Journal of Information Systems Engineering and Management
2025, 10(26s)
e-ISSN: 2468-4376
https://www.jisem-journal.com/

Research Article

Implications of Artificial Intelligence Technology on International Law

Mohamed Hadi Al Najdawi[1], Tamadher Aldabbagh[2], Mahmoud Mokhtar Abdelmoghiesm[3], Siham Haider[4], Fanar Shwedeh[5]

[1]*City University Ajman, UAE, m.najdawi@cu.ac.ae*
[2]*City University Ajman, UAE, t.aldabbagh@cu.ac.ae*
[3]*City University Ajman, UAE. a.mokhtar@cu.ac.ae*
[4]*City University Ajman, UAE, h.siham@cu.ac.ae*
[5]*City University Ajman, UAE, s.fanar@cu.ac.ae*

ARTICLE INFO

Received: 26 Dec 2024

Revised: 16 Feb 2025

Accepted: 01 Mar 2025

ABSTRACT

The approach to AI regulation taken by public international law, which primarily places the onus of enforcing compliance on States, tends to ignore the profit-driven dynamics and influence of major technology powerhouses as well as, more profoundly, the glaring differences in enforcement capacities among countries, particularly with regard to the knowledge and resources required to set up sufficient regulatory oversight. Because AI technology challenges present laws and regulations, it drives international law in many domains, according to the report. The findings showed that legal frameworks must be reviewed to address AI issues like privacy, judicial usage, and monitoring. To ensure ethical and efficient use of this technology, ethics and trust must be stressed when dealing with AI. Government agencies, international organizations, and academia should collaborate to address future challenges and ensure AI technology is integrated into global legal frameworks.

Keywords: Artificial Intelligence Technology, International Law

1. Introduction

In this turbulent ocean with its successive waves of artificial intelligence technology and techniques, which is topped by a sky overcast with clouds from its applications and its waves are stirred by a raging wind from its multiple fields and at its bottom lies a volcano of its programs and patterns, and in the face of this tide of information and systems and applications of artificial intelligence technologies, the international community is striving to reconcile between benefiting from most of the advantages of these systems, their applications and fields and working to avoid or regulate their risks and threats and to ward off and eliminate their damages, which would make international law in an unprecedented confrontation with what the multiple and diverse artificial intelligence technology and techniques represent (Hadi Al Najdawi et al., 2024; Shwedeh, Dabash, et al., 2024). Despite the heralding of a bright future in which artificial intelligence technology is the active element on this planet, there are many fears, concerns, doubts and dark clouds that have not been dispelled by the assurances that all these developments, since they are made by man and the fruit of his core, are certainly under his control and dominance (Shwedeh, Aburayya, et al., 2024).

International law no longer has its traditional rules, such as the sovereignty of states and their responsibility based on error or presumed error or unlawful act and not using their territory to harm others and what entails their responsibility in terms of compensation or redress for damage and attribution, compatible or in harmony with the various and rapidly developing legitimate artificial intelligence technology in all fields, which imposes on international law the necessity of responding to this technology as a reflection of the various variables taking place in the international arena for these technologies, such as their impact on the international economy, transnational communications infrastructure, national defense, and human rights protection (Shwedeh, Nour, et al., 2024; Shwedeh, Yas, et al., 2024). However, states alone cannot regulate this technology effectively because it exceeds their territorial sovereignty, and many of the resources of these technologies are not subject to the control of states.

Therefore, the continuous development of artificial intelligence technology has caused shocks and challenges to existing legal systems (Al-Najdawi, 2022a).

Given the flexibility of international law, which enabled it to keep pace with many developments, the most important of which was the multiplicity of its persons, after states were its most important persons, international organizations also became its persons. Rather, talking about the individual as one of the persons of international law became a matter of time in the course of the development of international law (Shwedeh, 2024a, 2024c; H. Yas, Aburayya, et al., 2024; H. Yas, Dafri, et al., 2024). Therefore, under the pressure of artificial intelligence technology and the systems and applications it imposes that exceed the limits of reason in their threats, harms and dangers, with the inability to ignore them, it was inevitable and inevitable to confront this technology with organization after the concept of managing, organizing, mitigating its risks and adapting to it became more realistic than the concept of eliminating, prohibiting or avoiding these risks (Ibrahim, E., Sharif, H., & Aboelazm, K. S., 2025).

2. Theoretical Framework

2.1 The nature or concept of artificial intelligence technology:

The definition of artificial intelligence is engaged in a constantly vital and renewed battle that is constantly updated through the progress and continuous development witnessed in this field. Despite the importance of the term "AI" currently popular as a very general concept that can cover a wide range of different technologies, the field of artificial intelligence, which has spanned more than 60 years, is a broad field that is more complex and richer than most fields of science and technology (Aburayya et al., 2020; Hadie Al Najdawi, 2022). Since the future represents in the imagination of humans a mixture of a sense of danger and sadness towards the unknown, and despite the great need for more knowledge about the values, beliefs and theories that have arisen around the history of human thought and human conditions, no field will remain immune to the rapid progress of artificial intelligence and artificial beings, which will continue to think about the unknown future towards robots (S. A. Salloum, Almarzouqi, Aburayya, Shwedeh, Fatin, Ghurabli, Dabbagh, et al., 2024; Shwedeh, Salloum, Aburayya, Fatin, et al., 2024b, 2024c).

The international community is currently in the midst of the Fourth Industrial Revolution, which was preceded by three phases that can be monitored as follows:

First: which occurred in the eighteenth century and continued until the nineteenth century and witnessed the transformation from an agricultural society to an industrial society encouraged by steam and water.

Second: in which the industrial revolution was characterized by newly discovered forms of energy such as electricity, oil and steel, which became the foundations from which the inventions of the telephone developed.

Third: the third revolution is the Internet, which enables a person to access the world's knowledge without having to leave his office.

Defining artificial intelligence is not an easy task because the field itself is broad and many approaches have provided different definitions, including defining an intelligent system as a system that processes information in order to do something purposeful. Another common definition explains artificial intelligence as “a computational tool created through human intervention that thinks or acts like humans or how humans are expected to think or act” (Al-Najdawi, 2022b; Hadi Al Najdawi et al., 2024). Artificial intelligence was developed as a separate field of research during the tremendous developments in the fifties of the last century by combining the field of research and technological study and studies in logic and cybernetics in fact, i.e. the study of communication in humans and machines (S. A. Salloum, Almarzouqi, Aburayya, Shwedeh, Fatin, Ghurabli, Elbadawi, et al., 2024; Shwedeh, Salloum, Aburayya, Fatin, et al., 2024a; Shwedeh, Salloum, Aburayya, Kaur, et al., 2024; N. Yas, Dafri, et al., 2024). Although there is no universally agreed upon or accepted definition of artificial intelligence, there are some definitions that have tried to formulate a definition of artificial intelligence as “the field of science and technological innovation that aims to create machines and artificial agents, and more complex systems, that simulate cognitive functions, such as re-evaluation, learning and problem solving, which humans may associate with their own means.”

