

Artificial Intelligence as A Mechanism to Enhance the Impact of Islamic Financial Innovations and Digital Governance on Digital Financial Inclusion

¹DR. BOUTARANE YAZID

University of Tipaza the laboratory of studies in Islamic finance and sustainable development
organizes

boutarane.yazid@cu-tipaza.dz,

²Prof Redhouane Lammar

University of Tipaza the laboratory of studies in Islamic finance and sustainable development
organizes

lammar.redhouane@cu-tipaza.dz,

³Lammar Younes

younes.lammar@gmail.com

Received : 23/03/2026 Accepted:12/05/2026 Publication: 20/07/2026

Abstract:

This study aims to analyze the role of artificial intelligence in enhancing digital governance and legitimate governance in Islamic financial institutions, and to demonstrate the impact of artificial intelligence governance in supporting digital transformation, developing Islamic financial technology, and improving the quality of decision-making, while reviewing the reality of financial inclusion globally and in the Arab world and the role of modern technologies in expanding access to financial services. The results showed that implementing effective AI governance contributes to enhancing operational efficiency, transparency, and Sharia compliance, improving risk management, developing Islamic financial services, and enhancing financial inclusion by providing easier, more flexible, and less expensive services. Ultimately, the study concluded that adopting integrated frameworks for artificial intelligence governance represents a necessity to achieve sustainable financial innovation, enhance the competitiveness of Islamic financial institutions, and support financial inclusion in accordance with the principles of Islamic Sharia.

Keywords: Digital governance, legitimacy governance, artificial intelligence, Islamic financial technology, digital transformation, financial inclusion, Islamic financial institutions.

Introduction:

Since the beginning of the third decade of the twenty-first century, the world has witnessed an accelerating digital transformation driven by successive developments in artificial intelligence and financial technology technologies, as estimates indicate that the contribution of artificial intelligence to the global economy may exceed \$15.7 trillion by 2030. In this context, digital governance has become one of the most important regulatory mechanisms that ensure efficient institutional performance and enhance transparency, accountability and risk management. The widespread adoption of AI applications has also posed new challenges related to accountability,

ethics, and data protection, creating a need to adopt effective AI governance frameworks within financial institutions

In the Islamic finance sector, whose global assets have exceeded \$4 trillion in recent years, Islamic financial technology has emerged as one of the primary drivers for developing financial services and expanding access to them, by employing artificial intelligence technologies, big data analysis, and smart contracts to improve operational efficiency and enhance Sharia compliance. These technologies have also contributed to supporting financial inclusion efforts, especially in developing and Arab countries, where the percentage of owning financial accounts globally increased from 51% in 2011 to about 76% in 2024. Based on these data, this study aims to highlight the relationship between digital governance, legitimate governance, and artificial intelligence governance, and to analyze the role of financial technology and artificial intelligence in developing Islamic financial institutions and enhancing financial inclusion at the global and Arab levels. We will try to address the subject of the study by raising the following main problem: **How does artificial intelligence governance contribute to enhancing digital transformation and developing Islamic financial institutions in a way that supports achieving financial inclusion?**

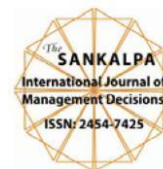
The main question branches into a group of the following sub-questions:

- What are the conceptual foundations of digital governance, Sharia governance, and artificial intelligence in Islamic financial institutions?
- How does artificial intelligence governance contribute to achieving effective digital transformation within Islamic financial institutions?
- What is the reality of employing financial technology and artificial intelligence in the Islamic financial industry and what are its most prominent indicators?
- To what extent have artificial intelligence applications contributed to improving levels of financial inclusion at the global and Arab levels?

□ **Study hypotheses:** To answer the study questions, the following hypotheses were formulated:

- Digital governance, Sharia governance, and artificial intelligence are based on integrated foundations that contribute to supporting the effectiveness and enhancing the efficiency of Islamic financial institutions
- Artificial intelligence governance contributes to enhancing digital transformation and improving the quality of governance within Islamic financial institutions.
- The use of financial technology and artificial intelligence contributes to the development of performance and efficiency indicators in the Islamic financial industry.
- Applications of artificial intelligence and Islamic financial technology contribute to enhancing levels of financial inclusion at the global and Arab levels.

□ **Study methodology:** This study relied on the descriptive analytical approach to suit the nature of the topic, by presenting and analyzing the theoretical literature related to digital governance, legitimate governance, and artificial intelligence governance, while studying the reality of employing financial technology and artificial intelligence in Islamic financial institutions. A comparative analysis of recent indicators and statistics related to financial inclusion at the global and Arab levels was also used, with the aim of highlighting the role of



artificial intelligence governance in promoting digital transformation, developing Islamic finance, and supporting financial inclusion.

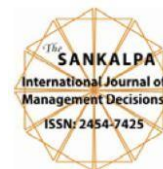
The study relied on secondary sources such as books, scientific journals, and international reports issued by financial institutions and specialized bodies, in addition to modern statistics and indicators related to artificial intelligence, financial technology, and financial inclusion.

□ **Study objectives:**

- Learn about the conceptual framework of digital governance, Sharia governance, and artificial intelligence in Islamic financial institutions.
- Highlighting the importance of artificial intelligence governance in achieving digital transformation and strengthening governance within Islamic financial institutions
- Analysis of the reality of Islamic financial technology and the role of artificial intelligence applications in developing the Islamic financial industry.
- Clarifying the contribution of artificial intelligence to improving the efficiency and performance of Islamic financial institutions.
- Studying the role of financial technology and artificial intelligence in supporting and enhancing financial inclusion globally and in the Arab region.
- Identifying the most important challenges associated with the application of artificial intelligence and its governance in the Islamic financial sector.
- Proposing future directions to enhance integration between digital governance, artificial intelligence, and Islamic finance.

□ **The importance of the study:** The importance of this study is highlighted by the fact that it addresses a topic that combines digital governance and legitimate governance in light of the rapid developments of artificial intelligence within Islamic financial institutions, as it is one of the modern issues that impose new challenges and opportunities for these institutions. It also seeks to highlight the role of artificial intelligence governance in supporting digital transformation and enhancing performance efficiency and legitimate compliance While examining the reality of Islamic financial technology and the potential of artificial intelligence in developing its products and services. The importance of the study increases by linking these developments to the issue of financial inclusion at the global and Arab levels, which contributes to expanding access to Islamic financial services and achieving sustainable economic development in order to answer the problem of the study and achieve its objectives, the study was divided into four main axes:

- The first axis: The conceptual framework for digital governance and legitimate governance in light of the development of artificial intelligence in Islamic financial institutions
- The second axis: Artificial intelligence governance and its role in promoting digital transformation and digital governance in Islamic finance
- The third axis: The reality of Islamic financial technology and the role of artificial intelligence in developing Islamic financial institutions
- The fourth axis: The reality of the development of financial inclusion around the world and the Arab region (2011-2024).



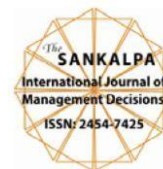
The first axis: The conceptual framework for digital governance and legitimate governance in light of the development of artificial intelligence in Islamic financial institutions

Artificial intelligence has become one of the most prominent modern technologies supporting digital transformation, as it provides advanced capabilities in data analysis, improving decision-making, and developing services. With its increasing adoption in various sectors, the need has emerged to establish governance frameworks that ensure its responsible and safe use on the principles of transparency, accountability and data protection. This governance is of particular importance in Islamic financial institutions, which combine the requirements of digital development with a commitment to Sharia controls. This makes the use of artificial intelligence an entry point for enhancing efficiency and innovation and achieving digital transformation in line with the Sharia values and principles governing this sector.

□ **Definition of digital governance:** Digital governance is a modern governance framework that emerged in the context of digital transformation. It is based on the strategic use of digital technologies, data, and information systems to direct, manage, and monitor the work of institutions and the relationships between various stakeholders. This ensures improved institutional performance, increases the efficiency of service delivery, enhances transparency, accountability, and participation in decision-making, and achieves optimal utilization of resources and an effective response to the needs of individuals and society during digital transformation. (Mahmoudi, M.T, 2023, p. 89)

The literature indicates that there is no unified definition of digital governance, but it is unanimously agreed that it is a governance framework that relies on employing information and communications technology and digital technologies to improve the efficiency and effectiveness of institutional performance, and enhance transparency, accountability, and participation in decision-making. Digital governance is closely linked to digital transformation, as it is based on a set of basic components and pillars, most notably e-governance and digital citizenship in addition to modern technologies such as artificial intelligence, blockchains, the Internet of Things, big data analysis, and cloud computing. Although some studies consider digital governance synonymous with e-governance, the former is a broader concept that goes beyond digitizing services to include redesigning processes, policies, and institutional relationships to achieve higher levels of efficiency, transparency, and quality of services. (Dallel Bouatrous, 2026, p. 124)

-The importance of applying digital governance : UNESCO believes that digital governance aims to improve the provision of information and services, encourage their sharing with citizens in the decision-making process, and enhance government accountability and transparency. Digital governance is gaining increasing importance in light of the accelerating digital transformation, as it provides technological mechanisms and tools that contribute to improving the performance of government and private institutions and enhancing the quality of services provided to beneficiaries. It also enables enhanced transparency and accountability, rational use of resources, and support for data-driven decision-making, achieving higher levels of efficiency and effectiveness. The importance of digital governance is evident through a set of the following basic advantages and benefits:



1-2- Raising the level of efficiency: Digital governance contributes to completing tasks and providing services more quickly and accurately by relying on digital tools and applications, which reduces time, effort, and human errors and raises the level of operational efficiency.

