# THE EFFECTIVENES OF ARTIFICIAL INTELLIGENCE IN MAKING SMART DECISIONS IN THE UAE PUBLIC SECTOR



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SULTAN IDRIS EDUCATION UNIVERSITY

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# ABSTRACT

This research aims to examine the impact of AI on organizational operations and efficiency, analyze its influence on expenditures, and scrutinize its effects on intelligent decision-making in UAE organizations. Supported by institutional theory, it employs a qualitative research design using a convenience sample of 38 semi-structured interviews with high-ranking individuals in various public sector organizations conducted from April to October 2022. The data were analyzed using NVIVO 12 software through thematic analysis. Results revealed that participants widely acknowledged AI's positive role in decision-making, highlighting its ability to automate tasks, save time, and allow human workers to focus on professional development and creativity. Key themes identified include AI's transformative impact on customer services, reputation, and operational efficiency. Implementing AI reduced operational costs, improved maintenance scheduling, and led to smoother service delivery. Additionally, AI optimized workforce allocation, reduced labor inefficiencies, and analyzed data to identify patterns and bottlenecks. Enhanced data management by AI reduced paperwork and provided cost savings. The economic impact of AI was significant, minimizing material purchases, allowing for redirected funds, and enabling better resource allocation. AI was a valuable tool for making smart decisions, enhancing economic revenue, and automating sales processes for improved productivity and personalized customer experiences. In conclusion, AI offers organizations a powerful tool for processing vast amounts of data and making informed decisions. With cloud computing, AI improves management, problem-solving, and strategic development. However, implementing AI in the public sector requires careful consideration. Governments must ensure transparency, fairness, and accountability in AI decision-making. Establishing robust data management and cybersecurity guidelines is crucial. By addressing these challenges and harnessing AI's capabilities, government organizations can improve governance, enhance service delivery, and benefit society.

# KEBERKESANAN KECERDASAN TIRUAN DALAM MEMBUAT KEPUTUSAN PINTAR DI SEKTOR AWAM UAE

## ABSTRAK

Penyelidikan ini bertujuan untuk mengkaji kesan AI terhadap operasi dan kecekapan organisasi, menganalisis pengaruhnya terhadap perbelanjaan, dan meneliti kesannya terhadap pengambilan keputusan pintar dalam organisasi Emirati. Disokong oleh teori institusi, kajian ini menggunakan reka bentuk penyelidikan kualitatif dengan menggunakan persampelan rawak mudah di mana 38 orang responden berpangkat tinggi dalam pelbagai organisasi sektor awam telah ditemubual dengan menggunakan soalan separa berstruktur. Hasil kajian mendapati bahawa responden secara meluas mengakui peranan positif AI dalam pengambilan keputusan, menekankan kemampuannya untuk mengautomasi tugas, menjimatkan masa, dan membolehkan pekerja manusia memberi tumpuan kepada pembangunan profesional dan kreativiti. AI dilihat sebagai transformasi, memperbaiki perkhidmatan pelanggan, reputasi, dan kecekapan operasi. Pelaksanaan AI mampu mengurangkan kos operasi, memperbaiki penjadualan penyelenggaraan, dan membawa kepada penyampaian perkhidmatan yang lebih lancar. Selain itu, penggunaan AI mengoptimumkan peruntukan tenaga kerja, mengurangkan ketidakcekapan buruh, dan menganalisis data untuk mengenal pasti corak dan halangan. Pengurusan data yang dipertingkatkan oleh AI mengurangkan kertas kerja dan memberikan penjimatan kos. Kesan ekonomi AI adalah ketara, terutamanya dalam meminimumkan pembelian bahan, membolehkan pengalihan dana, dan membolehkan peruntukan sumber yang lebih baik. AI adalah alat yang bernilai untuk membuat keputusan pintar, meningkatkan pendapatan ekonomi, dan mengautomasi proses jualan untuk meningkatkan produktiviti dan pengalaman pelanggan yang dipersonalisasi. Kesimpulannya, AI menawarkan organisasi alat yang kuat untuk memproses sejumlah besar data dan membuat keputusan yang berinformasi. Dengan pengkomputeran awan, AI meningkatkan pengurusan, penyelesaian masalah, dan pembangunan strategik. Walau bagaimanapun, melaksanakan AI dalam sektor awam memerlukan pertimbangan yang teliti. Kerajaan mesti memastikan ketelusan, keadilan, dan akauntabiliti dalam pengambilan keputusan AI dan menetapkan garis panduan pengurusan data dan keselamatan siber yang kukuh. Dengan menangani cabaran ini dan memanfaatkan keupayaan AI, organisasi kerajaan dapat memperbaiki tadbir urus, meningkatkan penyampaian perkhidmatan, dan memberi manfaat kepada masyarakat.

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| | |
|---|---|
| A.I | Artificial Intelligence |
| U.A.E | United Arab Emirates |

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# CHAPTER 1

# INTRODUCTION



## 1.1 Introduction

Over the past decades, the pace of change towards the knowledge economy has accelerated, as the production of knowledge has been a priority for organizations operating across the world. Knowledge is one of the basics for stimulating economic growth in different countries. The recognition of knowledge as an intangible intrinsic entity posed a set of challenges to knowledge management, which led to a rearrangement of their priorities. The knowledge development of the countries of the world resulted in developing many useful technological applications. The applications of artificial intelligence are among the most prominent applications that resulted in information flows towards organizations (Mehr, 2017).