2.2 Applications of Artificial Intelligence Technology

In order to identify the extent of the risks and challenges facing international law, we had no choice but to identify the size and amount of companies and funds invested in artificial intelligence technology, techniques and systems. According to the latest reports of the United Nations Conference on Trade and Development (UNCTAD) in

2021, it was indicated that by 2030, artificial intelligence will contribute an additional amount estimated at $ 15.7 trillion to the global economy, about 40% of which comes from productivity gains and $ 9.1 trillion from side effects of consumption (Alimour et al., 2024; Alkashami, Hussain, et al., 2023; N. Yas, Elyat, et al., 2024). Therefore, the "new big difference" will not be driven by manufacturing but by user-generated data, which could constitute the first scenario for artificial intelligence systems. As of June 2017, the total number of artificial intelligence companies worldwide amounted to about 2,542 companies, including 1,078 companies in the United States, representing 42 percent of the total. China comes in second place with 592, representing 23 percent (Aboelazm, K. S., 2024).

Among the most obvious and powerful types of products that rely on artificial intelligence technology that have emerged in recent years are the presence of many machines capable of working independently. In light of these developments and the concern prevailing in business circles about the legal developments that this field will witness in the future; because the lack of rules and guidelines and the ambiguity that prevails over this technology and its organization work to prevent companies from carrying out the design of artificial intelligence systems that can be accepted in business, which may lead to reluctance to invest in the development of artificial intelligence systems (Shwedeh, Aburayya, et al., 2023; Shwedeh, Aldabbagh, et al., 2023). Therefore, the solutions accepted at the international level are the only ones that guarantee the acceptance of these systems and even work to develop them properly with responsibility for preserving economic and social interests (S. Salloum, Shwedeh, et al., 2023; Shwedeh, Malaka, et al., 2023; Shwedeh, 2024b).

As for the second scenario, in which the main source of big data used by artificial intelligence will not be humans, but the Internet of Things (IoT), which consists of machines that talk to each other and find new ways to produce goods, this new wave of active artificial intelligence will use the incoming data to produce better machines and final goods, and thus manufacturing will be the basis for competitive advantage between countries, and in light of the concerns that may be raised about artificial intelligence applications from partial solutions through national systems, which may lead to a lack of cooperation across borders between companies or the provision of services due to the need to comply with different legal standards and the increasing rate of commercial disputes, in addition to the increasing uncertainty about investment returns, and therefore the international community must work to analyze and address issues related to responsibility and the extent of due diligence within the framework of artificial intelligence systems, in addition to the legal status of artificial intelligence systems and the support of its procedures of legal importance and the establishment of clear rules and balanced obligations in order to protect the contracting parties as well as third parties who need to be certain about the party from which they can seek Compensation for harm (Abdallah et al., 2022; Alkashami, Mohammad, et al., 2023; Shwedeh, 2021; Shwedeh et al., 2020).

If this is what should be done within the framework of private international law, then public international law should be the first to address this task, considering that the subject of artificial intelligence systems is the primary field for addressing it in public international law, as it is the most general and comprehensive in addressing it, and this law is the most capable of this addressing and this organization (Dahu et al., 2022; Khadragy et al., 2022; Ravikumar et al., 2023), Although artificial intelligence technology has entered many fields and areas, if it has not taken over most of them, from education, financial, banking and economic services, markets, agriculture and a large part of the field of transportation, however, given the importance of artificial intelligence technology and the emergence and acquisition of its importance in the fields of health care, especially after what artificial intelligence technology has provided in combating the spread and spread of Covid-19 and autonomous weapons due to their destructive effects on humans, especially in times of armed conflicts, the importance of referring to these two areas is due to their relation to the right to life as follows:

A- The right to health care is considered one of the most prominent goals of the United Nations to achieve sustainable development and follows the law Human rights in times of peace.

B- Also the right to life, which is also affected in times of armed conflict and follows international humanitarian law, so these two areas will be briefly addressed as follows:

2.2.1 In the field of health care:

Artificial intelligence technology has had major repercussions, especially through the beneficial impact of artificial intelligence technology on health care by working to improve patient care and work to improve the management of health systems in addition to understanding and managing the population and public health in addition to working to facilitate health research.

In order to maintain good health and technological innovation, society requires a system that protects and repairs our biological bodies so that fertile ground is prepared for the creative and imaginative endeavors of current and future generations (Ravikumar et al., 2022; Salameh et al., 2022; Shwedeh, Adelaja, et al., 2023). Artificial intelligence in the field of health care can support humans in achieving this noble goal, through what artificial intelligence technology undertakes to do in terms of enhancing the protection of human rights and analyzing food security patterns to combat hunger and improve medical diagnosis and treatment or making health services more widely available with accessibility (El Nokiti et al., 2022; Shwedeh et al., 2021; Shwedeh, Aburayya, et al., 2022).

In addition, some AI systems compete with the diagnostic capabilities of pathologists and radiologists, which can help alleviate tedious tasks (e.g., counting the number of dividing cells in cancerous tissue). Although an AI-enabled healthcare system reduces health disparities by dramatically improving access to care and continuously pushing the quality and standards of care as machines learn more about the conditions of the people they treat, the possible outcome is also increased health disparities globally (Aburayya et al., 2023; S. Salloum, Al Marzouqi, et al., 2023; Shwedeh, Hami, et al., 2022). In this system, only the wealthy may be able to access the best AI-provided healthcare, as these providers will be the only ones with deep enough pockets to access the best data and develop the best AI.

Therefore, when creating a large set of data for healthcare, the highest standards of privacy protection must be adhered to for the sake of dignity, especially towards the weak and disabled, and agents must be used to decrypt information so that it is not diverted against patients (Khudhair, H. Y., Jusoh, A., Mardani, A., Nor, K. M., & Streimikiene, D., 2019). Just as the importance and role of artificial intelligence technology in the field of healthcare has emerged, especially during the pandemic, its importance in the field of weapons has also emerged. Therefore, one of the most important applications of artificial intelligence technology will be referred to, which is the field of autonomous weapons, due to its devastating effects on humans, especially during times of armed conflict, as follows:

2.2.2 In the field of autonomous weapons:

With the continuation of autonomous weapons systems (autonomous weapons systems) controversy due to the lack of clarity in defining them better because the concept of machine independence is controversial, so the implications of autonomous weapons systems on armed conflict in the future are far from clear (Aboelazm, K. S., Tawakol, F., Ibrahim, E., & Ramadan, S. A., 2025). Although the use of artificial intelligence technology in war is not new or strange, the first large-scale use of "smart bombs" was by the United States during Operation Desert Storm in 2019. 1991, but it made it clear that it has the potential to change the nature of war, The definition of autonomous weapons systems is controversial, and in order to end this controversy or find a solution to this problem, the following must be done:

First: Consider autonomous weapons systems as a particularly advanced form of automatic weapons.

Second: While autonomous weapons systems can be classified as automatic weapons, they are not conceptually equivalent to precision weapons. Therefore, the international community, through international humanitarian law, faces a number of challenges today:

The first challenge: It is the asymmetry of war. International humanitarian law is based on the assumption that equal parties or at least two states confront each other. However, modern conflicts are characterized by a strong asymmetry in military capabilities, and in an asymmetric conflict, the threat of reciprocity is only a weak threat. While there has been controversy over the use of reconnaissance drones, new developments in the weapon system with autonomous capabilities to deploy lethal forces raise a new set of urgent ethical and legal questions.

