answer is “No” and 0.5 in case the answer is “Partially”. Therefore, each study can be rated from 0 to

5. The higher the research score, the higher the potential to answer the research question. Table 4 illustrates the results of the quality assessment for the entire 10 studies.

**Table 4:** Results of the Quality assessment tool

Study No.	Q1	Q2	Q3	Q4	Q5	Total	Percentage
1	1	1	1	1	1	5	100%
2	1	1	0.5	1	1	4.5	90%
3	1	1	1	0.5	1	4.5	90%
4	0.5	0.5	1	1	1	4	80%
5	0.5	1	1	0	0.5	3	60%
6	1	1	1	1	1	5	100%
7	1	0.5	1	1	0.5	4	80%
8	1	1	1	1	1	5	100%
9	0.5	1	1	1	0.5	4	100%
10	1	1	1	1	1	5	100%

**IV. RESULTS**

The outcomes of the review of this study are reported in accordance with four research questions.

**RQ1: What is the Role of Knowledge Management in the Age of IT?**

There are several studies which had been conducted to examine the role of knowledge management in the age of IT and how they affect modern organizations. Technological improvements had a great influence on

knowledge management for example AI and Information activities in knowledge management including expert systems, resource planning systems, management information systems, and lessons learned systems. In addition, there are multiple social mechanisms used in knowledge management for improvements purposes such as staff rotations, learning by observations, on-the-job training, and monitoring knowledge transfer.

In a modern company, it is important to know how to manage knowledge because it facilitates the performance of multiple organizational tasks and processes and develops an effective organizational structure which all leads to new information discovery.

Knowledge management system involves the integration of information technology to perform capturing, organization, transferring, distribution of information. Also, the implementation process is not direct because it needs accurate and detailed planning to ensure availability, timeliness, and accessibility.

#### ***RQ2: What is the Role of AI and IT in Promoting Knowledge Management in Businesses?***

Nowadays information is considered a vital resource in the business world. In most businesses, this is true because the most successful business is those that can recognize, assess, produce, and translate the information into assets. Information and Communication Technology (ICT) is associated with artificial intelligence (AI) to help the business to get the most benefits out of these two technologies. Artificial intelligence systems and tools are becoming more complicated and are used widely in most businesses. Recently, knowledge management has been categorized as one of the top sectors where artificial intelligence developments can be used. AI provides business with some technologies such as neural network, genetic algorithm, and intelligent agent which is involved in various business operations including text mining, pattern matching, and user profiling.

Recently, it has been noticed that the two of the most essential types of AI technologies that are used to improve knowledge management work are Artificial Neural Network (ANNs) and Intelligent Agents. Artificial Neural Networks (ANNs) operate in a way that is similar to the human brain to traditional methods and they can be applied to knowledge management in order to enhance the information exchange and distribution between participants. On the other hand, Intelligent search is used to make the process of information searching on different search programs more easily and more convenient. To illustrate, when some employee types a term into a search engine, the intelligent search task will be to minimize the number of results to those that are related to the typed term, so it facilitates the employee task of obtaining the required information. Intelligent agents are used to

accomplishing many operations in knowledge management.

#### ***RQ3: What are the Challenges to the Application of AI in Knowledge Management?***

It is useful for any business to implement new technologies when the opportunity is available. Several studies have highlighted the importance of technology use in knowledge management since it supports knowledge architecture, facilitates knowledge storage, and may participate in knowledge creation. Knowledge management digital infrastructure does not ensure the efficiency of knowledge management techniques because it is affected by multiple other factors, the most essential factor is organizational culture. There are many studies discussing the relationship between knowledge management and artificial intelligence, some of which focused on specific parts of the relationship. This year the seventh edition of the International Conference on Artificial Intelligence for Knowledge Management (AIKM) will be conducted, and some important topic aspects will be discussed at some academic meetings throughout the year. Some researchers while studying the relationships between knowledge management and artificial intelligence, they found that there are both positive and negative factors to consider. Status changes of knowledge are decided by interactions of several technologies and knowledge types.

## **V. DISCUSSION AND CONCLUSION**

### ***5.1 Discussion***

Artificial intelligence is a technology in which knowledge is developed, captured, shared, transformed into the required format in business. AI is a method to create a software program that simulates the various mental processes of the human brain such as complex issues resolution, learning, thinking, natural language processing, innovation, and building perception. In addition, AI can be used in multiple applications that need analysis and thinking by applying AI tools, for example, mathematical and statistical techniques to initiate computer representation of knowledge and Machine Learning (ML), like the human thought process and knowledge acquisition. In the intelligent vehicles study, knowledge created from the test results of intelligent vehicles was used back as input into AI systems to enhance it, resulting in increasing learning of AI systems and providing great results (Vadari & Desik, 2021).

KM system allows organizations employees to access, update, share business data, information, and knowledge. It has various substantial benefits involving creating and maintaining competitive advantage, minimizing risk, boosting productivity, simplifying work, and helping businesses make faster and better decisions. In



most businesses, effective KM needs an essential investment of time, energy, and interest. Adding AI to KM substantially reduces the extent of supervision needed for program management.

When developing an AI strategy to enable KM, the business goals that KM is expected to satisfy should be considered and AI capability should be aligned with KM in a way that will address the business goals. Also, several AI techniques must be leveraged to set the rules and create the road map to acquire effective KM in the organization. These techniques can be Virtual Reality, Machine Learning (ML), Robotic Process Automation (RPA), and Conversational AI. To get the potential benefits of AI, it should be merged with KM strategy, which in turn to business strategy, finally resulting in understanding business strategic goals (Vadari & Desik, 2021).

### 5.2 Conclusion

The integration of information technology and artificial intelligence concepts into knowledge management methods enables businesses to obtain the information they require for a more efficient decision-making process. The goal of this study is to conduct a systematic review and investigation of the articles that have been published on this topic to close research gaps and improve understanding of the aspects of information technology and their impacts on knowledge management in modern businesses, specifically. Among the numerous studies conducted in the knowledge management sector, only a few studies have focused only on the influence of information technology and AI on knowledge management in modern businesses. Most of these studies concluded that data warehousing and mining technologies are essential for assisting managers in making educated decisions based on large amounts of complicated data. To be more explicit, confirmed that data mining is utilized during investigations to obtain the targeted data from vast databases, which saves time and effort. Furthermore, it was discovered that information technology tools, such as brainstorming software, were used to transform tacit knowledge into explicit knowledge. These tools are valuable for the creation of knowledge, and they assist in categorizing and organizing knowledge resources, as well as identifying the applications of knowledge.

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