Organizations, whether governmental or private organizations, aim to profit and provide services with high quality. Schwarz et al. (2022) stressed that the tremendous development in computer technology has contributed to the development of ways to provide this information with specific specifications serve the needs of senior management in the planning and decision-making processes, especially considering the fierce competition between business organizations. Thus, organizations need tools to improve their monitoring and evaluation processes. Novak et al. (2023) argued that new methods are adopted to reduce errors and provide better service or product to customers, where the artificial intelligence helps organizations achieve high accuracy and quality.

Artificial intelligence is a universal field that fits all directions. Giansiracusa (2021) defined artificial intelligence as a study of how to guide the computer to perform things better. Alshahrani et al. (2022)clarified that artificial intelligence aims to enable the computer to simulate the intelligence processes which are done in the human mind. In this way the computer can solve problems and make decisions in a logical and orderly manner and the same way of the human mind thinking, in addition to represent the accounting programs for a specific field and improve the basic relationship between its elements. Artificial Intelligence (AI) is a technology that can significantly impact the global economy and can improve the economic output of the world, if a balance is struck between man and machines. AI has the potential to pull millions of people out of poverty in the developing parts of the world by driving out inefficiencies and making data driven decisions.

Mirsky et al. (2023) pointed out that artificial intelligence is a process that involves the use of computers to perform high quality and efficient tasks that require

very high and advanced human mental abilities. In general, artificial intelligence aims to understand the processes of mind, how people think when making decisions to solve a problem and translate it to equivalent computer processes, increase the computer system's ability to solve problems, and make decisions in a logical and orderly manner, by reference to many different evidentiary processes which has fueled this program (Ali et al., 2021). Making decisions is a significant and complex topic. It is described as the participation of workers and employees in decision-making, the development of work goals, and the dedication to putting those decisions into practice to meet those goals (Sandkuhl, 2019). According to Alloulbi and Öz (2022), Artificial Intelligence (AI) can augment decision-making processes by providing data-driven insights and predictive analytics. Public sector employees familiar with Artificial Intelligence (AI) can leverage its capabilities to analyze large datasets, identify patterns, and generate evidence-based recommendations. This can enhance the accuracy and efficiency of decision-making, leading to more effective policies, resource allocation, and service delivery. Alkhyeli (2017) argued that understanding Artificial Intelligence (AI) is crucial to ensure transparency and accountability in decision-making. Public sector employees must know the algorithms and models used in Artificial Intelligence (AI) systems to comprehend the factors influencing the recommendations or outcomes. This understanding enables employees to critically evaluate Artificial Intelligence (AI)-generated insights and consider potential biases or limitations inherent in the technology. It also helps address concerns related to algorithmic fairness, privacy, and ethical implications, ensuring that Artificial Intelligence (AI) decisions are aligned with legal and ethical standards.

Similarly, decision-making is another concept, closely related to the characteristics and aspects of Artificial Intelligence. Bérubé et al. (2021) the decision must be made between two or more options after taking several steps, such as identifying and defining the issue, locating, and evaluating potential solutions, and finally choosing the solution that will have the greatest impact on achieving the organization's goals. According to Shrestha et al. (2019), decision-making in the public sector ensures accountability and transparency. Public sector organizations are entrusted with public resources and are responsible for making decisions that align with the public interest. Transparent decision-making processes allow stakeholders to understand how decisions are reached, ensuring accountability, and fostering public trust. Public sector organizations can make informed and inclusive decisions that reflect the needs and aspirations of the communities they serve by involving stakeholders, seeking input, and considering diverse perspectives. Besides, decision-making in the public sector is crucial for policy effectiveness. Well-informed decisions based on rigorous analysis and evidence lead to more effective policies and programs. Public sector organizations need to gather relevant data, conduct research, and assess the potential impacts of various options before making decisions. This evidence-based approach helps identify the most viable solutions and reduces the risk of unintended consequences. Effective decision-making enables public sector organizations to address complex societal issues, respond to emerging challenges, and deliver services that meet the evolving needs of citizens (Araujo et al., 2020).

Since it is a process that is used in all managerial functions and activities, decision-making is at the core of the management process. According to Fountaine et al. (2019)when organization exercises the strategic planning, it makes particular

judgments at each phase of the plan's development, including when developing the objective, formulating policies and programmers, and deciding how best to implement them. According to Al Mansoori et al. (2021) when the Department organizes its numerous roles and operations effectively, it decides on organizational structure, kind, and size, as well as the people required to carry out the multiple tasks and Lines of Responsibility. As a result, Sandkuhl (2019) consider decision-making as widely benefitted by Artificial Intelligence. However, despite the benefits resulting from using artificial intelligence applications to make accurate decisions, data processing and decision-making across smart applications is an intangible process, increasing risks and challenges that may arise from the application of this technology. Kolbjørnsrud et al. (2017)clarified that the inability of personnel control of hardware, and problems associated with information protection and security are among these challenges.