The other challenge: For the international community, it is the impact of modern warfare on international humanitarian law. The duty to distinguish between military and civilian targets and not to attack the latter is one of the main principles of international humanitarian law. This victim-oriented approach is increasingly being replaced by an operations-oriented approach. In general, the use of autonomous weapon systems in conflict offers a number of very attractive advantages:

1- From an economic point of view: It provides a kind of reduction in economic and personnel costs. And operation increases the speed of decision-making, reduces dependence on communications, reduces human errors.

2- From a security perspective, replaces or helps humans stay out of harm's way.

3- From a humanitarian perspective: Programming robots used in combat to respect the laws of humanitarian warfare better than humans.

With the emergence of "smart machines" that may be deployed during armed conflict, there has been increasing interest in the legal system that should be applied when conflicts arise. Therefore, there are ongoing discussions about whether current models of responsibility and accountability are appropriate or not, which prompted civil society actors to conduct a strong international dialogue on the social implications of the use of artificial intelligence systems. In December 2018, the University of Montreal opened the door for signing the Montreal Declaration to global actors (Aboelazm, K. S., 2023). First, it indicates that security concerns lead to arms races but are not decisive and that the "first" major powers may share an interest in supporting global legal systems that aim to prevent (if not disarm) certain forms of military artificial intelligence that may otherwise empower weaker competitors (non-states), while second, the local policy model indicates that strengthening the hand of local alliances that seek the non-proliferation or responsible development of artificial intelligence weapons is one possible way to shift state decision-making away from Pursue the most problematic categories of military AI, even in the face of clear national security interests (Khudhair, H. Y., Jusoh, A., Mardani, A., & Nor, K. M., 2019).

One of the challenges governments face in this debate is defining what exactly constitutes LAWS, especially as smarter munitions increasingly incorporate artificial intelligence to make them harder for adversary defenses to detect and destroy. This has led to the UN Convention on Conventional Weapons (CCW) discussing LAWS since 2013. Regardless of how the LAWS debate in particular is resolved, greater integration of AI by militaries around the world seems inevitable in areas such as training, logistics and surveillance (Aboelazm, K. S., & Afandy, A., 2019). There are areas such as demining where this is welcome. Governments will need to work hard to ensure they have the technical expertise and capacity to effectively implement safety and reliability standards surrounding these military uses of AI (Yas, H., Mardani, A., & Alfarttoosi, A., 2020).

In the context of international humanitarian law, AI threatens to open another front in this violent history of war. Under the leadership of the United States, China, and Russia, armies, emerging technology companies, and defense contractors around the world are now developing AI-powered electronic weapons, automatic target recognition systems, unmanned submarines, unmanned ships, self-driving tanks, and drones (Khudhair, H. Y., & Mardani, A., 2021). Moreover, enabling machines to determine who lives and who dies risks removing the act of war from any sense of humanity. Therefore, drawing parallels with the history of nuclear proliferation and arms control has allowed for studying the governance of military AI through two lenses of policy analysis:

1 - "Local politics" and "cognitive societies" that arms races are not inevitable, but can be slowed or even avoided through intelligent engagement with the local political coalition of different actors.

2- Small, well-organized and mobilized communities of experts early enough can play a major role in shaping global arms control policy.

One of the steps taken by the Future Life Institute to combat these risks was to call on governments, technology companies and individuals to pledge not to participate in supporting the development, manufacture, trade or use of lethal autonomous weapons, and this was preceded by the 18th principle of the Asilomar Principles, which stressed the avoidance of arms races in lethal weapons, especially with regard to the arms race in the field of artificial intelligence.

2.3 Implications of AI technology on international law:

International law, based on traditional principles of state sovereignty, non-use of its territory to harm its neighbors, liability based on error or unlawful action, or the theory of risk, bearing the consequences and compensation for damages resulting from these actions, faces many challenges (Yas, H., Mardani, A., Albayati, Y. K., Lootah, S. E., & Streimikiene, D., 2020). Applications and systems of AI based on cyberspace and virtual space, which are not limited or surrounded by borders, represent a dilemma regarding these principles. Early reports by international organizations have already addressed the fact that the Internet (or cyberspace) challenges traditional notions of rights, and that the operation and outcomes of these systems are unpredictable because they act as black boxes. There will of course be many costs and difficulties in legislating now. Technology companies may resist regulation that they believe may undermine profits, and governments may lack the resolve to legislate for problems

that may only arise when they are not in power. Individual citizens and interest groups will need to become educated and engaged if they are to have an impact on the debate. Countries will need to overcome political mistrust in order to collaborate on global solutions. While none of these problems can be overcome, many lessons can be learned from how similar obstacles have been overcome in the past. In order to write rules for robots, the challenge is clear. The tools are at our disposal, and the question is not whether we can, but whether we will.

International law is the only system that can systematically deal with the variety of actors involved in the use and development of the Internet, and it can deal with Coherent with companies, NGOs, states, individuals and international organizations at the local, regional and global levels. Despite the different actors and the diversity of standard architectural forms, the common denominator between these positions is the international (across-border) place. In parallel with international cooperation, it will be important to activate international governance and cooperation. The global community must fully embrace science, technology and innovation for sustainable development and promote the use, adoption and adaptation of leading technologies while expanding access on a large scale and ensuring that no one is left behind. Most developing countries will not have sufficient resources on their own. They will need international cooperation to help them align science, technology and innovation goals with national development goals and the Sustainable Development Goals, formulate coherent policies in the fields of science, technology and innovation, and design appropriate policy instruments. Governments should also work more closely together to build an international institutional framework that includes countries at all stages of technological development, especially developing countries that have distinct interests and priorities and need to be represented on the global stage.

If privacy, data exchange and AI are closely related aspects that need to be placed in an international context, there is a real international need to exchange concepts and ideas on how best to regulate or support AI and robotics. Countries often adopt regulatory models from other countries because they are deemed beneficial to their jurisdiction, and the field of AI is no exception. On the other hand, some countries may also vote against the basic rationale and seek different legal approaches to data protection and privacy.

3. Research Methodology

With an emphasis on examining the effects of AI technology applications on international law, this study employs a major data source to explore its intended goals. The study used a survey research methodology, in which professionals in the field of international law who deal with AI-related issues were given a pre-made questionnaire. The purpose of the questionnaire was to document potential new legal issues that may emerge from the growing usage of AI technologies, as well as to investigate how these technologies affect the conventional understanding of international law, The study's theoretical framework, which is founded on the notion of global governance and the difficulties of legal sovereignty in light of AI growth, is also supported by the literature survey.

3.1 Research Design and Data Collection

The concepts in this research were measured through different assertions (variables) derived from previous studies. These statements were evaluated using a 5-point Likert scale, where (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree).

3.2 Assessing legal compatibility and the impact of AI on international legal frameworks

The actions made by international and legal organizations to make sure that laws are in line with the developments brought about by the application of AI are referred to in this sense as the role of AI technology. This entails upholding the strictest moral and legal guidelines while handling AI-related matters and making sure that the rules controlling this industry are followed. The study intends to evaluate the ways in which a number of elements, such as advancements in technology and confidence in the global legal system, support the establishment of a strong and efficient legal framework that tackles the difficulties posed by AI technology.

