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The role of financial technology techniques in supporting financial inclusion study analytical of the reality of Arab countries

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***Abstract*---**The study aims to know the role of technology techniques Finance in supporting and enhancing financial inclusion and diagnosing the reality of financial technology in Arab countries as an innovative alternative to financial services and the most important challenges facing this industry in order to carry out its assigned role in the future in light of the instability of the global system. To achieve the objectives of the study, we used the descriptive approach and the analytical approach in order to clarify all concepts related to the study and analyze them in a manner consistent with the objectives to be achieved. The study concluded that financial technology carries many opportunities that support and enhance financial inclusion through its role in achieving financial stability and reducing the risks of financial crises. Despite the development of the volume of investment in Arab countries, its role remains weak in reducing the financial inclusion gap due to the accumulation of many obstacles and difficulties associated with the unsuitability of the business environment.

***Keywords*---**Fintech, financial inclusion, financial stability, Arab countries.
***Jel Classification Codes*:** G23, E5, G32

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Introduction

The global financial system reacted to the 2008 global financial crisis with the emergence of a new form of financing patterns and financial innovations, which is digital financing, led by financial technology with its various technologies, and it seems that Interest in and investment in financial technology has witnessed a great turnout since the beginning of 2014. In light of the rapid spread of crypto currencies, crowd funding, data analysis, and artificial intelligence, companies and institutions have turned their attention to the field of financial technology and investment in it.

And it is considered Financial technology is one of the major technological developments that has changed the activities of sectors and shifted the direction of countries towards the search for financial inclusion, especially in the wake of the global financial crisis, by creating a broad commitment among official (governmental) bodies to achieve financial inclusion and implement policies through which access and use of financial services and products are enhanced and facilitated for all segments of society and enabled to use them correctly, in addition to providing diverse and innovative financial services at low costs through providers of these services.

In the midst of these developments, the technology sector in Arab countries is witnessing continuous development in terms of the size and number of deals, and most of these countries are seeking to improve the business environment to facilitate the establishment of financial technology companies as part of their efforts to diversify their sources of funding and increase financial inclusion for many sectors and institutions that suffer from financial exclusion, believing in the importance of these institutions in enhancing economic growth rates and providing jobs.

The problem: The problem of the study can be presented as follows:
What is the role of financial technology in promoting financial inclusion in Arab countries?

Some sub-questions fall within this main problem:

- What is financial technology and its most important technologies?
- What is financial inclusion and why is it important to achieve it?
- What are the requirements for activating the role of financial technology to support and enhance financial inclusion in Arab countries?

Study hypotheses:

- Fintech technologies are opportunities that support and enhance financial inclusion.
- In the absence of regulatory and supervisory frameworks, some fintech technologies pose risks to financial stability.
- Financial technology contributes to enhancing financial inclusion in Arab countries.

The aim of the study
The aim of the study is to investigate the reality of financial technology in Arab countries and the latter’s opportunities in enhancing financial inclusion.

Methodology of the study

We have adopted in our study the descriptive approach to present the various theoretical aspects related to financial technology and financial inclusion, and the analytical approach to study and diagnose the reality of financial technology and its role in enhancing financial inclusion in Arab countries.

First: The theoretical framework of financial technology
1- FinTech Concept Fin Tech)

that Fintech term **Fintech** It consists of From two terms, the first is the term "technology", and the second term is "finance", it means innovative start-ups that use technology to rethink financial and banking services, as in the wake of the financial crisis of 2008, a large number of bankers and traders left the world's financial centers and embarked on entrepreneurial adventures (investment in venture capital or bold capital) in order to rethink the financing model through financial innovation.**(Harfoush, 2019, p. 726)**

It has also been defined as: A general picture of a technological invention that is employed in financial services, and whether the innovations used in this industry have developed new technologies that compete with traditional financial markets, and emerging companies have played a major role in the process of innovating new technologies, but many large global banks such as HSBK and Credit Suisse have developed their own fintech ideas.(Solomon, page 485)

The Financial Stability Board defined financial technology or fintech as: financial innovations using technology that can create new models New business, applications, processes or products that have a material impact on financial markets and institutions, and on the provision of financial services.