On the governmental level, Schwarz et al. (2022) stressed that governments face many challenges when applying artificial intelligence, which includes, technology and Data challenges, workforce, risk management. Technology challenges include legacy IT Infrastructure and the capabilities of IT Project Management. Jarrahi (2018)added that the limited Capacity for System-Level Redesign represents another challenge for implementing artificial intelligence.

Past studies have proven the effectiveness of utilizing Artificial Intelligence in making decisions (Ahmad et al., 2021; Benbya et al., 2020; Fountaine et al., 2019). Burgess (2018) in her study which aimed at studying the relationship between artificial intelligence applications and decision-making quality, concluded that increasing the system's ability in decision-making leads to increasing the quality of decision making,

which would help in the development of decision-making and increase its importance. Robert et al. (2020)stressed that decision-making based on applications of artificial intelligence would improve the quality of services provided in private hospitals.

On the other hand, Csaszar and Steinberger (2022)concluded that artificial intelligence is an important tool in decision-making in organizations and cannot be relied on as an independent tool. They also stressed that human mental abilities are more efficient in decision-making and problem solving, especially in cases of uncertainty. Csaszar and Steinberger (2022) also stated that the adoption of artificial intelligence in institutions is facing a problem and non-acceptance, and this calls for the need to increase awareness of the importance of using artificial intelligence as a means of assisting in the adoption of administrative decisions in various institutions and organizations. The difference between the results of the previous studies confirms the need to study denies or proves the findings of the previous studies, and so the current study seeks to investigate the effectiveness of using artificial intelligence in making smart decision in UAE government.

## 1.2 Study Background

Artificial Intelligence (AI) has emerged as a transformative technology in the government sector organizations of the United Arab Emirates (UAE), playing a pivotal role in enhancing efficiency, improving service delivery, and fostering innovation (Njawadi, 2020).

Artificial Intelligence (AI) has significantly contributed to improving government services in the UAE. By leveraging Artificial Intelligence (AI) technologies, government organizations have been able to automate routine tasks, streamline processes, and reduce bureaucratic hurdles. This has increased efficiency and faster service delivery, benefiting citizens and businesses. For instance, Artificial Intelligence (AI) -powered chatbots and virtual assistants have been deployed to handle customer inquiries, providing quick and accurate round-the-clock responses and enhancing the overall user experience (Hirzallah & Alshurideh, 2023).

The UAE government has recognized the importance of Artificial Intelligence (AI) in driving innovation and economic diversification. The country has launched initiatives and strategies to promote Artificial Intelligence (AI) adoption and development (Di Vaio et al., 2022). One notable initiative is the UAE Strategy for Artificial Intelligence, which aims to position the UAE as a global leader in Artificial Intelligence (AI) by implementing Artificial Intelligence (AI) solutions across various sectors, including government services. This emphasis on AI reflects the government's commitment to embracing cutting-edge technologies and fostering a culture of innovation within its organizations (Almarashda et al., 2021).

Artificial Intelligence (AI) has also enhanced data-driven decision-making in the UAE government sector. Government organizations can derive valuable insights from large datasets through advanced analytics and machine learning algorithms, enabling evidence-based policy formulation and effective resource allocation. Artificial Intelligence (AI) algorithms can analyze vast amounts of data quickly and accurately,

helping policymakers identify trends, predict outcomes, and make informed decisions that benefit the citizens and align with the country's strategic goals (Al-Mushayt, 2019).

Moreover, Artificial Intelligence (AI) has played a crucial role in enhancing cybersecurity and protecting critical government systems and data. The UAE government has recognized the importance of safeguarding its digital infrastructure against cyber threats and has implemented AI-based cybersecurity solutions. Artificial Intelligence (AI) algorithms can detect and respond to potential security breaches in real-time, enhancing the resilience of government systems and safeguarding sensitive information (Sousa et al., 2019).

The UAE is a fast-growing economy in the Arab region, with a rapidly growing population. The UAE Government and more specifically the Government of UAE has been at the forefront of technology adoption over the last 30 years. Among the key challenges facing the UAE Government are to develop a talented and knowledgeable workforce to enhance the competitiveness of the UAE, deliver high quality Government services to the people in a convenient and efficient manner through the use of digital technologies that minimize travel and time, to provide quality education and healthcare services, to provide safe and efficient transportation and mobility options for the movement of people and goods and ensure high security and safety (Intezari & Gressel, 2017; Supancic & Ramanan, 2017).