The sample size used in the study was determined through the following equation:

$$\sqrt{\frac{\tau \times L}{N}} = \frac{\%\varepsilon}{2}$$

- N represents the sample size.
- %ε is the margin of error allowed in estimating the sample size, expressed as a percentage.
- L represents the number of elements that do **not** have the characteristics of the population (i.e., elements that do not match the population's features).
- τ\tauτ represents the number of elements that **do** have the characteristics of the population.

The equation demonstrates how to calculate N based on the required percentage and the allowed margin of error. In the example provided below the equation:

- The values are substituted into the equation

$$\frac{1.05}{2} = \frac{0.05}{2}$$

N= 42 individual

The researcher distributed 50 questionnaires directly to the sample members by hand, 42 valid questionnaires were retrieved, with a response rate of 84%, the following table shows the distributed and retrieved questionnaires.

Table (1) Lists of questionnaires distributed and returned according to the sample

Study sample	**Distributed forms**	**Correct forms**		
		Number	**Response rate**	**Percentage of total**
1. International Law Scholars	**20**	**17**	**85%**	**40.5%**
2. International Law Expert Lawyers	**15**	**12**	**80%**	**28.6%**
3. Artificial Intelligence Experts	**15**	**13**	**86.7%**	**31%**
Total	**50**	**42**	**84%**	**100%**

3.3 Data Collection Methods

The researcher relied on the questionnaire list method to collect data to achieve the study objectives and test its hypotheses. The questionnaire list included a set of inquiries designed to reflect the main objectives of the study, where the five-dimensional Likert scale was used to give relative weight to the answers to each statement, ranging from one to five points. The list was divided into three main groups as follows:

1**. Group One**: This group includes six statements related to the legal, ethical, regulatory and regulatory challenges that may hinder the integration of artificial intelligence within the framework of international law.

2**. Group Two**: This group includes five statements focusing on the legal and regulatory factors that contribute to the success of the application of artificial intelligence in the context of international legal practices.

3**. Group Three**: This group consists of nine statements related to the impact of the use of artificial intelligence on international law.

3.4: Data processing and analysis methods.

To achieve the research objectives, the following statistical methods were used in addition to the aforementioned Likert method:

1- Calculating the reliability and validity coefficient (Alpha, Cronbach).

2- Descriptive statistics for data (arithmetic mean and standard deviation).

- Inferential statistics (Chisquare test).

The researcher used the statistical analysis program for social sciences (17.Spssv) and the statistical analysis program (16.Minitapv) to analyze the data collected by the survey forms to choose the research hypotheses.

3.5 Testing the validity and reliability of the questionnaire list.

This is done through the (Alpha Cronbach's) scale to measure the validity, stability and internal consistency of the questionnaire list phrases, in order to know the extent of reliability in the study sample's responses to the questionnaire list questions, and thus to the three study hypotheses and the extent of the possibility of generalizing its results to the study community. As follows:

Table No. (2) Results of the validity and reliability test for the three study hypotheses

Study assumptions	Number of statements	Reliability coefficient	Validity coefficient
1. There are no statistically significant differences between the opinions of the study sample on the impact of artificial intelligence technology on the effectiveness of applying international laws in addressing complex legal issues	**6**	**0.923**	**0.964**
2. There are no statistically significant differences between the opinions of the study sample on the legal risks and challenges associated with the use of artificial intelligence in the international context	**5**	**0.952**	**0.970**
3. There are no statistically significant differences between the opinions of the study sample on the need to update international legislation to keep pace with developments in artificial intelligence technology and ensure the protection of individuals' rights	**9**	**0.867**	**0.896**
Toltal	**20**	**0.985**	**0.989**

It is clear from the previous table that the reliability coefficient of the questionnaire items ranges between (0.867 - 0.952), which in turn reflects the validity coefficient, which ranges between (0.896-0.982), meaning that the alpha value for all hypotheses is greater than (0.5), which indicates the validity of the questionnaire items and that they cover the important points under study and the possibility of generalizing the sample results to the study community.

3.6 Analysis of the study results and testing the hypotheses.

By using descriptive statistics methods (arithmetic mean and standard deviation) and arranging the relative importance of the research sample responses and using inferential statistics through the (Ka) test to determine the validity of the research hypotheses as follows:

3.6.1 Testing the first hypothesis:

There are no statistically significant differences between the opinions of the study sample about the impact of artificial intelligence technology on the effectiveness of applying international laws in addressing complex legal issues.

By measuring the opinion of the study sample categories about the statements of the first hypothesis, the arithmetic mean and standard deviation were calculated, and the Ka test was conducted for the statements of the first hypothesis, and the results were as shown in the following table:

Table No. (3) Responses of the study sample regarding the statements of the first hypothesis

First assumption phrases	Study sample response					Descriptive statistics		Degree of approval	Ka² test		Arrangement
	Totally agree	Agree	Neutral	Disagree	Strongly disagree	Arithmetic mean	Standard deviation		Ka² value	Significance level	
1	9	10	11	8	4	2.16	0.82	Agree	21.5	0.123	3
	21.4%	23.8%	26.2%	19.0%	9.5%						
2	14	10	8	6	4	2.43	1.36	Agree	18.1	0.145	5
	33.3%	23.8%	19.0%	14.3%	9.5%						
3	17	10	2	7	6	2.40	1.33	Agree	18.1	0.145	1
	40.5%	23.8%	4.8%	16.7%	14.3%						
4	14	12	3	9	4	2.45	1.24	Agree	21.3	0.133	4
	33.3%	28.6%	7.1%	21.4%	9.5%						
5	17	9	3	9	4	2.38	1.23	Agree	25.1	0.142	2
	40.5%	21.4%	7.1%	21.4%	9.5%						
6	21	8	5	6	2	2.05	1.12	Agree	30.5	0.142	6
	50%	19%	12%	14.3%	4.8%						
Overall average						2.05	0.98	Agree	-	-	-

According to Table No. (3), the degree of agreement with the assumption statements was all (agree), meaning that, from the perspective of the study sample, all of the assumption statements are acceptable. The findings also show that the fourth statement, "There are concerns about privacy when using artificial intelligence in legal processes," had the highest degree of agreement (2.45), while the first statement, "There are legal challenges facing the application of artificial intelligence in international law," received the lowest degree of agreement (2.16). With a standard deviation of 0.98, the study sample's overall average response to the assumption was 2.05, showing that although there is occasional disagreement, the majority of respondents generally have a tendency to agree. According to the test results (Ka2), all of the statements have significance levels higher than 0.05 and range from 18.1 to 30.5. This supports the validity of the study's first hypothesis by showing that there are no statistically significant variations between the study sample's opinions on the assumption statements.

3.6.2 Testing the second hypothesis:

There are no statistically significant differences between the opinions of the study sample regarding the legal risks and challenges associated with the use of artificial intelligence in the international context. By measuring the opinion of the study sample categories regarding the statements of the first hypothesis, the arithmetic mean and standard deviation were calculated, and a test was conducted for the statements of the first hypothesis. The results were as shown in the following table.