And it is described Fintech is defined as products and services that use technology to improve the quality of traditional financial services. This technology is faster, cheaper, easier, and more accessible to a larger number of people. In most cases, these services and products are developed by startups. Startups are small, new companies that aim to expand by creating new markets or acquiring a large share in existing markets, by providing value propositions. Therefore, fintech startups are small, new companies that promise to improve banking services for individuals and companies, in cooperation or competition with established financial service providers.**(Amhamed, 2021, p. 166)**

So technology Finance is the products and services that rely on modern technology, and are used to improve the quality of traditional financial services and operations or have an impact on institutions in the financial sector. Currently, this technology includes different forms of technology that are used to provide services ranging from:**(Board, 2017)**

- Electronic payment applications
- Electronic payment services
- Insurance via the Internet
- Crowd funding
- Virtual currencies

- Financial Advisors Robots
- Blockchain Permission Fintech can be said to be the integration of the technological side into the financial side, resulting in modern financial technologies such as crypto currencies, regulatory technology, crowd funding, peer-to-peer lending, etc.

1-1-**Features of FinTech:**

Contribute Fintech improves financing methods, it plays a competitive role with traditional banks in order to develop financial services and provide them to their customers, and this is one of the main reasons for resorting to it. In addition to this reason, there are other reasons that can be summarized as follows: functions and features, availability of services 24 hours a day, ease of setting up, configuring and using the service, prices and fees, compatibility with daily operations and infrastructure, trust in the provider and its reputation.
The most important characteristics of financial technology are manifested in five elements called:5D is:
Data: Innovation in big data management has increased the value of data, which has become the most distinctive feature of financial technologies, and its use as an alternative to the IT infrastructure that led to the development of the financial industry in the past.

Decentralization: The traditional financial system is highly centralized, reflected in government regulations, central banks, stock exchanges, and clearing houses, while the technology is based on the concept of decentralized finance, which emerged in 2013. It is a technological innovation represented by a financial network based on crypto assets without a central, open-source intermediary that enables the provision of more innovative and transparent financial services, thanks to the efficiency it achieves and greater opportunities to obtain services quickly and at a lower cost, such as transferring money, withdrawing loans, and relying on blockchain technology. Centralized finance is based on several foundations, the most important of which are:

-Diversification Financial digitization has contributed to the diversification of financial products, services and actors by bringing new players from non-financial industries, including major technology companies and fintech companies into the financial business, especially in the field of payment services. This has led to the introduction of very diverse alternatives in financial products and services that stimulate far-reaching changes in money and finance that will strongly affect households, companies, investors, central banks and governments.

-Democracy Financial digitization, increased diversification and intense competition have given more power to customers and users of financial services, and customer satisfaction and touch points have become more important to financial service providers. Efficiency in operations through incentives generated by competition has also allowed financial institutions to strengthen the stability of their business models.**(Latrush, 2023, p. 5)**

1-2- Countries that use financial technology the most:

The FinTech Index ranks the most advanced countries in this field based on several criteria, including the level of security of digital transactions, wealth management, innovative financial solutions in banks, the use of modern technology in the payment management system, including blockchain and crypto currencies, as well as the speed of Internet services.(Aman, 2022, p. 16)The following table shows the top 10 countries in the field of financial technology in the world according to the FinTech Index for the year 2020.:

Table 01: Top 10 FinTech Countries in the World According to the FinTech Index 2020

Global FinTech Index	Arrangement	Countries
31,789 degrees	1	USA
23.262 degrees	2	Britain
19.176 degrees	3	Singapore
17.343 degrees	4	Lithuania
16.018 degrees	5	Switzerland
14.464 degrees	6	Holland
14.272 degrees	7	Sweden
13.555 degrees	8	Australia
13.322 degrees	9	Canada
13.303 degrees	10	Estonia

Source: Amarouche Khadija Aman, Drivers of Growth of Fintech Startups in North Africa, Al-Mudabbar Magazine, Volume 09, Issue 01, 2022. P. 14.