2-2- Reducing costs: Shifting from traditional methods to digital solutions reduces costs associated with paper transactions and administrative procedures, while improving the utilization of available resources.

3-2- Improve decision making: Digital governance enhances the quality of decisions by collecting, processing and analyzing data, providing accurate information that supports more effective planning and decision-making.

4-2- Easy access to services: Digital platforms and applications allow access to services and information easily and quickly, bypassing temporal and spatial constraints.

5-2- Promoting digital democracy: Digital governance supports citizen participation in public affairs by making information available and expanding channels of communication and opinion, enhancing transparency and community accountability

6-2- Guaranteeing the rights of beneficiaries of services: Digital governance contributes to protecting the rights of beneficiaries and achieving their satisfaction through commitment to the principles of integrity, justice and transparency and applying laws and ethical standards in providing services

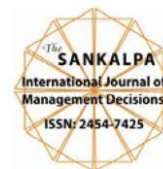
These benefits confirm that digital governance represents a modern entry point for developing management and improving institutional performance, with intersections between it and e-governance, particularly in the areas of simplifying procedures and increasing the efficiency of service delivery. (Rahim·Y, 2024, pp. 167-180)

-The nature of legitimate governance: Although digital governance represents a modern framework that aims to enhance efficiency, transparency and accountability by employing digital technologies in various activities and operations, its application in the field of Islamic finance requires taking into account the specificity that distinguishes this sector and is based on commitment to Sharia provisions and principles. In addition to the requirements of public and digital governance, Islamic finance is based on a regulatory and supervisory system that ensures that financial activities and transactions are consistent with Sharia controls. This makes it imperative to address the concept of Sharia governance as one of the fundamental governing pillars of Islamic financial institutions and a complement to various modern governance frameworks. (Mohamed bin ahmed, 2018, p. 13)

-The concept of legitimate governance: The first attempts to define the concept of Sharia governance were presented by the Islamic Financial Services Board IFSB, through Standard No. 10 on the guiding principles of Sharia control systems for institutions providing Islamic financial services issued in December 2009. Sharia governance was defined as: “The system that refers to a set of institutional and organizational arrangements through which Islamic financial services institutions ensure that there is effective, independent Sharia supervision (Younis Sawalhi, 2017, pp. 2-3)

This definition requires the following:

- ✓ The existence of a set of institutional and organizational measures: a board of directors, a Sharia body, a Sharia department, and an internal audit department



- ✓ Effective and independent monitoring of compliance with Islamic law
- ✓ Sharia announcements, dissemination of information, internal Sharia review, in addition to the prior and subsequent aspects of the framework of commitment and compliance with Sharai (Said Bouhroua, 2015, p. 2)

-The basic foundations for ensuring an effective system of legitimate governance: The legitimate governance of financial institutions depends on three basic pillars in order to ensure the effectiveness of the legitimate governance system:

First: Governance of fatwas and legislation: The governance of fatwas and legislation means establishing a standard legislative reference for transactions. It ensures that the institution follows the correct teachings of the provisions of Islamic Sharia by obtaining the correct fatwas and Sharia decisions. The governance of fatwas and legislation is considered an extension of the concepts of fatwas and ijtiḥād in Islamic jurisprudence

Second: Governance of Sharia oversight: It aims to ensure that all operations and activities of the institution are implemented in accordance with the provisions of Islamic Sharia, to verify the absence of any Sharia violations, and to seek to address them, if any. Sharia oversight governance is characterized by comprehensiveness in terms of application, as it covers all of the institution's activities, employees, systems, objectives, policies and current and future programs (Qutayba Abdul Rahman al Ain, 2023)

This is controlled by the following:

a) Central Sharia Supervision: A Sharia supervisory body at central banks that examines the extent of the institution's commitment to the provisions of Islamic Sharia, and the extent to which its Sharia governance framework is compatible with relevant laws and regulations

b) Internal Sharia oversight: The institution has an internal Sharia oversight body that ensures the institution's compliance with the provisions of Islamic Sharia, detects any deviations or violations that have occurred, and reports them immediately.

C) External Sharia oversight: There is an independent external Sharia body contracted by the institution to examine the extent of its commitment to the provisions of Islamic Sharia, while submitting an annual report to the General Assembly on the extent of the institution's commitment to that. (Istitute of banking kuwait, 2019)

Third: Governance of legal disclosure: Sharia disclosure governance is the governance through which stakeholders reassure a financial institution that all its operations and activities are consistent with the provisions of Islamic Sharia, while disclosing and disclosing all relevant Sharia issues and fatwas, such as fatwa methodology, oversight, zakat accounting, and the like. Accounting disclosure is required for efficient capital formation and liquidity in markets and financial institutions (Hakim Bradai, 2015, p. 231)

-The emergence of artificial intelligence

The intellectual beginnings of artificial intelligence date back to 1950 when Alan Turing proposed the Turing Test to question the ability of a machine to exhibit intelligent behavior similar to human intelligence. The actual scientific breakthrough came during the Dartmouth Conference in 1956, where John McCarthy coined the term artificial intelligence, and researchers confirmed the possibility of machines simulating learning processes and human intelligence (European commission, 2020)



In 1980, David Rumelhart contributed to the development of the concept of artificial neural networks, paving the way for the emergence of practical applications such as machine translation and industrial control systems. With the beginning of the third millennium (2000), artificial intelligence witnessed a widespread spread within major companies such as Netflix, Amazon, and Google, driven by the development of graphics processing units (GPU), the acceleration of digital transformation, and the increase in big data generated by devices connected to the Internet (Maryam Fadli, 2023, p. 73)

-definition artificial intelligence: The rapid development of digital technologies has led to the emergence of artificial intelligence as one of the most important modern fields that has transformed the methods of processing information and providing services in various sectors. Artificial intelligence is defined as a set of systems and software capable of collecting, processing, and analyzing data, then making decisions or providing appropriate solutions to achieve specific goals, with the ability to improve their performance by learning from past experiences. Within the framework of Islamic finance, the use of artificial intelligence is subject to the principle of original permissibility, but its ruling is determined according to the nature of the use and the consequences resulting from it; It may be required when used to enhance oversight and legal compliance, and delegated to improve services, while it is prohibited when used in illegal practices or violating customer privacy. (ITU, 2021)

Artificial intelligence is a set of computer technologies and systems that mimic the capabilities of human intelligence, by enabling machines to learn, reason, analyze data, and adapt to changing conditions, with the aim of predicting outcomes, making suggestions, or making intelligent decisions that affect the real or virtual environment

Artificial intelligence has many definitions; The World Bank defines it as programming systems that rely on algorithms to perform tasks that previously required human intelligence, such as vision, language, knowledge, and research, allowing support for the decision-making process. (World Bank group(n.d), 2022)

While the Organization for Economic Co-operation and Development (OECD) believes that there is no unified global definition for it, it describes it as systems capable of perceiving, thinking and acting by analyzing the environment and taking action to achieve specific goals. The European Commission's Expert Group (HLEG) also defines them as systems that exhibit intelligent behavior by analyzing data and the environment and making decisions with a degree of autonomy. (OECD, 2019)

NASA's definition of artificial intelligence is as follows: Executive Order No. 13960EO, Section 238(g) of the United States National Defense Authorization Act of 2019, that artificial intelligence is: (NASA, n.d.) Artificial intelligence is a set of computer systems and technologies capable of simulating human mental and behavioral capabilities, such as perception, learning, thinking, planning, decision-making, and communication. It also has the ability to adapt to changing circumstances and improve its performance on its own through experience and data, enabling it to perform tasks and achieve goals with a degree of independence and rationality. (Office of the Minister of State Artificial Intelligence, 2023)

An AI system consists of three main components: sensors (Sensors) to collect data, operational logic (Operational Logic) to process and analyze it, and actuators (Actuators) to implement

outputs that may be in the form of recommendations or decisions. It is also linked to supporting concepts such as machine learning (Machine Learning) and deep learning (Deep Learning). (Berryhill, 2019, p. 77)

Despite the multiplicity of definitions, researchers distinguish between two main types of artificial intelligence; Narrow or applied artificial intelligence (Artificial Narrow Intelligence), which is currently the most widespread, specializes in carrying out specific tasks such as image recognition, machine translation, and financial forecasting, without possessing a general ability to understand or think independently. Artificial general intelligence (AI) refers to systems that possess capabilities similar to human intelligence, enabling them to learn, solve problems, make decisions, and deal with diverse and complex situations.

Artificial intelligence is classified into three main subgroups: machine learning (ML), deep learning (DL), and generative artificial intelligence (GEN AI).

-Machine learning (ML): It is a branch of artificial intelligence that aims to enable computers to learn from data and previous experience to automatically improve their performance over time. Its systems rely on algorithms that extract patterns from data and use them to predict or make decisions more accurately without the need for explicit programming for each case.