Table No. (4) Responses of the study sample regarding the statements of the second hypothesis

Second assumption phrases	Study sample response					Descriptive statistics		Degree of approval	Ka² test		Arrangement
	Totally agree	Agree	Neutral	Disagree	Strongly disagree	Arithmetic mean	Standard deviation		Ka² value	Significance level	
1	20	8	2	6	6	2.29	1.51	Agree	22.26	0.001	
	47%	19%	4.8%	14.3%	14.3%						
2	17	9	6	8	2	2.26	1.28	Agree	14.43	0.001	
	40.48%	21.43%	14.29%	19.05%	4.76%						
3	20	5	9	6	2	2.40	1.31	Agree	22.00	0.002	1
	47.62	11.90%	21.43%	14.29%	4.76%						
4	19	8	6	8	1	2.14	1.24	disagree	20.63	0.240	5
	45.24%	19.05%	14.29%	19.0%	2.38%						
5	6	7	18	10	1	2.83	1.03	Agree	18.72	0.191	4
	14.29%	16.67%	42.86%	23.81%	2.38%						
Overall average						2.384	1.274	Agree	-	-	-

The degree of agreement on the assumption statements was typically (agree), as can be seen from Table No. (4), which was provided to test the second hypothesis. This suggests that all of the assumption statements are acceptable from the perspective of the study sample. However, with an arithmetic mean of 2.14, which indicates that the response to it was "disagree," the fourth statement—that vocational training is crucial to the success of implementing artificial intelligence in legal institutions—was the least accepted. However, with the highest score of 2.83, the fifth statement—that laws should be revised on a regular basis to reflect advancements in artificial intelligence—was the one that was most widely accepted, With a standard deviation of 1.274 and a general average of 2.384 for the study sample replies, we can see that most respondents generally agree, although there is a discernible range of viewpoints. There are statistically significant differences between the study sample's opinions on some of the hypothesis statements, as indicated by the test values (Ka2), which range from 14.43 to 22.26 with significance levels below 0.05 for the first, second, and third statements. This supports the validity of the study's second hypothesis.

3.6.3 Testing the third hypothesis

There are no statistically significant differences between the opinions of the study sample regarding the need to update international legislation to keep pace with developments in artificial intelligence technology and ensure the protection of individuals' rights

The study sample's response to the statements of the third hypothesis was as shown in the following Table No. 5:

Table No. (5) Responses of the study sample to the statements of the third hypothesis

Third assumption phrases	Study sample response					Descriptive statistics		Degree of approval	Ka² test		Arrangement
	Totally agree	Agree	Neutral	Disagree	Strongly disagree	Arithmetic mean	Standard deviation		Ka² value	Significance level	
1	16	6	7	10	3	2.48	1.27	Agree	15.3	0.045	
	38.1%	14.3%	16.7%	23.8%	7.1%						
2	20	5	11	4	2	2.12	1.15	disagree	11.3	0.081	7
	47.6%	11.9%	26.2%	9.5%	4.8%						
3	17	4	14	5	2	2.31	1.20	Agree	9.7	0.087	6
	40.5%	9.5%	33.3%	11.9%	4.8%						
4	15	4	10	7	6	2.64	1.34	Agree	10.8	0.075	3
	35.7%	9.5%	23.8%	16.7%	14.3%						
5	20	6	7	7	2	2.17	1.18	Agree	9.2	0.056	2
	47.6%	14.3%	16.7%	16.7%	4.8%						
6	16	11	6	5	4	2.29	1.15	Agree	8.9	0.065	8
	38.1%	26.2%	14.3%	11.9%	9.5%						
7	21	6	8	5	2	2.31	1.14	Agree	10.2	0.065	5
	50%	14.3	19.0%	11.9%	4.8%						
8	17	9	8	6	2	2.21	1.10	Agree	9.0	0.029	9
	40.5%	21.4%	19.0%	14.3%	4.8%						
9	21	5	7	6	3	2.40	1.11	Agree	12.3	0.0005	4
	50%	11.9%	16.7%	14.3%	7.1%						
Overall average						2.33	1.18	Agree	-	-	-

The degree of agreement on the hypotheses was largely "agree," which suggests that all of the hypotheses are acceptable from the perspective of the study sample, according to Table No. (5), which was provided for testing the hypotheses. However, with an arithmetic mean of 2.12, which indicates that the response to it was "weakly agree," the second statement—that the development of artificial intelligence can create new obstacles in executing international legislation—was the least agreed upon. With a percentage of 2.64, the fourth statement—that artificial intelligence improves the ability to monitor conformity with international laws—was the most widely accepted, With a standard deviation of 1.18 and a general average of 2.33 for the study sample replies, we can see that most respondents generally agree, although there is a discernible range of viewpoints. There are statistically significant differences between the study sample's opinions on some of the hypothesis statements, as indicated by the test values (Ka^2), which range from 8.9 to 15.3 with significance levels below 0.05 for the first, eighth, and ninth statements. This strengthens the validity of the study's hypotheses.

4. Theoretical Implications

The study's theoretical ramifications draw attention to how AI technology affects international law, necessitating a multifaceted investigation of how technology interacts with current legal systems. The findings taken from the three tables highlight the significance of incorporating AI into the legal system as well as the difficulties it presents, which call for a flexible and adaptive legal solution.

First, as the majority of the hypotheses were given a "agree" score, the results show that the study sample members generally agree on the legal aspects of AI. This suggests that the participants understand how critical it is to update legal frameworks in order to stay up to date with technological advancements. These findings are consistent with the first hypothesis, which highlights the legal issues surrounding AI use and urges the creation of new laws that help strike a balance between innovation and legal protection. Second, the information pertaining to the second hypothesis shows a discrepancy between the laws as they stand and the advancements in technology. According to the findings, the statement pertaining to the necessity of updating AI-related laws was given the highest acceptance rating. This illustrates how urgently legal frameworks must be modified to keep up with the quick advancements in AI, which improves the efficacy of legal implementation and lowers the legal dangers connected to its use. Third, the results pertaining to the third hypothesis underscore the essential function of ethics in the application of AI in international law. According to the statistics, using AI can increase adherence to international regulations, which reflects participants' faith in the technology's capacity to increase accountability and transparency. This is essential for maintaining the integrity of legal procedures and boosting the efficacy of the legal system in the face of modern difficulties. Lastly, the theoretical ramifications demand that existing legal frameworks be reexamined in light of the dangers posed by the application of AI. Laws must be adaptable in order to safeguard individual rights and satisfy the demands of innovation. This interaction between AI and international law emphasizes how crucial it is for laws to keep up with technological advancements in order to create a robust legal system that can handle new problems in the future.

5. Scientific Implications

The study's scientific ramifications underscore the significance of incorporating AI technology into international law, necessitating a reassessment of existing models by scholars and practitioners to comprehend the impact of AI on legal systems. The findings from the three tables demonstrate that there are chances to improve legal efficiency and advance transparency in addition to implementation issues when it comes to the relationship between AI and international law.