2- Fintech fields and techniques

2-1- Fintech fields:

Areas The most widespread financial technology in most countries of the world and widely used is summarized in the following figure:

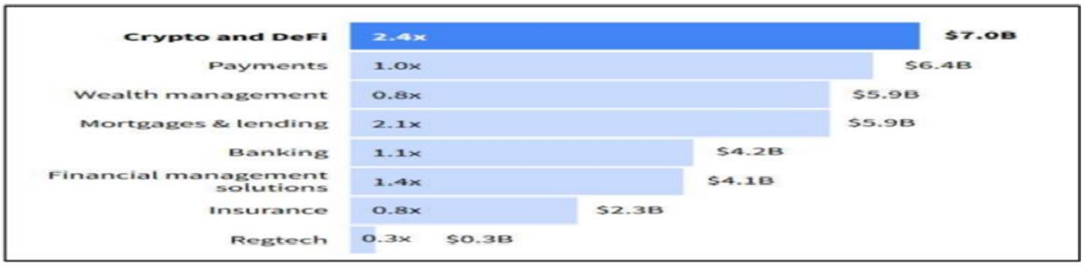

Figure 01: The most invested sectors in the field of financial technology during the first quarter of 2022
Source: Fintech Q1, (2022). Report, ABN ARMO venture, dealroom.com,april 2022.p04

It turns out From the above figure, financial technology has expanded its scope and included most of the traditional financial fields, and other new fields have emerged, distinguished by their ease, speed and effectiveness in implementing the financial client, thus contributing to the rapid development of the financial sector according to its various stages through products with innovative solutions using big data analysis, the Internet of Things, artificial intelligence, blockchain and many other technologies, as products have been generated on demand through digital platforms, and financial technologies benefit from digital platforms that form direct financing circles (digital market) that users can access as borrowers or lenders. As a result, the payment process has become faster, safer and easier, and electronic wallet applications on mobile phones have replaced paper money, while companies that handle payment operations allow individuals to send money.**(Mahajabiyya, 2022, pp. 96-97)**

Digital payment forms also grew against the decline in global cash payments. Mobile payment platforms accounted for about 30 percent of the value of digital payments in 2020. The value of digital payments increased from 8 percent of the total global retail markets in 2005 to about 40 percent in 2020, exceeding $766 billion in 2020. It is expected that their value will exceed the value of paper payments in 2023, and will constitute 59 percent of total international payments in 2025, compared to a decline in the share of cash payments to 41 percent, as shown in the figure below:

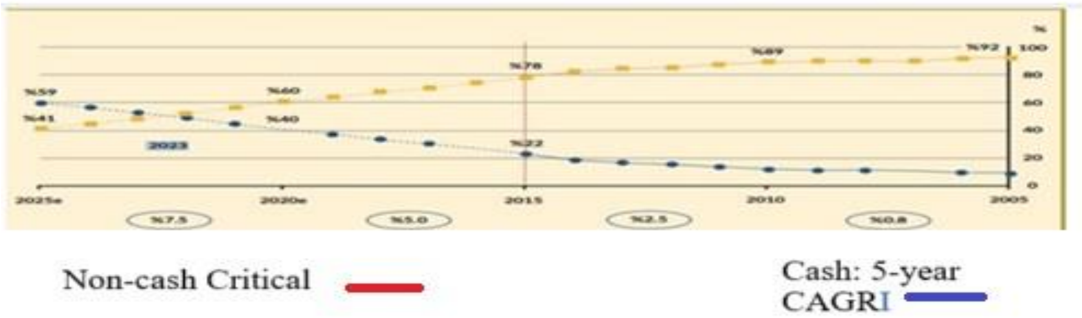

Figure 02: Development of the value of international digital financial payments 2005-2025

Source: Golden detachment,An Analytical Study of the Opportunities and Risks of FinTech on Financial Stability. Journal of Finance and Business, Volume 8, Issue 1, 2023, p. 5.