-Deep learning (DL): It is an advanced branch of machine learning that relies on multi-layered artificial neural networks. It is characterized by its ability to directly handle large amounts of unstructured data, such as images, audio, and text, and extract important properties from them automatically without the need for extensive pre-processing as is the case in many traditional machine learning applications.

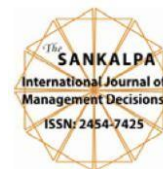
-Generative Artificial Intelligence (Generative AI): A branch of deep learning that focuses on creating new content that mimics human-generated content. It can produce text, images, sounds, videos, code, and simulations based on the data it has trained on. Interest in this field increased significantly after the emergence of ChatGPT in late 2022, due to its demonstrated advanced ability to generate diverse, high-quality content. (Tawamdiya Messaouda, 2024, p. 231)

-Types of artificial intelligence

1-Narrow AI: Artificial Narrow Intelligence (ANI) narrow AI is defined as a type of artificial intelligence designed to perform specific tasks within one domain and cannot extend beyond them to other domains. This type relies on pre-programmed algorithms. It enables it to perform certain functions with high efficiency, such as voice recognition, image analysis, or natural language processing. However, it remains limited by the limits of the tasks for which it was created, and does not possess the ability to think or learn generally like the human mind. (Ihab Khalifa, 2017, p. 20)

2-Artificial General Intelligence (AGI): AGI is defined as an advanced type of artificial intelligence that possesses human-like capabilities in terms of understanding, learning, and utilizing knowledge across multiple fields. This type of intelligence is viewed as the ultimate goal in AI research, despite existing disagreements over its precise definition and methods of achievement. (Yousef bin Hamad, 2022, pp. 136-153)

3-Artificial Super Intelligence (ASI): refers to a type of superintelligence that exceeds human capabilities in all activities and fields. This type is often depicted in the literature Science fiction



as a conscious entity capable of solving complex problems and innovation, and can outperform humans in every intellectual effort. (Strelkova·O, 2023)

We conclude from the above that the difference between the types of artificial intelligence is based mainly on the breadth of capabilities and the extent of independence in performance. Narrow artificial intelligence is limited to performing specific tasks without the ability to exceed them or adapt to other fields, while general artificial intelligence seeks to simulate human capabilities in understanding, learning and dealing with various situations Artificial superintelligence, by definition, is a hypothetical stage in which machine intelligence transcends the boundaries of the human mind in all intellectual and creative aspects.

According to software experts, all the smart applications and systems developed to date fall within the narrow scope of artificial intelligence, as its capabilities are still limited to performing specific tasks without possessing comprehensive awareness or understanding like humans, while general and super-artificial intelligence remains within the framework of theoretical research and development. (Boukabous Meriem, 2026, p. 84)

-Characteristics of artificial intelligence: Artificial intelligence has several characteristics that we will briefly mention in the form of points, including:

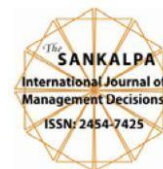
- Artificial intelligence is characterized by its ability to accurately analyze problems and help choose appropriate decisions based on available data and information
- It contributes to accelerating data processing processes by performing tasks in an automated and organized manner, which increases performance efficiency.
- It has high flexibility in dealing with different variables and situations, which enhances its effectiveness in renewed and advanced work environments.
- It has the ability to recognize and process images, as well as understand natural languages and interact with users efficiently.
- It is characterized by the ability to continuously learn from available data and information, and extract new knowledge and results that contribute to improving performance and the accuracy of conclusions.

The second axis: Artificial intelligence governance and its role in promoting digital transformation and digital governance in Islamic finance

In light of the accelerating digital transformation, artificial intelligence governance has become a necessity to ensure that its technologies are employed efficiently and transparently, in order to achieve compliance with regulatory and legal controls, especially in Islamic financial institutions. From this perspective, this axis addresses the role of artificial intelligence governance in promoting digital transformation and consolidating digital governance to support the efficiency and sustainability of the Islamic financial sector.

-Artificial Intelligence Governance: It is defined as: "The structure of rules, practices, and processes used to ensure that an organization's AI technology maintains and expands the organization's strategies and goals."

By addressing the definition of governance and artificial intelligence separately, we distinguish a procedural definition of artificial intelligence governance: which is the totality of frameworks and principles that ensure transparency, integrity, responsibility, reliability, and other governance principles and their characteristics in artificial intelligence systems, the aim of



which is to reconcile them with the goals of e-learning and to add Trust and security among users of this technology. (Schneider ,J, 2022, pp. 1-22)

-AI governance principles: AI governance aims to ensure the safe and responsible use of this technology by promoting sound oversight and managing the associated risks, and mitigating the challenges arising from its applications. This is achieved by incorporating governance principles into laws, regulations, and regulatory frameworks that govern the development and use of artificial intelligence systems, particularly in the educational field, ensuring the efficiency and reliability of their outputs. The most important of these are the following:

-Stakeholders: Enhancing the confidence of various stakeholders in artificial intelligence by using it responsibly and reducing the risks associated with it.

-Transparency: Ensuring that the working mechanisms of artificial intelligence systems are clear and understandable and traceable, which contributes to enhancing reliability and building trust among users. (Personal data Protection commission, 2020)

- Accountability and Responsibility: Define responsibilities associated with AI decisions and activities, while providing human oversight and effective governance mechanisms to reduce damage and misuse.

- Environment and Sustainability (Green Intelligence): Employing artificial intelligence technologies to support environmental protection, conserve natural resources, and contribute to achieving sustainable development goals. (Larsson ,S, 2020, pp. 1-16)

-Cybersecurity and data privacy: protecting data, ensuring its quality and integrity, and enhancing the security of smart systems to reduce digital risks and threats. In a recommendation by the Organization for Economic Cooperation and Development and a proposal from the Digital Economy Policy Committee, it included five principles through which trustworthy artificial intelligence is sought, which are known as:

1-Inclusive growth and sustainable development: Employing artificial intelligence to achieve economic and social progress for all segments of society, while preserving resources and the environment to meet the needs of current and future generations.

2-Fairness and fairness: Reduce biases in data and algorithms and ensure all individuals are treated fairly and equally.

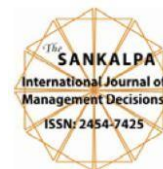
3-Human-centered values: Developing artificial intelligence systems that take into account human needs and rights and work to improve human well-being and quality of life.

4-Transparency and interpretability: Enabling users to understand how intelligent systems arrive at their results and decisions.

5- Security and Safety: Ensuring the reliability of artificial intelligence systems and the safety of their use, thus reducing potential risks. (Abdulmumin Obaid, 2022, p. 150)

-Artificial Intelligence Ethics: It is based on three basic principles: respecting and promoting human rights, achieving the greatest benefits for humanity and the environment, and reducing potential risks and negative impacts.

World Summit on Artificial Intelligence (2020): Organized by the Saudi Data and Artificial Intelligence Authority, the summit aims to review global developments in the field of artificial intelligence, explore ways to optimally utilize it to build a better future, and support decision-makers in harnessing this technology to serve humanity



AI governance is based on a set of principles that include transparency, accountability, fairness, security, sustainability, and ethics, with the goal of building reliable, secure, and human-centered AI systems that achieve sustainable development and enhance digital trust in various fields

Artificial intelligence governance has become a global necessity that countries and institutions seek to establish to ensure the safe and responsible use of this technology. In addition to its traditional principles, governance includes modern concepts such as sustainability, green intelligence, ethics, data protection, and digital security. These principles contribute to enhancing confidence in artificial intelligence systems and directing them in accordance with ethical and cultural values, ensuring human service and supporting the achievement of the 2030 Sustainable Development Goals. And achieve its goals 17 seventeen. (Tehseen•R, 2021, pp. 33-47)

AI Governance Framework: In a research paper, a discussion issued by the Personal Data Protection Commission (PDPC) in Singapore in June 2018 identified a model for AI governance that recommended:

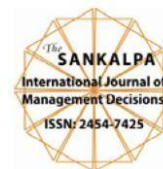
- Establish internal governance structures and procedures that ensure the integration of values and responsibilities and the management of risks associated with decision-making processes.
- Choosing decision-making models appropriate to the nature and objectives of AI applications.
- Ensure effective data management during the development, operation, and maintenance phases of AI systems.
- Strengthening relationship management with users and customers to achieve trust and transparency
- Keeping pace with the challenges of complexity and uncertainty in artificial intelligence by adopting flexible and innovative governance methods, such as adaptive governance and hybrid or decentralized governance. In addition to the legitimate governance of Islamic financial institutions

The AI governance framework is based on regulating decision-making, managing data and risks, and enhancing user trust, while adopting flexible governance models capable of adapting to rapid developments in this field (Pdpc, 2023)

The importance of using artificial intelligence technologies to embody digital transformation:

The Islamic financial and banking sector is witnessing increasing interest in artificial intelligence technologies because of the support they provide for digital transformation and enhancing operational efficiency. Artificial intelligence contributes to developing Islamic financial services, improving data and risk management, reducing costs, and enhancing the competitiveness of Islamic financial institutions. We can present some aspects through which the importance of artificial intelligence appears in supporting the building of a more advanced and intelligent banking sector:

- It contributes to providing innovative financial and banking services that meet customers' needs and expectations.
- Supports enhancing the competitiveness of banks and financial institutions and helps them attract more customers.