First, the study indicates the possibility of improving legal performance by demonstrating how AI may be used to enhance the process of monitoring adherence to international rules. The findings pertaining to the third hypothesis, which concerns how AI might improve legal institutions' capacity for change adaptation, lend credence to the notion that utilizing this technology can improve legal systems' ability to respond to modern demands.

Second, the findings show that new scientific frameworks that take into account the difficulties facing international law in the era of artificial intelligence are desperately needed. This emphasizes the significance of continued study in this area, which has to concentrate on how rules and laws can keep up with the quick advancements in technology. A gap that requires scientific attention is revealed by analyzing the data pertaining to the second hypothesis, which shows that the rules in place are incompatible with the new difficulties.

Third, the results emphasize how critical it is to advance ethical consciousness in the application of AI in accordance with international law. The study's openness and trustworthiness highlight the necessity of giving researchers and practitioners moral direction on how to use this technology sensibly. In order to guarantee that scientific frameworks incorporate ethical principles that consider the rights of individuals and society at large, legal and academic organizations must collaborate.

Lastly, the results emphasize how crucial it is for scholars and decision-makers to work together to develop strong regulatory frameworks that encourage creativity and the ethical use of AI in international law. In order to facilitate the adoption of AI without endangering legal rights, scholars must think about how laws may be more flexible and adaptive. Future research in this field will mostly concentrate on striking a balance between innovation and rights protection.

6. Conclusion

The study demonstrates that because AI technology challenges the conventional wisdom of current rules and regulations, it is a significant driving force influencing various sectors of international law. The findings underlined how crucial it is to review legal frameworks in order to address the difficulties presented by AI, including privacy concerns, judicial uses of AI, and monitoring of its use. To guarantee the ethical and efficient use of this technology, it is equally crucial to emphasize the development of ethics and trust when working with AI. To handle upcoming issues and guarantee the incorporation of AI technology within global legal frameworks, government agencies, international organizations, and the academic community should coordinate more.

6.1 Results

1. The findings demonstrated a wide knowledge of the topic, with the investigated sample generally agreeing with the research assumptions regarding AI technology and its effects on international law.
2. The identification of significant legal obstacles to the use of AI in legal situations necessitates the creation of new regulatory frameworks.
3. The findings showed how crucial ethics and trust are to the use of AI in legal applications, necessitating a reexamination of current protocols.
4. The study found that opinions on some particular uses of AI varied, highlighting the necessity of candid communication between practitioners and decision-makers.
5. The findings indicated that the influence of AI on privacy is causing increasing worry, which necessitates the creation of strong data protection regulations.
6. Legal and technological institutions must work together to update current laws to better reflect the speed at which technology is developing.
7. The findings demonstrated the value of global collaboration in creating an all-encompassing legal framework that tackles the difficulties posed by AI in order to guarantee equitable and well-rounded applications.

6.2 Recommendations

1. To guarantee compliance and accountability, it is advised to create new legal frameworks that are appropriate for the characteristics and nature of AI.
2. To qualify experts in this industry, specialized education and training programs in AI and law should be reinforced.
3. The creation of specialist legal committees to monitor advancements in AI and offer continuing legal advice is advised.
4. Adopting explicit privacy protection guidelines that align with the application of AI in legal domains is necessary.
5. It is advised that international cooperation be strengthened in order to share information and experience about the regulation of AI and to create international standards.
6. Ethical guidelines that guarantee the responsible application of AI should be adopted by legal authorities.
7. To make sure that legal frameworks are in line with future advancements, ongoing research into AI and its legal ramifications is necessary.

References:

[1] Abdallah, S., Al Azzam, B., El Nokiti, A., Salloum, S., Aljasmi, S., Aburayya, A., & Shwedeh, F. (2022). A COVID19 Quality Prediction Model based on IBM Watson Machine Learning and Artificial Intelligence Experiment. *Computer Integrated Manufacturing Systems*, *28*(11), 499–518.

https://doi.org/10.24297/j.cims.2022.11.037

[2] Aboelazm, K. S. (2024). The role of judicial review in the settlement of state contracts disputes. Corporate Law & Governance Review, 6(3), 122-134.

[3] Aburayya, A., Alshurideh, M., Albqaeen, A., Alawadhi, D., & Ayadeh, I. (2020). An investigation of factors affecting patients waiting time in primary health care centers: An assessment study in Dubai. *Management Science Letters*, *10*(6), 1265–1276. https://doi.org/10.5267/j.msl.2019.11.031

[4] Aburayya, A., Salloum, S., Alderbashi, K. A., Shwedeh, F., Yara, S., Raghad, A., awsan JM, Malaka, S., & Khaled, S. (2023). SEM-machine learning-based model for perusing the adoption of metaverse in higher education in UAE. *International Journal of Data and Network Science*, *7*(2), 667–676. https://doi.org/10.5267/j.ijdns.2023.3.005

[5] Al-Najdawi, M. H. Y. (2022a). BALTIC JOURNAL OF LAW & POLITICS. *A Journal of Vytautas Magnus University*, *15*(3). https://doi.org/10.2478/bjlp-2022-00003

[6] Aboelazm, K. S. (2024). Supreme Constitutional Court review of the legislative omission in Egypt in light of international experiences. Heliyon, 10(17).

[7] Al-Najdawi, M. H. Y. (2022b). The Role of the Legislative and Legal Framework in Promoting Scientific Research in the Arab World between Current Reality and Future Prospects.(A Case Study, United Arab Emirates). *Baltic Journal of Law & Politics*, *15*(3), 2069–2087. https://doi.org/10.2478/bjlp-2022-002142

[8] Aboelazm, K. S., Tawakol, F., Ibrahim, E., & Ramadan, S. A. (2025). The Legal Framework for BOT Contracts in Egypt and the United Arab Emirates. Journal of Lifestyle and SDGs Review, 5(2), e03286-e03286.

[9] Alimour, S. A., Alnono, E., Aljasmi, S., El Farran, H., Alqawasmi, A. A., Alrabeei, M. M., Shwedeh, F., & Aburayya, A. (2024). The quality traits of artificial intelligence operations in predicting mental healthcare professionals' perceptions: A case study in the psychotherapy division. *Journal of Autonomous Intelligence*, *7*(4). https://doi.org/10.32629/jai.v7i4.1438

[10] Alkashami, M., Hussain, S., Ibrahim, S. B., Hamid, O. H., Alaya, A., Shwedeh, F., Albqaeen, A., & Aburayya, A. (2023). THE MODERATING IMPACT OF "EXTRAVERSION" ON THE RELATIONSHIP BETWEEN PROJECT MANAGERS' COMPETENCIES AND THE EFFECTIVE SUPPLY OF INNOVATION IN PROJECT-BASED HEALTHCARE PROVIDERS IN THE UAE. *Journal of Modern Project Management*, *11*(3), 2–11. https://doi.org/10.19255/JMPM03301

[11] Alkashami, M., Mohammad, Taamneh, A., Khadragy, S., Shwedeh, F., Aburayya, A., & Salloum, S. A. (2023). AI different approaches and ANFIS data mining: A novel approach to predicting early employment readiness in middle eastern nations. *International Journal of Data and Network Science*, *7*(3), 1267–1282. https://doi.org/10.5267/j.ijdns.2023.4.011

[12] Aboelazm, K. S. (2023). THE DEVELOPMENT OF THE PRESIDENT'S AUTHORITIES IN THE EGYPTIAN CONSTITUTIONS. Russian Law Journal, 11(2), 365-376.