2-2- Basic techniques of financial technology:

The progress that the world is witnessing in the field of financial technology is due to its reliance on a group of modern financial technologies, the most important of which are mentioned below::**(Aman, 2022, p. 13)**

A-Cryptocurrencies:

It includes different types of digital currencies that rely on encryption, so that digital currencies mean the money circulated over the Internet and has all the characteristics of traditional money, and the closest example to it is credit and debit cards. Accordingly, cryptocurrencies are considered secure assets against hacking, depending on the creation and downloading of algorithms and protocols that prevent the information contained in them from being changed due to the intervention of a third party in the course of its exchange between any two parties. Each encryption group is known as a block or record, while the linked groups of them are called serial blocks or serial records blockchain.

for-Blockchain (Blockchain):

It is an information system based on a decentralized database that allows transactions to be created in a secure manner without the need for an intermediary party to control the system, i.e. it is a system distributed across all devices joining the network, to record and modify all transaction data, in a way that ensures the approval of all relevant parties on the validity of the data. The strength of this technology lies in two basic criteria, which are decentralization and high transparency in managing transactions of all kinds, such as payments and bank transfers, or registering real estate ownership and national identities, or exchanging assets and documents, or voting operations.

B- Smart contracts:

They are self-executing contracts that are built and programmed within a central distribution network that regulates their terms and conditions between the seller and the buyer in the form of software instructions in a network of serial records. Accordingly, the basic idea of these contracts is based on the possibility of including many types of contractual clauses in programs that deal with them in a way that makes breach of the contract very expensive.

C- Artificial Intelligence:

It refers to computer programs that can engage in tasks until they are completed satisfactorily by humans, because they require high-level mental processes such as: cognitive learning, memory organization, and critical thinking. Thus, artificial intelligence is a practical system that includes blind manufacturing and engineering methods for so-called intelligent devices and programs with the aim of producing autonomous machines capable of performing complex tasks using reflexive processes similar to those available in humans.

D- Digital platforms:

They are web portals that are concerned with providing interactive services that differ according to the nature and activity of each platform. In the field of financial technology, there are three types of digital platforms: barter platforms, peer-to-peer lending platforms, and crowdfunding platforms, the latter of which is considered the most widespread and expanding.

3- Fintech Evolution

3-1- Stages of development of financial technology

Fintech is not a new phenomenon. Banking and financial services institutions have a long history of adopting technology. These stages can be summarized in the following three stages**:(Saadouni, pages 34-35)**

أ- **The first stage (1866-1967):**At this stage the first transatlantic cable was laid, the ATM was invented, and technology and finance combined to commercialize the first period of financial globalization.

ب- **The second stage (1967-2008):**At this stage, financial technology remained dominant within the traditional financial services industry, which used financial technology to provide financial products and services. This period witnessed the beginning of the introduction of electronic payments, clearing systems, ATMs, and online banking services.

C- The third stage: (2008-to date): Since the global financial crisis, new startups have emerged, offering financial products and services directly to businesses and the general public.

3-2- Fintech startups:

The term fintech startups is derived from the English term Fintech startup, which is used to identify newly emerging companies in the field of financial technology, has two complementary parts, where the first part of the term (startup) refers to the beginning of the idea, strength and growth, while the second part (fintech) refers to financial technology. This means that fintech startups are young companies founded by an entrepreneur or a group, specifically designed to grow quickly and whose mission is to create and market a new financial technology. While there are those who see fintech companies as all companies concerned with innovations in the field of financial services that result in new business models, applications, processes and products that have an impact on how financial services are provided.**(Aman, 2022, p. 17)**The world is witnessing an increasing increase in the number of emerging companies in the field of financial technology, as a result of the Fourth Industrial Revolution’s innovations that depend primarily on financial technology during the period 2017-2019, in addition to the spread of the Covid-19 pandemic, which emerged in late 2019 and its repercussions began to appear on the global financial sector starting in 2020, as this pandemic was a strong incentive to support the digital transformation in many financial products and services internationally. The following table shows the development of the total number of emerging financial technology companies around the world during the period 2018-2021

Table No. 02: Evolution of the number of fintech startups worldwide during the period 2018-2021

Years/Number of Companies	USA	In Europe, Middle East and Africa	In Asia Pacific
2018	5686	3581	2864
2019	5779	3583	2849

Years/Number of Companies	USA	In Europe, Middle East and Africa	In Asia Pacific
2020	8775	7385	4765
November 2021	10755	9323	6286

Source: Amarouche Khadija Aman, Drivers of Growth of Fintech Startups in North Africa, Al-Mudabbar Magazine, Volume 09, Issue 01, 2022. P. 17.