The UAE aims to enter the future, competing for its technologies, foreseeing problems, and coming up with effective solutions. This explains why the nation is eager to invest in advancing the fourth generation of industrial revolution technology,

particularly artificial intelligence, to meet its lofty development objectives since it views it as the vocabulary of the next (Al-Arabi, 2018). Vice President, Premier, and Ruler of Dubai of the UAE His Majesty the UAE's Artificial Intelligence Initiative, the first significant undertaking under UAE 2071 and the next step after Smart Government, was unveiled by Sheikh Mohammed bin Rashid Al Maktoum (Majid, 2018). In 2017, the UAE government established an autonomous ministry for the UAE's Artificially Intelligent Strategy (Akram & Naz, 2019; R. Wang et al., 2020).. This was done not only to enhance project performance and its favorable economic effects, but to lessen the number of foreign employees, to correct the discrepancy in the labour market and in the population structure, and to stop the flow of payments out of the nation (Borasio et al., 2020; Kerckhoffs et al., 2019). The State has adopted a number of mechanisms, such as the development of specialised scientific abilities and local functionality in the area of artificial intelligence, in order to promote the growth and maximum speed of the implementation of ai technologies at all public and private levels and provide training for the employees government by engaging them in specialized courses in data science, in addition to strengthening the concerted efforts of governmental institutions and educational and to raise awareness of the fundamentals of this area (Liew, 2018; Risse, 2019).

Recognizing the potential of Artificial Intelligence in addressing the challenges facing the UAE, the UAE Government launched one of the first Ministry of AI in the world with a well-planned AI strategy which aims to boost government performance at all levels and increase UAE GDP (Al Badi, 2021) by 35%, develop and use an integrated smart digital system that is faster and efficient; Increase satisfaction and

happiness, to reduce Government operating costs by 50%, and enhance the Global Competitiveness of the UAE (von Krogh, 2018).

Therefore, utilizing Artificial Intelligence is important for the process of making decisions in governments (Acharya et al., 2018; Joshi, 2017). However, it is still inconclusive as to what extent does Artificial Intelligence improves and enhances making smart decisions. Human desire to control and predict the future and achieve higher levels of efficiency, achieve economies of scale, improve productivity and the promise of AI to deliver these benefits is driving the adoption of AI in the core operations and workflows of organizations across the globe and it is expected to boost global economic development through higher levels of efficiency. Technology is a double-edged sword, while it delivers obvious productivity benefits, at the same time it has the potential to disrupt existing structures, social and economic (Halaweh, 2018).



### 1.2.1 History of Artificial Intelligence in the UAE

The history of Artificial Intelligence (AI) in the organizational sector in the United Arab Emirates (UAE) can be traced back to the early 2000s when the country started actively embracing technology and innovation as part of its development strategy (Balasubramanian et al., 2019). In the early stages, the UAE government recognized the potential of Artificial Intelligence (AI)to drive efficiency and enhance service delivery in various sectors (Zuiderwijk et al., 2021). The Dubai eGovernment initiative, launched in 2000, aimed to provide government services online and laid the foundation

for digitizing government processes. This initiative paved the way for integrating Artificial Intelligence (AI) technologies into government organizations.

The UAE's commitment to Artificial Intelligence (AI) development is further evident through initiatives like the World Government Summit. This annual event brings together global leaders to discuss the latest advancements in technology and governance. The summit has been a platform for showcasing Artificial Intelligence (AI) innovations and exploring the potential of Artificial Intelligence (AI) in various organizational sectors (Almesafri & Habes, 2023).

The history of Artificial Intelligence (AI) in the organizational sector in the UAE is characterized by a proactive approach from the government in embracing Artificial Intelligence (AI) technologies to enhance efficiency, improve services, and drive innovation. Establishing dedicated foundations, strategies, and initiatives has laid the groundwork for integrating Artificial Intelligence (AI) into government organizations. The UAE continues to be at the forefront of Artificial Intelligence (AI) adoption, leveraging its potential to transform governance and create a technologically advanced society (Abdullah, 2021).

The UAE is one of the first countries in the world to build a solid knowledge base in artificial intelligence that relied on sharing information and on standard training and programming models (Parahoo, 2021). The UAE started the process of going electronic in 2000. The Smart Administration Initiative was introduced by the UAE in 2013 to offer services to the general population. The first "Silicon Park" proposal for an integrated smart city was launched in the UAE in 2014. By 2015, the UAE had

transformed all aspects of its government services. The UAE's first significant initiative under the UAE 2071 centimeter was the Artificial Intelligence Strategy, which was unveiled in 2017 (Al Mansoori et al., 2021).

The UAE government unveiled its artificial intelligence (AI) policy in October 2017. In keeping with UAE 2071, which aims to create the UAE one of the best countries in the world, this initiative is the next step after Smart Government. It will be dependent on the services, industries, and future infrastructure of the UAE. This plan, which is the first of its type in the area and the globe, intends to fulfil the goals of the UAE 2071, speed up the execution of development projects and programs, and rely entirely on artificial intelligence by 2031 for services and data analysis (Neumann et al., 2022). A promising new market with high economic value can be created in the region, as well as government performance being improved, innovation being accelerated, innovative work environments being created, artificial intelligence being invested in various crucial sectors, all energies being invested optimally, and creatively utilizing the available resources, both human and material.

The UAE has embarked on activating artificial intelligence from a variety of motives, most notably that the adoption of artificial intelligence is a necessity in health, education and services sectors. Artificial intelligence will also serve other vital sectors such as transportation through unmanned aircraft and self-propelled vehicles. Artificial Intelligence has alleviated human hardships and hazardous actions such as exploration and rescue operations during natural disasters that require muscle strength.