- It enables the processing and analysis of large amounts of data with high efficiency, while reducing operational costs and improving the quality of services.
- Promotes digital transformation in the financial sector by increasing operational efficiency and accelerating data analysis and risk management.
- It contributes to the implementation of digital transformation policies by developing management methods, protecting personal data, and facilitating financial transactions and investments.
- Supports the exchange of banking information and data, and helps develop new financing products and more advanced banking services.

Artificial intelligence contributes to modernizing the financial and banking sector by improving efficiency, enhancing competitiveness, supporting digital transformation, and developing financial services and products to meet the requirements of the digital age (Tiour Samir, 2025)

-Artificial intelligence applications that contribute to embodying digital governance in the field of Islamic finance

Artificial intelligence contributes to the embodiment of digital governance by enhancing transparency, accountability, participation and efficiency, through its use in the fields of Islamic finance and Islamic financial technology, which supports the improvement of Islamic financial services, the development of decision-making mechanisms, and enhancing the efficiency of data management and contemporary Islamic financial transactions.

1-Intelligent Automation (Robotic Process Automation): Using artificial intelligence technologies to automate repetitive and complex tasks without human intervention, which contributes to increasing efficiency, reducing costs, increasing speed and accuracy and reducing errors, such as data processing, billing and customer service. By using Chatbots to respond to customer inquiries automatically

2-Big Data Analysis (Big Data Analytics): Artificial intelligence relies on analyzing large amounts of complex data to extract information and support decision-making, through the use of advanced algorithms and analysis techniques

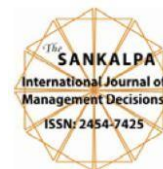
3-Predictive analysis (Predictive Analytics): A technique that relies on analyzing past data to predict future needs and potential risks, which helps in planning and making more accurate strategic decisions.

4-Smart Assistants (Virtual Assistants): Applications that rely on artificial intelligence to interact with users, understand text or voice commands, and perform tasks in a way that resembles human interaction, such as digital assistants: Alexa Amazon, Google Assistant.

5-Smart chat applications (Chatbots): Intelligent systems that use language understanding techniques to communicate with users, analyze inquiries and provide answers and services automatically and quickly. Such as: Chat Gpt, Gemini.

6- Artificial Intelligence Fraud and Money Laundering Detection Technology: Systems that rely on data analysis and monitoring abnormal patterns to detect suspicious transactions, and support financial institutions in enhancing security and compliance.

7- Cloud computing (Cloud Computing): A technology based on storing and processing data via servers connected to the Internet, which facilitates access to information, analysis of big data, and development of digital applications.



8- Electronic check: An alternative digital payment method to traditional checks, characterized by security and reliability, and containing electronic data related to financial transactions and party accounts.

9-Blockchain technologies (Blockchain): A digital system based on a chain of linked blocks to store data securely and transparently, and contributes to developing banking operations, reducing intermediaries, and promoting digital transformation. (Dallel Bouatrous, 2026, p. 106)

 The third axis: The reality of Islamic financial technology and the role of artificial intelligence in developing Islamic financial institutions

Financial technology and artificial intelligence represent two fundamental pillars for developing Islamic financial institutions, enhancing their efficiency, and innovating their services. Therefore, this section addresses the reality of Islamic financial technology and the role of artificial intelligence in developing this sector.

The development of the Islamic financial industry: The Islamic finance industry is a modern financial industry that emerged during the 1970s and has witnessed rapid growth, becoming an alternative model of financial intermediation that serves both Muslims and non-Muslims. The establishment of the Islamic Development Bank (IDB) in 1975 is considered one of the most prominent historical milestones in the development of this industry, as the period between 1975 and 1990 witnessed an expansion in the establishment of Islamic financial institutions.

According to 2019 statistics, the number of Islamic financial institutions around the world reached approximately 1,113, approximately 63% of which are concentrated in the Arabian Gulf, Asia, and Africa, in addition to Islamic banking windows in 75 countries serving approximately 100 million customers.

The industry has also continued to grow in recent years, with global Islamic finance assets reaching US\$4.5 trillion in 2022, an increase of 11%. Islamic banking represents about 72% of total assets, with growth of 163% since 2012, and assets are expected to reach US\$6.7 trillion by 2027. The value of Islamic instruments related to environment, society and governance reached \$6.6 billion at the end of 2022, a 14% decrease from their peak in 2021 of \$7.6 billion. (IFSB, 2024)

At the European level, Islamic finance in France and Europe witnessed remarkable growth of 603% between 2006 and 2022, with an annual growth rate exceeding 10%, as global Islamic finance assets ranged between 3.1 and 3.6 trillion euros.

The Islamic Financial Services Board (IFSB) 2023 report confirmed the continued strength and resilience of the industry despite global financial challenges. The value of the Islamic financial services industry was estimated at approximately US\$3.25 trillion, distributed by sector and region, as shown in Figure 1.

Figure 01: Distribution of the global Islamic financial services industry by sector and region (billion US dollars)

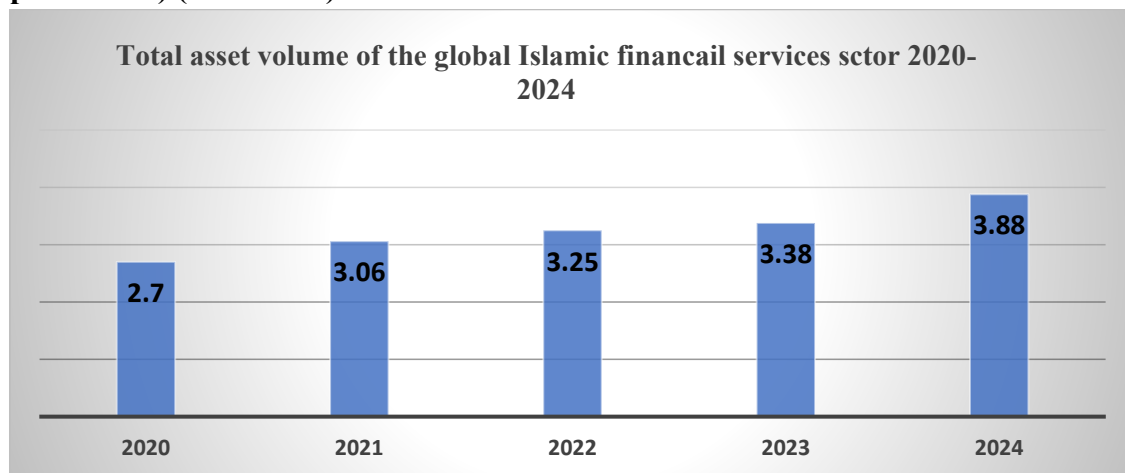
Region	Islamic Banking Assets	Sukūk Outstanding	Islamic Funds Assets	Takāful Contributions	Total	Share (%)
Gulf Cooperation Council (GCC)	1342.9	356.6	24.1	16.7	1740.4	53.6%
South-East Asia (SEA)	307.2	411.4	32.8	6.0	757.4	23.3%
Middle East and South Asia (MESA)	478.3	57.8	62.9	5.9	604.9	18.6%
Africa	49.6	2.9	1.9	0.8	55.2	1.7%
Others	71.2	1.0	14.9	0.6	87.7	2.7%
Total	2249.2	829.7	136.6	30.0	3245.5	100.0%
Share %	69.3%	25.6%	4.2%	0.9%	100%	

Source : (IFSB, 2023)

Islamic banking services remained dominant within the Islamic financial services sector, with assets amounting to US\$2.25 trillion, representing 69.3% of the global Islamic financial services sector assets. The Islamic capital market sector, including Islamic sukuk (Islamic bonds), Islamic funds, and Islamic stocks, witnessed slower growth rates compared to previous years. The sukuk sector, which maintained its dominance, grew by 7% in 2022, while Islamic funds grew slightly by 1%. (IFSB, 2023)

In the latest report of the Islamic Financial Services Board (IFSB) for the year 2025, the total volume of assets of the global Islamic financial services sector for the year 2024 reached 3.88 trillion US dollars. (IFSB, 2025)

Figure 02: Total asset volume of the global Islamic financial services sector (in US dollars per trillion) (2020-2024)