[13] Aboelazm, K. S., & Afandy, A. (2019). Centralization and decentralization of public procurement: Analysis for the role of General Authority for Governmental Services (GAGS) in Egypt. *Journal of Advances in Management Research*, *16*(3), 262-276.

[14] Dahu, B. M., Aburayya, A., Shameem, B., Shwedeh, F., Alawadhi, M., Aljasmi, S., Salloum, S. A., Aburayya, H., & Aburayya, I. (2022). The Impact of COVID-19 Lockdowns on Air Quality: A Systematic Review Study. *South Eastern European Journal of Public Health*, *5*. https://doi.org/https://doi.org/10.11576/seejph-5929

[15] El Nokiti, A., Shaalan1, K., Salloum2, S., Aburayya, A., Shwedeh, F., & Shameem3, B. (2022). Is Blockchain the answer? A qualitative Study on how Blockchain Technology Could be used in the Education Sector to Improve the Quality of Education Services and the Overall Student Experience. *Computer Integrated Manufacturing Systems*, *28*(11), 543–556. https://doi.org/10.24297/j.cims.2022.11.039

[16] Hadi Al Najdawi, M., Shwedeh, F., Mokhtar Abdelmoghies, M., Kitana, A., & Ali, A. (2024). Applying artificial intelligence in predicting educational excellence in higher education institutions: A case study in Jordanian universities. *Edelweiss Applied Science and Technology*, *8*(6), 7273–7289. https://doi.org/10.55214/25768484.v8i6.3579

[17] Hadie Al Najdawi, M. (2022). Empowering Women in the Arab World between the Requirements of Law and the Requirements of Reality. *Academic Journal of Research and Scientific Publishing| Vol*, *3*(35).

[18] Ibrahim, E., Sharif, H., & Aboelazm, K. S. (2025). Legal Confrontation of the Cyber Blackmail: a Comparative Study. Journal of Lifestyle and SDGs Review, 5(2), e04039-e04039.

[19] Khadragy, S., Elshaeer, M., Mouzaek, T., Shammass, D., Shwedeh, F., Aburayya, A., Jasri, A., & Aljasmi, S. (2022). Predicting Diabetes in United Arab Emirates Healthcare: Artificial Intelligence and Data Mining Case Study. *South Eastern European Journal of Public Health*, *5*. https://doi.org/https://doi.org/10.56801/seejph.vi.406

[20] Khudhair, H. Y., Jusoh, A., Mardani, A., Nor, K. M., & Streimikiene, D. (2019). Review of scoping studies on service quality, customer satisfaction and customer loyalty in the airline industry. Contemporary Economics, 375-386.

[21] Khudhair, H. Y., Jusoh, A., Mardani, A., & Nor, K. M. (2019). A conceptual model of customer satisfaction: Moderating effects of price sensitivity and quality seekers in the airline industry. Contemporary Economics, 13(3), 283.

[22] Khudhair, H. Y., & Mardani, A. (2021). The Major Issues Facing Staff in Islamic Banking Industry. International Journal of Economics and Management Systems, 6.

[23] Ravikumar, R., Kitan, A., Taamneh, A., Aburayya, A., Shwedeh, F., Salloum, S., & Shaalan, K. (2023). The Impact of Big Data Quality Analytics on Knowledge Management in Healthcare Institutions: Lessons Learned from Big Data's Application within The Healthcare Sector. *South Eastern European Journal of Public Health*, *5*. https://doi.org/https://doi.org/10.56801/seejph.vi.309

[24] Ravikumar, R., Kitana, A., Taamneh, A., Aburayya, A., Shwedeh, F., Salloum, S., & Shaalan, K. (2022). Impact of knowledge sharing on knowledge Acquisition among Higher Education Employees. *Computer Integrated Manufacturing Systems*, *28*(12), 827–845. https://doi.org/10.24297/j.cims.2022.12.58

[25] Salameh, M., Taamneh, A., Kitana, A., Aburayya, A., Shwedeh, F., Salloum, S., Shaalan, K., & Varshney, D. (2022). The Impact of Project Management Office's Role on Knowledge Management: A Systematic Review Study. *Computer Integrated Manufacturing Systems*, *28*(12), 846–863. https://doi.org/10.24297/j.cims.2022.12.59

[26] Salloum, S. A., Almarzouqi, A., Aburayya, A., Shwedeh, F., Fatin, B., Ghurabli, Z. Al, Dabbagh, T. Al, & Alfaisal, R. (2024). Redefining Educational Terrain: The Integration Journey of ChatGPT. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 157–169). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_11

[27] Salloum, S. A., Almarzouqi, A., Aburayya, A., Shwedeh, F., Fatin, B., Ghurabli, Z. Al, Elbadawi, M. A., & Alfaisal, R. (2024). Embracing ChatGPT: Ushering in a Revolutionary Phase in Educational Platforms. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 171–183). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_12

[28] Salloum, S., Al Marzouqi, A., Alderbashi, K. A., Shwedeh, F., Aburayya, A., Al Saidat, M. R., & Al-Maroof, R. S. (2023). Sustainability Model for the Continuous Intention to Use Metaverse Technology in Higher Education: A Case Study from Oman. *Sustainability*, *15*(6), 5257. https://doi.org/https://doi.org/10.3390/su15065257

[29] Salloum, S., Shwedeh, F., Alfaisal, A. M., Alshaafi, A., Aljanada, R. A., Al Sharafi, A., Alfaisal, R., & Dabash, A. (2023). Understanding and Forecasting Chatbot Adoption: An SEM-ANN Methodology. *Migration Letters*, *20*(S11), 652–668. https://doi.org/https://doi.org/10.59670/ml.v20iS11.5717

[30] Shwedeh, F. (2021). *THE IMPACT OF SMART CITY POLICY TIMELINESS AND TECHNOLOGY READINESS ON SMART CITY PERFORMANCE IN DUBAI: THE MODERATING EFFECT OF FINANCIAL AVAILABILITY*.