### 1.2.2 The UAE Government's adoption of Artificial Intelligence to Improve Performance

The UAE has taken the lead in the adoption of artificial intelligence as a key means to raise the performance of government responsibly and morally high. The UAE Strategy for Artificial Intelligence, which is the first significant initiative in the UAE's 2071 centimetre, was introduced in 2017 by Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. This strategy is the first of its kind in the region and the world.

The UAE aims to enhance government performance and use an integrated digital system that can overcome challenges, deliver efficient and fast solutions, and reach the production of a new, dynamic and economically viable sector. In addition to leading innovation that enhances smooth performance across multiple sectors. The UAE Government's vision is to connect the different sectors of the sector and to enhance communication between customers and employees in the sector.

The Government of the UAE has also launched the Artificial Intelligence Protocol (IP) project in the annual meetings of the Future Councils (World Government Summit, 2017). The UAE contains the first open laboratory for the application of the Artificial Intelligence Protocol in the world. His Excellency Omar Bin Sultan Al Ulama was appointed the first Minister of State for Artificial Intelligence in 2017. "Artificial intelligence represents the most important outcome of the Fourth Industrial Revolution because it will open doors to innovations that have no limits and are expected to lead to further industrial revolutions that will radically change human life, thus, it is necessary to seek to benefit from it and anticipate the challenges that may result from

it" said Omar bin Sultan Al Ulama, UAE Minister of Artificial Intelligence. He added; "Investing in the promising possibilities of artificial intelligence helps governments achieve their future development goals and involves many human-machine-related challenges. Hence the Global Forum on Artificial Intelligence calls to establish an international dialogue and co-operation among the governments of the world to discuss ways to harness artificial intelligence for the good of mankind" (Alshahrani et al., 2022).

The UAE has moved towards adopting this technology across the region to improve government performance, develop new sectors and create innovative opportunities to enhance the country's role in shaping the future of the world. The move was aimed at exploiting the capabilities of artificial intelligence at this stage in which the country charted the roadmap towards the future (Bader & Kaiser, 2019).

In the UAE health sector, for example, the UAE's healthcare sector is witnessing a growing need for smart solutions to address the major challenges of improving results, streamlining data collection and in-depth information, and reducing the cost of delivering health care services. The main objective of artificial intelligence applications in the healthcare sector is to analyze the relationships between prevention or treatment techniques and patient outcomes (Jarrahi, 2018b). Furthermore, artificial intelligence programs have been developed and applied in a number of practices such as diagnosis and development of disease and therapeutic protocols. The adoption of artificial intelligence in health care reduces costs and ensures that the quality and availability of medical services is greatly improved. Recent studies in this sector expect to grow exponentially to $ 6.6 billion by 2021 (Fountaine et al., 2019).

### 1.2.3 Mechanisms for activating Artificial Intelligence in the United Arab Emirates

Numerous business sectors in the nation are given significant economic potential by artificial intelligence. With the proper application of its applications and dependence on its intelligence and sound guidance, it has the potential to generate enormous profits. It also has beneficial impacts on lowering reliance on the human factor and employment, which improves the quality of the products and lowers spending. In order to enhance the efficiency of businesses, the UAE has worked to encourage the development and advancement of applications of artificial intelligence at all sectors of government and the private sector but also to alter the demography and labour market structure, as well as to reduce the percentage of foreign employees. Measures in the first quarter of 2018 suggested several ways artificial intelligence could be used in the UAE, including educating the general public and community organizations about the concept in order to encourage the widespread adoption of techniques that rely on this technology. This would require coordinated efforts from governmental, educational, and media institutions to develop a digital citizenry capable of utilizing these innovations (Novak et al., 2023).

Substantial economic opportunities arose from artificial intelligence for various sectors in the UAE (Kolbjørnsrud et al., 2017). Adopting Artificial Intelligence technology and its reliable insights and recommendations can lead to significant profitability and reduce dependency on human labor, thus improving product quality and minimizing expenses. Consequently, the UAE has made considerable efforts to promote the widespread application of artificial intelligence across government and private sectors. These initiatives aim to enhance enterprise performance, reduce

reliance on foreign workers, and bring about structural changes in the labor market and demographics (Al Shobaki et al., 2017).

Majid (2018) further suggests the importance of creating awareness among institutional leaders, managers, and employees in government agencies about the benefits and applications of artificial intelligence. This awareness will facilitate the adoption of Artificial Intelligence technology in their work processes and service development. Also, executive directors of innovation in government institutions are advised to establish task forces that study the opportunities and challenges in implementing Artificial Intelligence-based services and electronic systems. These task forces can develop comprehensive plans and find solutions to overcome their challenges (Mikalef & Gupta, 2021a).



To encourage the use of this technique in the work and growth of operations in those entities, it is required to raise awareness among institutional leaders, managers, and staff about the significance of ai technology and its uses (Le Berre et al., 2020; Samek & Müller, 2019; Tambe et al., 2019).. The executive directors of advancement in government bodies have established task forces to study the possibilities and difficulties they will face in providing solutions and communications devices utilizing artificial intelligence strategies, and to make plans for their implementation and come up with solutions to the problems they will encounter. Other systems comprise (Benbya et al., 2020b). Establishing research centers to advance and launching university education programs that keep up with the anticipated change in future employment. (ii) Determine which industries in the nation are eligible to receive the requirements of artificial intelligence. (iii) To allocate a separate resource for artificial intelligence

throughout schools and universities to solidify students' understanding of the concept and to adopt everything that will increase the number of exceptional students inducted to universities as well as those who have just a sense of comprehension and practical skills over the course of the next ten years.