Source: IFSB 2025

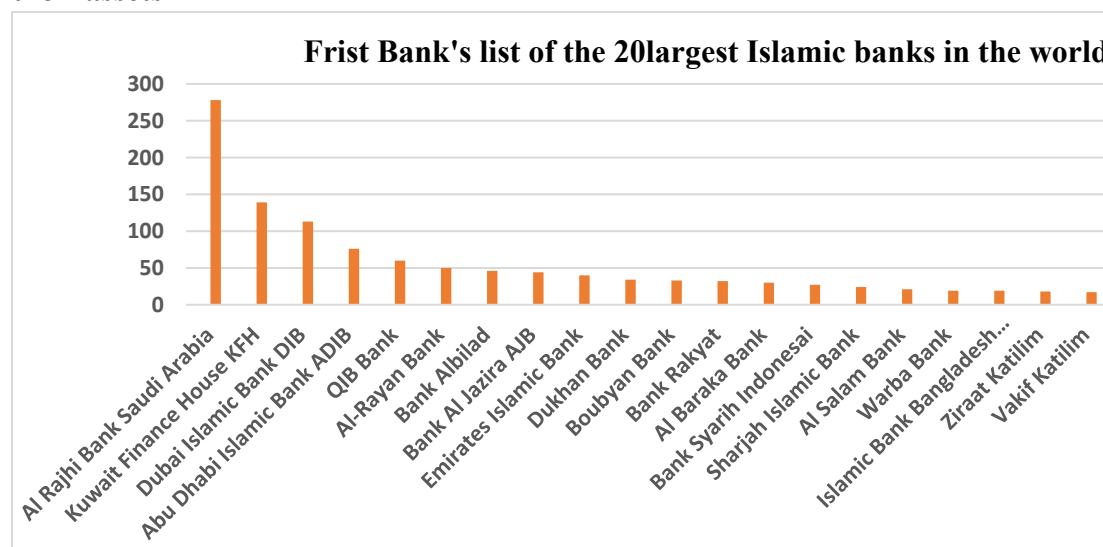
The figure shows continued growth in the size of Islamic financial services sector assets globally during the period 2020–2024, rising from US\$2.7 trillion in 2020 to US\$3.88 trillion in 2024, an increase of about 43.7% over five years. This growth reflects the expansion of the Islamic financial industry and the increasing demand for its products, supported by the development of digital services and the growing interest in Sharia-compliant financing, which confirms its growing role in the global financial system and the development of Sharia-compliant financial services.

Table No. (01): Frist Bank's list of the 20 largest Islamic banks in the world in terms of their assets at the end of 2025

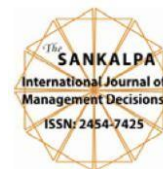
N/Order	The Bank Name	Assets by the end of 2025 (billion dollars)
1	Al Rajhi Bank Saudi Arabia	278,15
2	Kuwait Finance House KFH	138,88
3	Dubai Islamic Bank DIB	113,25
4	Abu Dhabi Islamic Bank ADIB	76,44
5	QIB Bank	60,48
6	Al-Rayan Bank	49,59
7	Bank Albilad	46,12
8	Bank Al Jazira AJB	44,24
9	Emirates Islamic Bank	39,69
10	Dukhan Bank	33,87
11	Boubyan Bank	33,13
12	Bank RAKYAT	32,14
13	Al Baraka Bank	30,01
14	Bank Syariah Indonesai	26,86
15	Sharjah Islamic Bank	24,59
16	Al Salam Bank	21,36
17	Warba Bank	19,58
18	Islamic Bank Bangladesh Limited	19,10
19	Ziraat Katilim	17,90
20	Vakif Katilim	17,52

Source: Frist Bank.com Ratings Center (the rating included the parent Islamic banking groups in various countries of the world and did not include their affiliated foreign banks)

Figure No. (03): Frist Bank's list of the 20 largest Islamic banks in the world in terms of their assets



Source: Prepared by the researcher based on Table No. (01)



Based on Figure No. (03), data from the list of the 20 largest Islamic banks in the world by the end of 2025 reveals a clear dominance of Gulf banks over the global Islamic banking industry, as the total assets of these banks amounted to about 1.183 trillion dollars, and Gulf banks alone accounted for approximately 85.3% of the total assets, equivalent to more than 1.009 trillion dollars. Al Rajhi Bank topped the list with assets amounting to \$278.15 billion, alone acquiring about 23.5% of the total assets of the listed banks, nearly double the Kuwait Finance House KFH, which came second with assets amounting to \$138.88 billion, reflecting a high degree of financial concentration within the sector. The five largest Islamic banks accounted for about 56.4% of total assets, while the share of the ten largest banks amounted to about 74.4% ‘This indicates that a limited number of major institutions control the largest part of the global Islamic banking market. On the geographical level, Saudi Arabia came in first place in terms of the combined assets of its Islamic banks, with a value of \$368.51 billion, representing 31.1% of the total assets listed, followed by the United Arab Emirates with assets amounting to \$253.97 billion, representing 21.5%, then Kuwait with \$191.59 billion, representing 16.2%, and Qatar with \$143.94 billion, representing 12.2%. The data also showed a gradual emergence of Asian Islamic banks, especially in Malaysia, Indonesia and Bangladesh, but their presence is still limited compared to traditional Gulf dominance. These findings reflect the close relationship between the development of the Islamic banking industry, oil surpluses, supportive regulatory policies, and the growing demand for Islamic finance instruments, as well as the expansion of Islamic sukuk and digital finance markets, confirming the transformation of Islamic banking into a key component of the global financial system.

-The reality of Islamic financial technology : The Islamic financial industry has witnessed increasing expansion driven by rising demand for Sharia-compliant products and services, along with Islamic banks moving towards digital transformation and investing in financial technology. Many institutions have developed digital branches and electronic banking services. In Malaysia, Islam Bank has allocated RM300 million for a digitization project between 2019 and 2021, while MBSB plans to invest RM250 million in digitizing its operations and converting 5 of its 46 branches to digital.

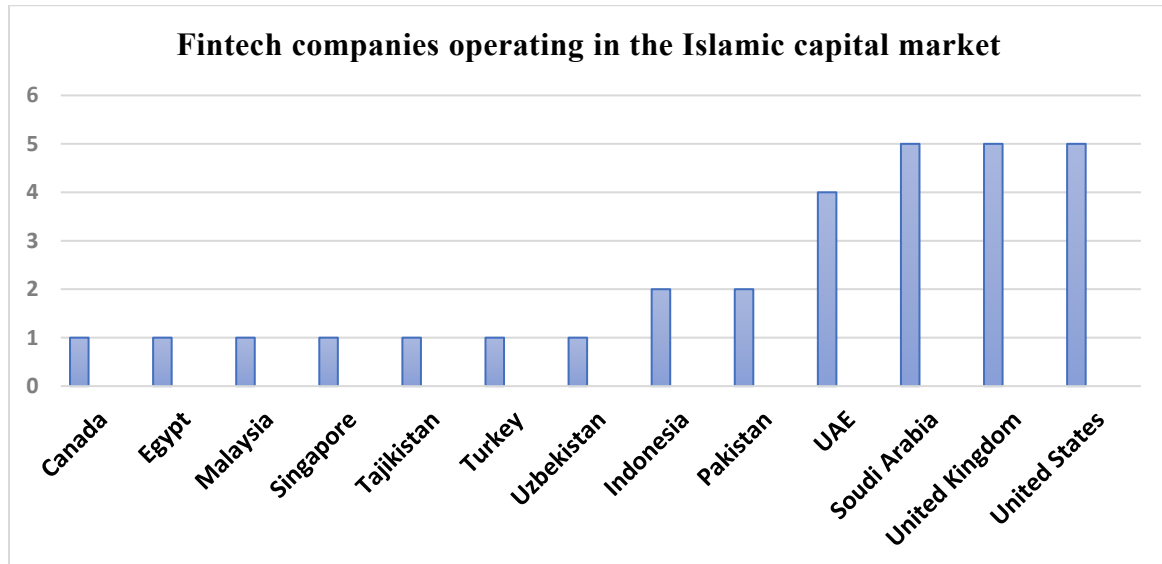
2018 also witnessed the launch of a fully digital Islamic banking service in Turkey in partnership with a German bank, with the aim of serving Muslim customers in Europe. Islamic banks have increasingly adopted mobile banking applications and digital wallets, as they provide improved access to services and enhanced financial inclusion, especially in areas with limited bank account penetration.(Salam Gateway,2025)

To foster innovation, Al Rajhi Bank has entered into a strategic technical partnership to develop modern Islamic banking solutions. Abu Dhabi Islamic Bank has also expanded its digital services using technologies such as interactive video ATMs, reflecting Islamic banks' drive to leverage financial technology while upholding Sharia principles.

According to the Global Islamic FinTech Report, Saudi Arabia, Iran, the UAE, Malaysia, and Indonesia are among the largest countries in terms of the volume of Islamic fintech transactions within the OIC countries, with more than 250 Islamic fintech companies worldwide. The market size in the OIC countries is estimated at approximately US\$49 billion in 2022.

The GIFT 2024/2025 report also included a list of 30 leading startups in the field of Islamic fintech, as these companies contribute to supporting innovation and geographical expansion, and the value of the Islamic fintech industry is estimated at approximately 161 billion US dollars.