[31] Shwedeh, F. (2024a). Designing Delight: Exploring the Nexus of Interactive Design, User Experience, and Psychological Theory in Banking Chatbot. *Nanotechnology Perceptions*, *20*(S4), 378–398. https://doi.org/https://doi.org/10.62441/nano-ntp.v20iS4.28

[32] Shwedeh, F. (2024b). Harnessing digital issue in adopting metaverse technology in higher education institutions: Evidence from the United Arab Emirates. *International Journal of Data and Network Science*, *8*(1), 489–504. https://doi.org/10.5267/j.ijdns.2023.9.007

[33] Shwedeh, F. (2024c). The Integration of Artificial Intelligence (AI) Into Decision Support Systems Within Higher Education Institutions. *Nanotechnology Perceptions*, *20*(S5), 331–357. https://doi.org/https://doi.org/10.62441/nano-ntp.v20iS5.26

[34] Shwedeh, F., Aburayya, A., Gbemisola, O., & Adelaja, A. A. (2024). Assessing the role of augmented reality in enhancing employee operational engagement and knowledge retention in UAE business training. *Global Knowledge, Memory and Communication*, *6*(4), 301–323. https://doi.org/https://doi.org/10.1108/GKMC-

05-2024-0287

[35] Shwedeh, F., Aburayya, A., & Mansour, M. (2023). The Impact of Organizational Digital Transformation on Employee Performance: A Study in the UAE. *Migration Letters*, *20*(S10), 1260–1274. https://doi.org/https://doi.org/10.59670/ml.v20iS10.5710

[36] Shwedeh, F., Aburayya, A., Raghad, A., Adelaja, A. A., Ogbolu, G., Abid, A., & Salloum, S. (2022). SMEs' Innovativeness and Technology Adoption as Downsizing Strategies during COVID-19: The Moderating Role of Financial Sustainability in the Tourism Industry Using Structural Equation Modelling. *Sustainability*, *14*(23), 16044. https://doi.org/https://doi.org/10.3390/su142316044

[37] Shwedeh, F., Adelaja, A. A., Ogbolu, G., Kitana, A., Taamneh, A., Aburayya, A., & Salloum, S. (2023). Entrepreneurial innovation among international students in the UAE: Differential role of entrepreneurial education using SEM analysis. *International Journal of Innovative Research and Scientific Studies*, *6*(2), 266–280. https://doi.org/https://doi.org/10.53894/ijirss.v6i2.1328

[38] Shwedeh, F., Aldabbagh, T., Aburayya, A., & Uppilappatta, H. (2023). The Impact of Harnessing Total Quality Management Studies on the Performance of Smart Applications: A Study in Public and Private Sectors in the UAE. *Migration Letters*, *20*(S11), 934–959. https://doi.org/https://doi.org/10.59670/ml.v20iS11.5892

[39] Shwedeh, F., Dabash, A., Dabbagh, T. Al, & Aburayya, A. (2024). Enhancing Marketing Personalized Shopping Recommendations in the UAE: Leveraging Logic Mining and Advanced Technologies. *Foundations of Management*, *16*(1), 345–358. https://doi.org/10.2478/fman-2024-0021

[40] Shwedeh, F., Hami, N., & Abu Bakar, S. Z. (2021). Dubai smart city and residence happiness: A conceptual study. *Annals of the Romanian Society for Cell Biology*, *25*(1), 7214–7222. https://www.annalsofrscb.ro/index.php/journal/article/view/891

[41] Shwedeh, F., Hami, N., Abu Bakar, S. Z., Yamin, F. M., & Anuar, A. (2022). The Relationship between Technology Readiness and Smart City Performance in Dubai. *Journal of Advanced Research in Applied Sciences and Engineering Technology*, *29*(1), 1–12. https://doi.org/https://doi.org/10.37934/araset.29.1.112

[42] Shwedeh, F., Hami, N., & Abu Baker, S. Z. (2020). Effect of leadership style on policy timeliness and performance of smart city in Dubai: a review. *Proceedings of the International Conference on Industrial Engineering and Operations Management Dubai, UAE, March 10-12, 2020*, 917–922. https://www.researchgate.net/publication/366970073

[43] Shwedeh, F., Malaka, S., & Rwashdeh, B. (2023). The Moderation Effect of Artificial Intelligent Hackers on the Relationship between Cyber Security Conducts and the Sustainability of Software Protection: A Comprehensive Review. *Migration Letters*, *20*(S9), 1066–1072. https://doi.org/10.59670/ml.v20iS9.4947

[44] Shwedeh, F., Nour, M. A., & Akour, I. (2024). Optimizing augmented reality adoption in higher education: A comprehensive analysis of factors impacting data management efficiency. *Journal of Infrastructure, Policy and Development*, *8*(9), 6232. https://doi.org/https://doi.org/10.24294/jipd.v8i9.6232

[45] Shwedeh, F., Salloum, S. A., Aburayya, A., Fatin, B., Elbadawi, M. A., Ghurabli, Z. Al, & Dabbagh, T. Al. (2024a). AI Adoption and Educational Sustainability in Higher Education in the UAE. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 201–229). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_14

[46] Shwedeh, F., Salloum, S. A., Aburayya, A., Kaur, P., Mohammad, I., Mazharul, M., Fatin, B., Elbadawi, M. A., & Ghurabli, Z. Al. (2024). Metaverse in Supply Chain Management: Predicting Suppliers' Intention to Use Metaverse for Educating Suppliers Through Perceived Usefulness, Training Value and Ease of Use (A Case Study in UAE). In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 457–469). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_28

[47] Shwedeh, F., Salloum, S. S., Aburayya, A., Fatin, B., Elbadawi, M. A., Ghurabli, Z. Al, Muhammad, D., Alnuaimi, A., & Akkass, M. A. (2024b). The Impact of Educating Managers in Adopting AI Applications on Decision Making Development: A Case Study in the UAE. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 591–603). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_37

[48] Shwedeh, F., Salloum, S. S., Aburayya, A., Fatin, B., Elbadawi, M. A., Ghurabli, Z. Al, Murad, A., Abueleyan, A., & Ismail, B. (2024c). Prediction of Retailer's Intention to Use Chat-GPT in Educating Retailers: A Case Study in the UAE. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the*

Classroom (pp. 389–402). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_24

[49] Shwedeh, F., Yas, N., Abdijabar, Z., Flayyih, N., Fadli, A., Yas, H., & Allouzi, A. S. (2024). The impact of intellectual property rights and the level of information sensitivity on information security in the United Arab Emirates. *Journal of Infrastructure, Policy and Development*, *8*(8), 6303. https://doi.org/https://doi.org/10.24294/jipd.v8i8.6303

[50] Yas, H., Aburayya, A., & Shwedeh, F. (2024). Education Quality and Standards in the Public School and the Private School-Case Study in Saudi Arabia. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 563–572). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_35

[51] Yas, H., Dafri, W., Sarhan, M. I., Albayati, Y., & Shwedeh, F. (2024). Universities Faculty's Perception of E-learning Tools: Filling the Gaps for Enhanced Effectiveness. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 573–588). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_36

[52] Yas, N., Dafri, W., Yas, H., & Shwedeh, F. (2024). Effect of e-Learning on Servicing Education in Dubai. In *Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom* (pp. 623–639). https://link.springer.com/chapter/10.1007/978-3-031-52280-2_40

[53] Yas, N., Elyat, M. N. I., Saeed, M., Shwedeh, F., & Lootah, S. (2024). The Impact of Intellectual Property Rights and the Work Environment on Information Security in the United Arab Emirates. *Kurdish Studies*, *12*(1), 3931–3948. https://doi.org/10.58262/ks.v12i1.282

[54] Yas, H., Mardani, A., Albayati, Y. K., Lootah, S. E., & Streimikiene, D. (2020). The positive role of the tourism industry for Dubai city in the United Arab Emirates. Contemporary Economics, 14(4), 601.

[55] Yas, H., Mardani, A., & Alfarttoosi, A. (2020). The major issues facing staff in islamic banking industry and its impact on productivity. Contemporary Economics, 14(3), 392.