## 1.3 Research Problem

The emergence of Artificial Intelligence (AI) has become increasingly conspicuous, with multiple organizations across various industries embracing this technology to improve their operations, gain valuable insights, and explore new avenues for generating revenue. Talking particularly about the public sector organizations, decisions relied solely on human intelligence, but now Artificial Intelligence (AI) plays a key role in informing and supporting decision-making processes (McNamara et al., 2018). Artificial Intelligence (AI) can analyze vast amounts of data, learn from it, and subsequently make predictions or decisions based on the obtained knowledge. Organizations gain valuable insights from their data that humans might have overlooked. Through the analysis of extensive datasets and the identification of patterns, Artificial Intelligence (AI) has the potential to improve operational efficiency within organizations (Zavadskas et al., 2018).

Similarly rapid advancements in Artificial Intelligence (AI) have brought about influential transformations in decision-making processes within public sector organizations in the United Arab Emirates Notably, the Government of the United Arab Emirates (UAE) took significant steps to embrace artificial intelligence (AI) as a

strategic focus in 2017. This commitment was mirrored in the appointment of H.E. Omar bin Sultan Al Olama as the Minister of State for Artificial Intelligence and introduction of a national AI strategy to position the UAE as a global leader in AI by 2031 (National Program for Artificial Intelligence, 2022). The strategy outlined eight key goals, including establishing the UAE as an AI destination, fostering an ecosystem for AI development and implementation, and ensuring effective governance and regulation of AI.

A report by Research and Markets estimates that the AI market in the United Aram Emirates grew from $500 million in 2020 to $8.4 billion by 2026, demonstrating a CAGR of 47.8 per cent. By investing in AI, the UAE aimed to enhance efficiency, productivity, and service delivery within public sector organizations (Coins International Journal, 2023). Also, the UAE Council for Artificial Intelligence and Blockchain was established to advise the government on AI adoption and utilization, design policies that promote an AI-friendly environment, and encourage research and collaboration between the public and private sectors. Research indicates that the artificial intelligence (AI) market is poised for substantial growth, with the Middle East being a prominent region in this expansion. Predictions suggest that the value of the AI market in the United Arab Emirates is expected to reach $1.9 billion by 2026 (Government of UAE, 2022), reflecting a compound annual growth rate (CAGR) of 36.2 per cent. These predictions are also including Artificial Intelligence implementation in the public sector organizations. However, despite the local government has allocated budget for the organizations to implement Artificial Intelligence, its impacts on their performance and expenditures are some underrepresented phenomena. According to Curtis, one of the most prominent barriers

regarding AI implementation is its economic impacts that are considered as hindering its implementation in most of the organizations. On the other hand, Kuzior et al. (2019) consider Artificial Intelligence as improving the decision-making by automating the organizational tasks. These tasks are time-consuming, and when left to human judgment alone, they may only sometimes lead to optimal decisions. AI, on the other hand, can accurately make decisions by automating these processes. As a result, there is a need for a comprehensive research study to examine the impacts of Artificial Intelligence (AI) on decision-making in organizations, mainly focusing on the United Arab Emirates (UAE). As the UAE is known for its rapid development and adoption of advanced technologies, making it an ideal context to explore the impacts of Artificial Intelligence (AI) on decision-making still needs strong consideration. However, despite the growing interest in Artificial Intelligence (AI) and its potential benefits, in-depth research needs to be more comprehensive in addressing the specific role and impacts organizations face in the UAE. Currently there is a plethora of studies conducted in the United Arab Emirates regarding Artificial Intelligence (Alhashmi et al., 2020; Qasim, 2022; Singh & Shaurya, 2021). However, existing studies have focused on other different aspects i.e., Artificial Intelligence in Management Control Systems, Artificial Intelligence in Business Communication, and others. Yet, no study has investigated the role and impacts of Artificial Intelligence in organizational decision-making, particularly in public sector organizations indicating a major empirical gap.

Moreover, another major premise of Artificial Intelligence implementation is its contribution in reducing the costs, increasing operational efficiency, and having positive economic impacts. As noted by Shrestha et al. (2019), the integration of Artificial Intelligence (AI) presents a multitude of benefits for organizations as AI

enables time and cost savings by automating and optimizing routine processes and tasks, improving productivity and operational efficiencies. According to Alhashmi et al. (2020), Artificial Intelligence also leverage outputs from cognitive technologies as it facilitates informed business decisions. Currently many studies have witnessed the impacts of Artificial Intelligence on organizational operations (Ghandour & Woodford, 2019; H. A. Hassan & Baba, 2022; Noordin et al., 2022), yet there is no study witnessing the economic impacts and cost reduction aspects. This study also filled this gap, as the objectives are also to examine the impacts of AI on organizational expenditures, cost reduction, and economic infrastructure.