Figure No. (04): Fintech companies operating in the Islamic capital market



Source: Salam Gateway, 2025

There is a group of 12 startups among the 30 prominent companies in non-OIC countries, including Five companies in both the UK and the US. The Kingdom of Saudi Arabia ranked first as the best Market for Islamic Financial technologie in terms of transaction volume, with Investments estimated at \$65.4 billion, followed by Iran with \$29.8 billion, then Malaysia with \$13 billion, then the United Arab Emirates with \$9.3 billion, with Indonesia coming in fifth place with \$8.5 billion. As shown in Figure 05)

Figure No. (05): The five best Islamic financial technology markets according to the volume of exchanges



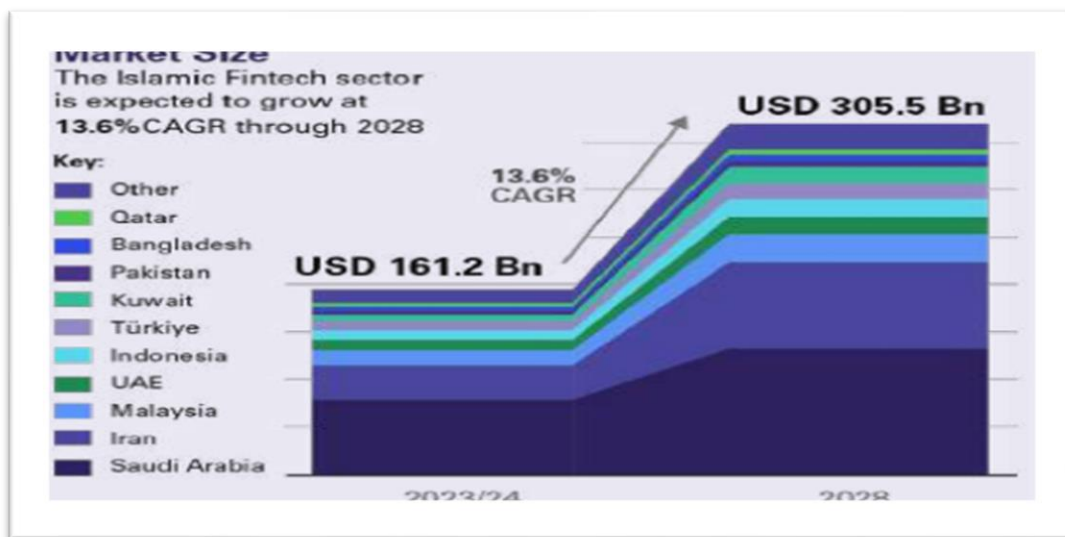
Source : (salamGateway, 2025)

Islamic capital markets are witnessing increasing development in the field of financial technology with the support of government and regulatory initiatives, despite the modernity of this sector. The Central Bank of Oman has launched an electronic liquidity management system

in accordance with the provisions of Islamic Sharia, allowing Islamic banking institutions to obtain liquidity in exchange for legally compatible guarantees.

The Saudi Central Bank also supported Islamic financial innovation by introducing three Sharia-compliant startups (The Lending Hub, Soar, LDUN) into the regulatory testing environment (SAMA), in addition to allowing Spire Tech to test open banking infrastructure solutions, reflecting the financial institutions' move towards developing Islamic financial technology.

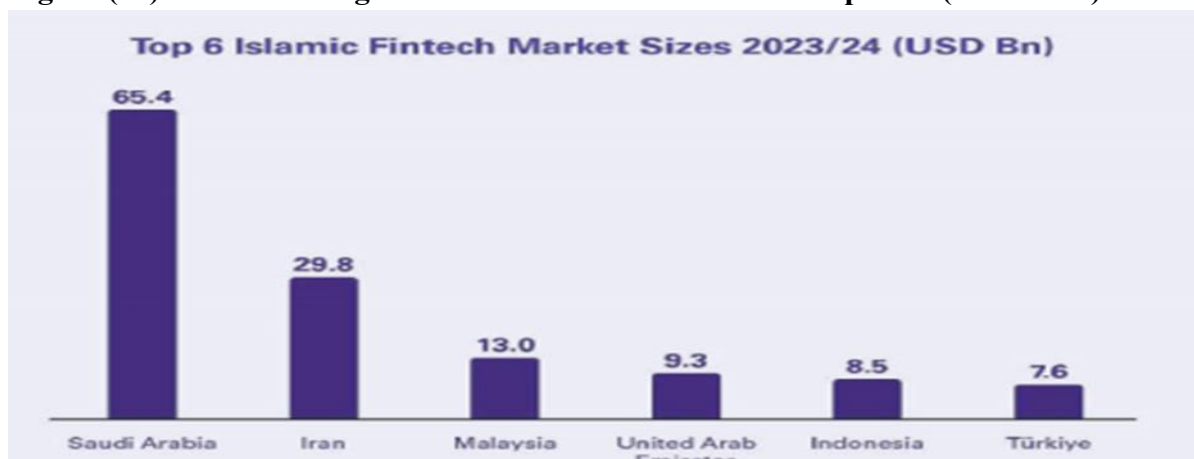
Figure (06): The size of the Islamic financial technology market around the world for the period (2022-2027). Unit: billion dollars



Source: Dinar Standard (2025) Global Islamic Fintech Report Executive Summary 2023/24, Dinar Standard, p07

According to the same report, six markets lead the field of Islamic financial technology in terms of transactions and assets, and they are members of the Organization of Islamic Cooperation, and these markets include Saudi Arabia, Iran, Malaysia, the Emirates, Indonesia, and Kuwait. The Saudi market topped the list with about \$65.4 billion, followed by Iran with \$29.8 billion, then Malaysia with \$13 billion, and the UAE with \$9.3 billion, while Indonesia and Turkey came in fifth and sixth place, respectively. As shown in the following figure

Figure (07): Six of the largest Islamic fintech markets for the period (2023-2024).



Source: Dinar Standard (2025) Global Islamic Fintech Report Executive Summary2023/24, Dinar Standard, p08

Together, the six markets represent 83 percent of the total global Islamic fintech market size, confirming the continued dominance of two regional hubs in the industry: Southeast Asia and the Middle East. On the other hand, we point out that the growth and expansion of Islamic financial technology was not limited to members of the Organization of Islamic Cooperation, but extended to different regions of the world Including Southeast Asia, the Middle East and North Africa, the Gulf Cooperation Council, Europe, South Asia, Southeast Asia, the Middle East and North Africa, the Gulf Cooperation Council, Central Europe, North America, the United Kingdom, Singapore, Hong Kong, Australia, and Switzerland, these countries represent developed financial centers. Although the majority of their populations are non-Muslims, the demand for Islamic fintech products has increased. The following figure shows the results of the twenty largest countries according to the classification of Islamic financial technology from inside and outside the Organization of Islamic Cooperation.

Figure (08): Results of the twenty largest countries according to the Islamic financial technology classification 2023-2024



Source: Dinar Standard (2025) Global Islamic Fintech Report Executive Summary2023/24, Dinar Standard, p11

From the figure above, the Kingdom of Saudi Arabia rose to the top of the GIFT index for the first time by one point, as Malaysia was at the top during the period (2022-2023), which fell

to second place. For the top ten, excluding the first place, Pakistan rose to the top ten for the first time, with the remaining countries retaining their positions. The United Kingdom is ranked as the only non-OIC country in the top ten. As for the top twenty places, we find that the Organization of Islamic Cooperation countries have strengthened their ranking, such as Jordan, which moved from rank 19 to rank 14 during the period (2022-2023) Non-member countries fell in the ranking for the second year in a row, with the exception of the United Kingdom (which remained in fifth place) and the United States of America (which rose to sixteenth place).

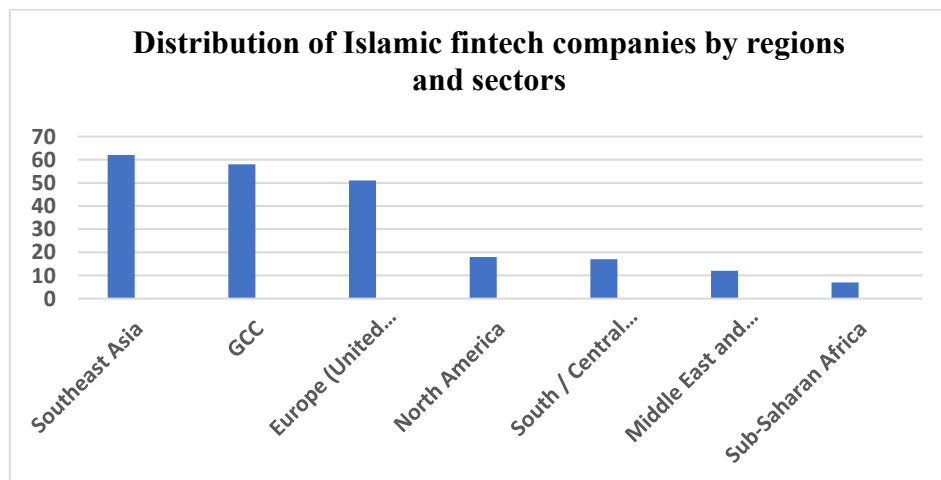
-Islamic Fintech Centers: According to Dinar Stonder's (Global Islamic Fintech) report on Islamic Fintech for the year 2024, there are about 241 Islamic fintech companies globally, distributed as follows:

Table No. (02): Distribution of Islamic financial technology companies by regions and sectors for the year 2024.