The primary issues regarding AI integration in UAE's public sector arises from the fact that despite the possible benefits, the slow pace of AI integration within UAE public sector organizations remains a significant challenge. This slow adoption may arise from different factors such as bureaucratic limitations, resource constraints, or institutional inertia. Therefore, this indecision raises concerns about the efficiency and responsiveness of decision-making processes within these organizations. Also, limited awareness and understanding of AI abilities among key stakeholders may aggravate this issue, delaying the effective use of AI technologies to their full potential. Addressing these challenges demands a thorough understanding of the barriers hindering AI integration and the strategies necessary to overcome them.

Also, another critical issue regarding AI adoption in the UAE public sector is the gap in knowledge about the effectiveness of AI solutions in improving decision-making processes. While AI holds the prospect of improving decision-making capabilities through advanced analytics and predictive modeling, there remains a dearth

of empirical evidence regarding its actual impact on organizational operations and outcomes. This lack of clarity regarding the tangible benefits and limitations of AI adoption poses a significant barrier to informed decision-making by organizational leaders. Consequently, there is a critical need for empirical research to assess the real-world effectiveness of AI applications in the UAE public sector, highlighting its potential to drive operational efficiency, cost savings, and overall organizational performance. By addressing these knowledge gaps, this study aims to provide actionable insights for policymakers and organizational leaders to harness the transformative potential of AI in driving smart decision-making practices within the UAE public sector.

Therefore, based on the identified problems and gaps, this research questions decision-making through AI as an important phenomenon in public sector organizations. Efficient and correct decisions not only help to solve the problems but also aid in increasing organizational excellence and growth (Csaszar & Steinberger, 2022).

## 1.4 Research Objectives

The main aim of this study is to explore the use of artificial intelligence in decision making in the UAE based organizations. To do so, the following are the research objectives.

RO 1: To study the use Artificial Intelligence tools in decision making in UAE public sector.

RO2: To scrutinize the factors behind AI adoption in in UAE public sector.

RO3: To explore the perceptions regarding AI adoption in decision making in UAE public sector.

RO4: To explore the impact of Artificial Intelligence on organizational operations and efficiency.

RO5: To probe the impact of Artificial Intelligence on operational costs, and efficiency.

RO6: To explore impact of Artificial Intelligence on smart decision-making in Emirati organizations.



## 1.5 Research Questions

The problem of the current study can be summarized in the following questions:

**RQ1:** How does the adoption of Artificial Intelligence improve decision making in the UAE government?

**RQ2:** What are the factors behind AI adoption in in the UAE public sector?

**RQ3:** What are the perceptions about AI adoption in decision making in the UAE public sector?

**RQ4:** How does artificial intelligence impact organizational operations and efficiency in the UAE public sector?

**RQ5:** How does artificial intelligence impact operational costs and expenditures in the UAE public sector?

**RQ4:** How does the adoption of Artificial Intelligence for making smart decisions impacts public sector organizations in the UAE?

## 1.6 Significance of the Research

The current study deals with an important topic in knowledge management, which is artificial intelligence and its effectiveness in making smart decisions. Artificial intelligence is one of the most important modern sciences, due to the convergence between the technological revolution in the field of systems science and computer. Artificial intelligence aims to understand the nature of human intelligence through making computer programs capable of simulating intelligent human thinking. Parry et al. (2016) clarified that artificial intelligence systems are very useful because they help to find solutions to complex problems, where the analysis of these problems in a timely manner is difficult for the natural person. Artificial intelligence also helps to store and analyze knowledge, store methodological rules to deal with it, and access to its facts (European Consumer Consultative Group, 2018). Parry et al. (2016) added that it contributes to the development of new knowledge and experiences and the activation of computerized knowledge and its use in decision-making process. The institutional impact of artificial intelligence, specifically at the standard of the UAE government, goes beyond cost reduction, altering utilization and production patterns, and increasing productivity. It also includes achieving high levels of GDP growth through wise investment in a variety of sectors (Gladden et al., 2022). According to predictions made

by some studies conducted, artificial intelligence technologies will be able to boost GDP growth by 35% until 2031 and cut government spending by 50% annually, both in terms of lowering the number of transactions that must be completed on paper or saving millions of hours that would otherwise be wasted (Majid, 2018).

Moreover, the process of making managerial decisions in the current era is one of the most important elements of successful management. Araujo et al. (2020) argued that making decisions is the focus of the administrative process at different organizational levels. It is therefore correct to say that the amount of success achieved by an organization depends to a large extent on the effectiveness and efficiency of the decisions it makes, and its suitability to the specific goal, which is the result of the use of modern and sophisticated tools and techniques (Tien, 2017). The importance of this study comes from the importance of the public sector itself, its role in the national economy, and its main contribution in attracting and employing the workforce, in addition to the importance of decision-making as an important factor in the operations of this sector at all levels of management, where the government business is sensitive and affected by economic and social changes clearly.

The study serves as a reaction to the suggestions made by earlier investigations. Due to the relevance of artificial intelligence in making the right decisions, Kim (2019) advocate the use of these techniques, particularly when making decisions. Fast and Schroeder (2020) advise performing additional research that places a greater emphasis on the use of artificial intelligence software to improve the decision-making process. The current study also provides a response to future artificial intelligence developments

in the UAE, including the delivery of all services using AI, the incorporation of AI into government operations, and the application of AI in all spheres of government.

The study findings provide useful information to top policy makers regarding the effectiveness of using artificial intelligence in making smart decision in UAE government, therefore, clarifying this effect would draw the attention of responsible decision makers in UAE Government and motivate them to use artificial intelligence applications in various government transactions. This study will be distinguished as it will be from the fewest and newest studies that will investigate the effectiveness of using artificial intelligence in making smart decision making in UAE government, in addition to the valued information which this study will add to the library of knowledge management.



## 1.7 Research Scope

This research has a broad scope, delving into various aspects of the impacts of Artificial Intelligence (AI) on decision-making processes within organizations, mainly focusing on the United Arab Emirates (UAE). The study provided an in-depth understanding of how AI implementation influences operational efficiencies, costs, organizational expenditures, smart decision-making, and the economic landscape of public sector organizations in the UAE. To achieve this, the research employed a qualitative approach, including interviews with key stakeholders, managers, and decision-makers from various organizations operating within the UAE. These interviews aimed to gather insights on the practical implementation of AI in decision-making processes, determine

challenges faced, and understand the perceived benefits of AI integration. The research also focused on assessing the impact of Artificial Intelligence on smart decision-making. This involved examining how AI systems improve decision-making quality, accuracy, and speed. The study explored how AI technologies assist decision-makers in identifying patterns, predicting outcomes, and providing data-driven insights for making informed choices. Also, it examined the level of trust and reliance placed on AI-generated recommendations and the role of human judgment in the decision-making process.

## 1.8 Operational Definition



### i. Artificial Intelligence

Artificial Intelligence (AI) is the field of computer science that focuses on creating and developing intelligent machines competent for performing tasks that typically need human intelligence (Kruse et al., 2019) . Artificial Intelligence (AI) systems are designed to simulate and imitate various cognitive processes, i.e., learning, problem-solving, reasoning, perception, and language understanding. These systems utilize algorithms, statistical models, and large data sets to scrutinize information, recognize patterns, and make predictions or decisions.

### ii. Decision-Making

Decision-Making in organizations is the process of selecting the best course of action among various alternatives to achieve a specific objective or goal (Bérubé et al., 2021). It involves collecting relevant information, assessing risks and benefits, considering functional resources, and evaluating potential outcomes. Different factors influence organizational decision-making, including organizational structure, policies, external environment, and the expertise and experience of individuals involved.

### iii. Smart Decision-Making

Smart Decision-Making in organizations applies Artificial Intelligence techniques and technologies to improve and optimize decision-making. Organizations can improve their decision-making capabilities by automating routine or complex tasks, analyzing vast amounts of data quickly and accurately, and providing data-driven insights and recommendations through Artificial Intelligence (Kim, 2019). Smart decision-making systems can learn from past decisions and outcomes, adapt to changing circumstances, and continuously improve performance. These systems allow organizations to make more informed, efficient, and effective decisions, leading to better results and increased competitive advantage.

## 1.9 Dissertation Outline

This dissertation is divided into five chapters as follows:

**Chapter One Introduction**

A brief background of the subject of research along with the context in which it is set is presented. This is followed by a discussion on the research problem along with the research aim, objectives, questions, and hypotheses. Furthermore, the importance of this study is discussed and how it will contribute to new knowledge especially in furthering the use of artificial intelligence to support smart decision making in Governments.



**Chapter Two Literature Review**

In this chapter a comprehensive review of the literature on the key terminology of Artificial Intelligence along with its definitions and key features is reviewed. This is followed by a discussion on the use of artificial intelligence in Government worldwide and more specifically the adoption of AI in the UAE Government. Furthermore, literature on the effectiveness of AI in improving decision making will be reviewed in detail.

**Chapter Three Methodological Approach**

Justifications for the selection of the research methodologies and data collection tools utilized for the study are described together with the research design for this study in this chapter. Data is collected through a semi-structured set of interview questions that are designed to collect data from key officials in the UAE Government who are involved in the implementation of Artificial Intelligence Initiatives. This chapter will be further improved as the study progresses.

**Chapter Four Data Analysis**

The qualitative data collected through interviews with key decision makers in Government will be analysed. As this study is on the phenomenon of AI, efforts will be made to adopt an AI powered tool to analyse text to identify keywords, word associations, tone and sentiment analysis to guide in the overall thematic analysis. For easier comprehension the findings will be presented in an easy-to-understand themes along with supporting discussion and quotes from the respondents.

**Conclusions of Chapter 5**

Based on the results of the data analysis and a larger assessment of the literature, conclusions will be reached, and recommendations will be developed that are intended to advance knowledge among academic institutions, businesses, and the government.

## 1.10 Summary

This chapter of the study showed a comprehensive background and rational for the research topic. It also presented the research problem, questions, aims and objectives. Moreover, this chapter also highlighted and discussed the scope and significance of this research and ended with the study of operational definitions. The aims of this chapter are to lay the foundation of empirical research, guided by systematic exploration techniques to generate results and make conclusions accordingly.