Region	Number of companies by Sector	
	sector	
Southeast Asia	62	fundraising
GCC	58	Payment/lending
Europe (United Kingdom)	51	Deposits/lending
North America	18	Wealth management
South / Central Asia	17	Payment
Middle East and North Africa (excluding GCC countries)	12	fundraising
Sub-Saharan Africa	07	Alternative financing/deposit and lending

Source: Arab Monetary Fund Islamic Fintech in the Arab Region: Imperatives, Challenges and the Way Forward, Arab Monetary Fund, 2021, p20-21

Figure (09): Distribution of Islamic fintech companies by regions and sectors for the year 2024.



Source: Prepared by the researcher based on Table No. (02)

Islamic fintech hubs are concentrated globally in three main poles: Asia (Malaysia and Indonesia), the Middle East (GCC countries), and Western countries (UK). These centers have contributed to building regulatory environments that support the growth of Islamic financial technology.

The United Kingdom is one of the world leaders in this field, due to the development of the digital banking sector and the increasing demand for Islamic finance products. The Gulf countries, particularly the UAE, Saudi Arabia, Bahrain, and Qatar, have also worked to establish financial technology centers to support innovation and financial inclusion and strengthen the Islamic financial technology ecosystem.

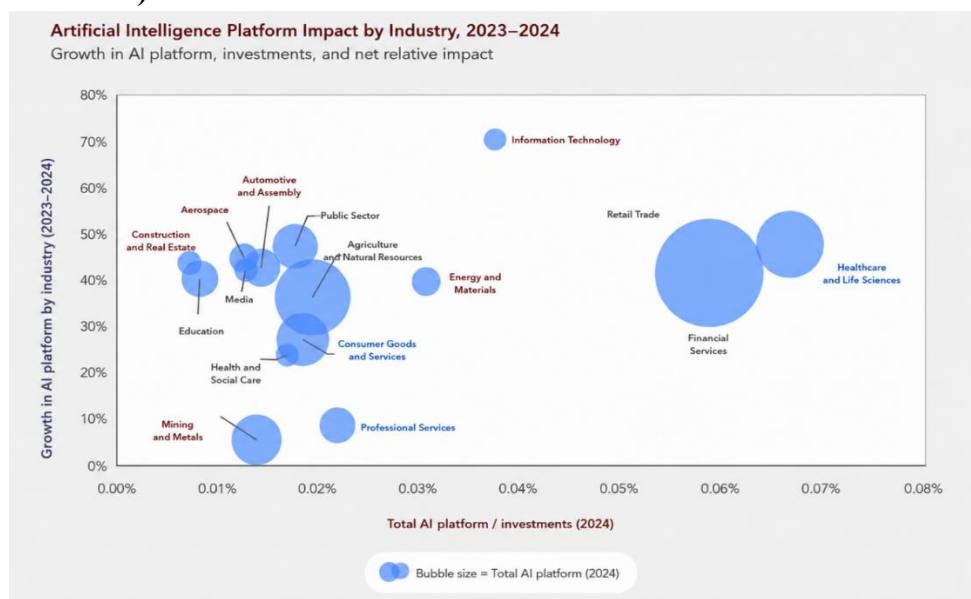
By defining artificial intelligence, it has become easy for us to understand the relationship between financial technology and artificial intelligence. The financial sector, which is essential for global trade, has long been affected by rapid vulnerabilities, such as piracy, fraudulent activities, and systematic inefficiency. Blockchain technology offers, , which are usually decentralized, transparent, and stable, is a potential model for positive development. Integrating artificial intelligence (AI) with machine learning (ML) reinforces this change and also radically changes our knowledge of financial stability. (M Gangrade, 2025)

Artificial Intelligence in the Islamic Financial Industry:

The world's financial services companies spent about \$35 billion on artificial intelligence in 2023, and expected investments in the banking, insurance, capital markets and payments sectors are expected to reach \$97 billion by 2027

Figure No. (10) shows that financial services companies around the world are exploring, investing in, and applying artificial intelligence at a faster pace than other sectors. With initial experiments achieving promising results and beginning to be widely applied across institutions, it is expected that the financial sector's commitment to artificial intelligence will deepen widely

Figure No. (10): Estimate of global spending on artificial intelligence, by industry, for the period (2023/2024)



Measuring artificial intelligence in Islamic financial institutions:

According to data from the World Bank's Global Financial Inclusion Index, approximately (78.7%) of adults around the world currently have accounts in a bank, financial institution, or via mobile phone for the year 2024, compared to (68.5%) for the year 2017 and (50.6%) in 2011 (where data on financial inclusion was collected for the first time) as a global average This is equivalent to an increase estimated at about (28%) between the years (2011-2024). In middle-income (low) economies, (75%) of adults now own bank accounts. Compared to (42%) in 2011. For low-income countries, the percentage of adults with bank accounts reached about (46%) in 2024, while this percentage did not exceed (10%) in 2011. As for high-income countries, their average inclusion rate is above (93%). This noticeable increase in financial inclusion rates around the world is attributed to the shift to digital financial services, especially the expansion of mobile and online banking in countries around the world. ((World Bank, 2025, page 02 and the following table shows that

Table No. (03): Ownership of an account with an official financial institution (age 15 years and over), by region in the world (2011-2024) (unit %)

2024	2021	2017	2014	2011	Rigion
94.9	95.8	93.7	92.8	87.5	.High-income countries
83.3	79.7	70.4	69	55	East Asia and the Pacific (developing .countries only)
78.7	73.8	68.5	61.9	50.6	World average
75.4	69	63	55	41.7	Middle-income (low) countries
77.8	77.6	65.1	51	44.4	Europe and Central Asia (developing .countries only)
69.7	67.1	54.5	51.6	39.4	Latin America and the Caribbean .(developing countries only)
52.9	45.4	43.4	/	33	Middle East and North Africa
58.2	49.3	42.6	34.3	23.3	Sub-saharan Africa (developing .countries only)
46.4	35.2	31.5	18.7	10	.Low-income countries
***47.5	36	37.2	30.3	22.3	Arab countries

***Average of 14 Arab countries (Algeria, Tunisia, Morocco, Jordan, Lebanon, Iraq, Saudi Arabia, Bahrain, Kuwait, Egypt, Palestine, Mauritania, Oman, Libya).

Source: Prepared by the researchers based on:

-World Bank, THE LITTLE DATA BOOK ON FINANCIAL INCLUSION 2025, World Bank Group, --Washington, DC, 2025, p(02-159).

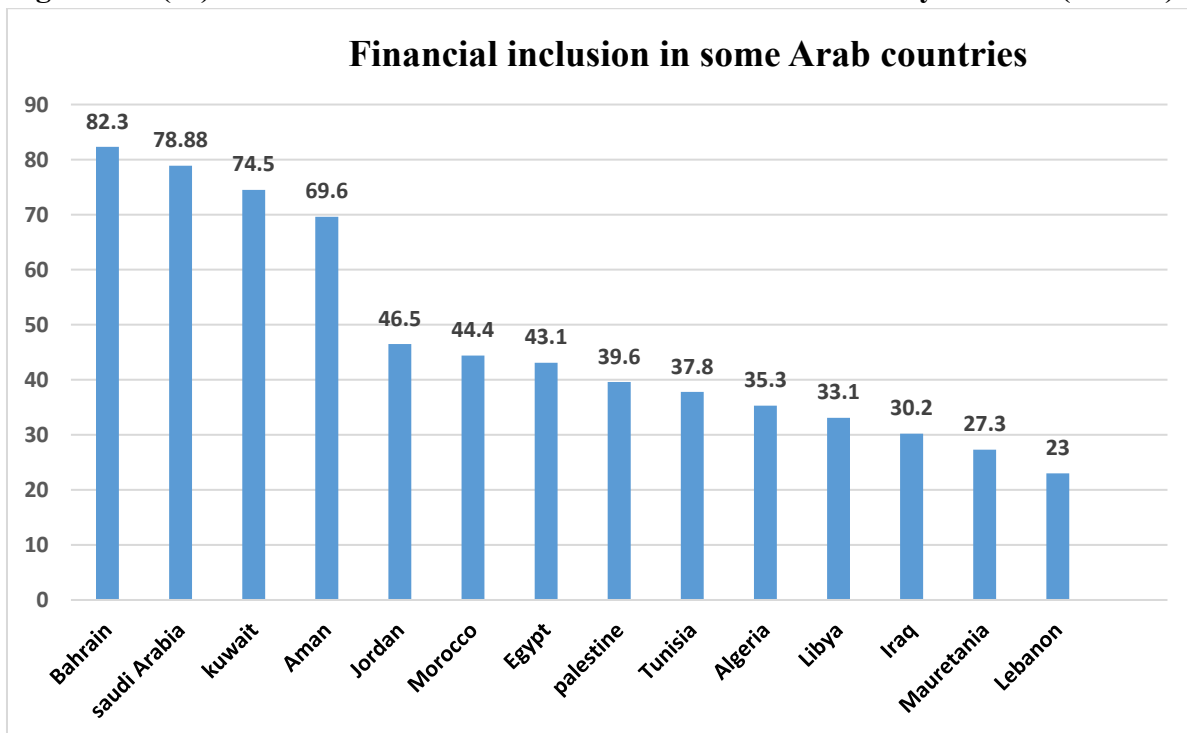
-World Bank, THE LITTLE DATA BOOK ON FINANCIAL INCLUSION 2022, World Bank Group, Washington, DC, 2022, p(02-141).

-World Bank, THE LITTLE DATA BOOK ON FINANCIAL INCLUSION 2018, World Bank Group, Washington, DC, 2018, p2.

- Arab Monetary Fund, CGAP,Financial Inclusion Measurement in the Arab World, WORKING PAPER, CGAP, January 2017, p02

In contrast, with regard to the Arab region, as shown in the table above and the following figure, the Arab region still records the lowest levels after sub-Saharan African countries in the world, with regard to financial inclusion, with the exception of the Gulf Cooperation Council countries, which are characterized by financial inclusion rates comparable to developed countries. In 2021, we find that only approximately 36% of adults in Arab countries own bank accounts. Despite the noticeable improvement between (2011-2024), and thus approximately 197 million people, which constitutes 64% of adults excluded from official financial and financing services in 22 Arab countries, which is much greater than the global average of 24%, the following figure shows this.

Figure No. (11): Financial inclusion in some Arab countries for the year 2024 (unit %)



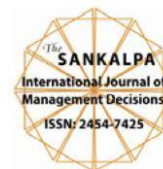
Source: Prepared by the researchers based on:

-World Bank, THE LITTLE DATA BOOK ON FINANCIAL INCLUSION 2025, World Bank Group, --Washington, DC, 2025, p (02-159).

The previous figure shows some rates of financial inclusion in the Arab region. As we notice a clear difference in the rates of financial inclusion in the region, we can divide countries into three groups

1- A group with high financial inclusion rates: It includes the high-income Gulf Cooperation Council countries, which are countries with high financial inclusion rates, comparable to high-income countries globally, and with a financial exclusion rate of around (23%), as the United Arab Emirates leads these countries and the Middle East and North Africa region, occupying the sixth place globally among the top ten markets for the year 2025. This is attributed to progress towards rapid digital transformation and innovations in fintech, supported by a fintech lab and testing environment.

2- A group with below-average financial inclusion rates: These are middle-income countries where financial exclusion rates may reach (23%) in some countries, and inclusion rates are



between (33%-50%) and include Jordan, Palestine, Algeria, Tunisia, Morocco, and Egypt. (World Bank, 2025, p. 2)

- 3- A group with weak financial inclusion rates:** These are low-income countries and countries characterized by security instability, with financial exclusion rates ranging between (79%-81%) and inclusion rates less than (21%), such as Sudan and Yemen.

Conclusion:

In light of the rapid developments of artificial intelligence and digital transformation, Islamic financial institutions are required to adopt modern mechanisms for digital governance and Sharia governance that ensure the benefit of advanced technologies while preserving the principles of Islamic Sharia. The study showed that artificial intelligence governance represents a fundamental pillar for enhancing operational efficiency and transparency, improving risk management and the quality of decision-making, and contributes to developing Islamic financial technology and expanding the scope of financial inclusion

□ **Study results:** The study reached several results, including the following:

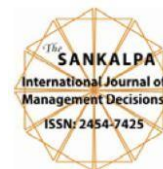
- There is a complementary relationship between artificial intelligence governance, digital governance, and Sharia governance in Islamic financial institutions.
- The contribution of artificial intelligence applications to improving operational performance and developing Islamic financial services and products.
- The ability of Islamic financial technology supported by artificial intelligence to enhance financial inclusion and reach unserved groups.
- The importance of adopting clear governance frameworks to ensure the safe and ethical use of artificial intelligence technologies.

Suggestions and recommendations:

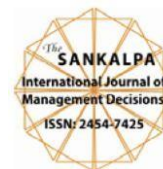
- Developing specialized regulatory and legislative frameworks for AI governance in Islamic financial institutions.
- Investing in digital infrastructure and developing specialized human competencies in the fields of artificial intelligence and financial technology.
- Strengthening cooperation between Sharia bodies and regulatory and technical authorities to ensure Sharia compliance with smart applications.
- Encourage further applied studies on the impact of artificial intelligence in developing the Islamic financial industry and promoting sustainable financial inclusion.

Reference list :

- 1-Mahmoudi, M. T. (2023, May 13-17). The role of AI in Digital governance and Digital Transformation. WSIS Forum 2023
- 2-Dallel BOUATROUS, The Role of Artificial Intelligence in Embodying Digital Governance: Analyzing leading international experiences and lessons learned, *Revue des Sciences Humaines* Vol –37 N°1, June 2026
- 3-Rahim, Y., & Bari, A. (2024). Digital governance as new mechanism for achieving public service quality in the context of the emergence of digital economy in Algeria. *Alerian Review of Society and development*, Volume 13, N 1,



- 4-Mohamad bin Ahmed Janashal Al-Shahri, The Role of Sharia Governance in Developing Islamic Financial Institutions (The Malaysian Experience), Research Files in Economics and Management, Fourth Special File, May 2018,
- 5-Younis Sawalhi, Abdul Aziz Al-Nahedh. The theory of legitimate governance of financial institutions, its concept, basis, problem, principles, and foundations - IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia - September 2017,
- 6-Saïd Bouhroua, Halima Boukroucha, June 2015, Governance of Islamic Financial Institutions, The Experience of the Central Bank of Malaysia, Algerian Journal of Economic Development, Issue 2
- 7-Qutayba Abdul Rahman Al-Ani– The role of regulatory bodies in the governance of Islamic financial institutions - an article published on May 28, 2015 on the <https://www.aliqtisadalislami.net/> website, accessed on 06/09/2023
- 8-Sharia Supervisory Court in Kuwaiti Islamic Banks – Bulletin of the Institute of Banking Studies of the State of Kuwait - Issue Three - January 2019 - Adapted
- 9-Hakim Bradia, Ben Ali Belazouz, the importance of disclosure in accordance with Islamic financial accounting standards to support governance in Islamic financial institutions, Journal of Economic Sciences, Management and Commercial Sciences, Hassiba Ben Bouali University – Chlef - Issue 14/2015
- 10-European commission. (2020). AI Watch Evolution of Artificial Intelligence. Luxembourg: European Union.
- 11-Maryam Fadli, (May 2023) The Fourth Industrial Revolution and Developments in Artificial Intelligence
- 12-ITU (2021) Emerging Technology Trends: Artificial Intelligence and Big Data for Development, Geneva
- 13-World Bank group. (n.d.). Artificial Intelligence in the Public Sector.(2022)
- 14-OECD. (2019). Artificial Intelligence in Society. Paris: OECD Publishing.
- 15-Office of the Minister of State for Artificial Intelligence (2023) United Arab Emirates
- 16-Berryhill, J., Kok Heang, K., Clogher, R., & McBride, K. (2019). Hello ,Word: Artificial intelligence and its use in the public sector- OECD Working papers on Public Governance N° 36
- 17 -Tawamdiya Messaouda, Amara Al-Bashir, Governance of Artificial Intelligence as a Mechanism for Promoting E-Learning, Journal of Economics, Finance and Business, Volume 8, Issue 2, 2024
- 18-Ihab Khalifa 2017, Artificial Intelligence, Effects of the Increasing Role of Smart Technologies in Human Daily Life, Event Trends (20)
- 19-Yousef bin Hamad Al Balushi, Muhammad Al Durrani, Ibrahim Asadi, Ibrahim Al Murshid, Abdul Nour bin Antar, and Jamal Barouth, (2022), The Future of Work in Light of the Artificial Intelligence Revolution, Istishraf Journal for Future Studies, Book Seven,
- 20-Strelkova, O., & Pasechnik, O. (2017, 07). Three types of artificial intelligence. Consulté le 05 29, 2023, sur <https://conf.ztu.edu.ua/wp-content/uploads/2017/05/142.pdf>
- 21-BOUKABOUS Meriem, The Role of Artificial Intelligence in Implementing Smart Governance Principles in Financial Market : Lessons from International Experiences, Management and Development for Research and Studies, Volume : 15 / N° : 01 Juin (2026),



- 22-schneider, J., Abraham, R., Meske, c., & Vom Broke, J. (2022). Artificial Intelligence Governance for Businesses. Information Systems Management,
- 23-Personal data Protection Commission. (2020). Model artificial Intelligence governance frame work. (S. Edition, Éd.
- 24-Larsson, s., & Heintz, F. (2020, May). transparency in artificial intelligence. Internet Policy Review, 9(2),
- 25-Abdulmumin Obaid (2022), Regulatory Aspects of Applying Artificial Intelligence in the Financial Sector: A Benefits and Risks Analysis, Journal of Research in Contracts and Business Law07(04)
- 26-Tahseen, R., Shoaib, M. F., Saddiqua, A., & Omer, U. (2021, September). Ethical Guidelines for Artificial Intelligence :A Systemetic Literature Review. VFAST Transactions on Software Engineering,
- 27-Pdpc. (2023). Model Artificial intelligence governance framework.
- 28-TIOUR Samir· KORIDJIDJ Benali· Digital transformation and artificial intelligence technologies in the face of economic crises and prediction Journal of Entrepreneurship Business/Volume 11, Issue 1·2025
- 29-Official website of the Islamic Financial Services Board<https://www.ifsfb.org>(2024)
- 30-Salam Gateway,2025
- 31-Dinar Standard (2025) Global Islamic Fintech Report Executive Summary2023/24, Dinar Standard