The data in the table shows that emerging companies in the field of financial technology are witnessing a continuous rise in all countries of the world, but their concentration varies from one region to another, as we note that the United States of America hosts the largest number of emerging companies in the field of financial technology during the period 2018-2021, followed by Europe, the Middle East and Africa region, and then comes the Asia-Pacific continent.

Where it reached The number of fintech startups worldwide exceeded 20,925 companies in 2020 compared to 12,211 companies in 2019, and the number of companies is expected to increase significantly in the coming years due to the global trend towards digital transformation after the health crisis, and also after the developments witnessed by the world in terms of regulating and controlling fintech companies and licensing procedures and establishing these companies.**(Harfoush, 2019, p. 728)**

Second: Reality Financial inclusion in Arab countries and the role of technological and financial innovations in enhancing it

1- The emergence and development of financial inclusion:

1-1- The emergence of financial inclusion

Back The term financial inclusion was first used in 1993 in a study by Sean and Thrift on financial services in Britain. The study addressed the impact of closing a bank branch on the actual access of residents of the region to banking services. Many studies then came to address the difficulties faced by individuals in accessing financial, banking and non-banking services.

And The term financial inclusion has been widely used with technical and professional precision since 1999. It expresses the determinants of individuals' access to available financial services, and distinguishes between voluntary abandonment of the request for financial products and services, whether due to lack of need for them, or for cultural or ideological reasons, and the inability to access those services. It is possible to call it forced abandonment, and it has its reasons that we will mention later, such as the inability to provide sufficient guarantees.

And in Following the global financial crisis in 2008, which caused damage to most of the world's economies, international interest in financial inclusion increased, as represented by the commitment of various governments to achieve financial inclusion by implementing policies aimed at enhancing and facilitating access to financial services for all segments of society and enabling them to use them properly, in addition to encouraging and urging financial service providers (banks and other financial institutions) to provide diverse and innovative services at a low cost.(**Saadouni, page 12)**

1- 2- The concept and importance of financial inclusion:
There are many definitions of financial inclusion, including:
The World Bank defines financial inclusion in its 2014 Global Financial Development Report as: the percentage of people or businesses using financial services.**(Qasi, 2021, p. 680)**

The Organization for Economic Co-operation and Development (OECD) defines it as:OCDE) and the International Network (INFE) define it as: The process by which access to a wide range of formal and regulated financial services and products is enhanced at a reasonable and adequate time and price, and the use of these services and products is expanded by different segments of society through the application of innovative approaches that include financial awareness and education with the aim of promoting financial well-being and social and economic inclusion.(**Arabic, 2015, p. 03)**

In Malaysia, it is defined as the right of every person to use a range of financial services at a convenient time, in a known manner, at an appropriate price, with full respect for his dignity. Financial services are available to all segments of society, with special attention to the poor, low-income people, expatriates and residents of remote areas.(Mizyan, page 599)

In Peru, financial inclusion is defined as the access and use of financial services by all segments of society.**(Mizyan, page 599)**. From the above, it can be said that financial inclusion is the process of delivering financial services to the largest percentage of segments of society at a reasonable cost in order to enhance their ability to benefit economically and socially.

2- The reality of financial inclusion:
2-1-The reality of financial inclusion around the world:

On Globally, significant progress has been made in expanding financial inclusion, with the number of people with an account at a financial institution increasing by about 700 million between 2011 and 2014. In 2014, 62% of the world's adult population had a bank account, up from 51% in 2011. However, there are wide regional disparities in account ownership, with 94% of adults in OECD countries having a bank account in 2014 compared with 54% in developing countries. **(abdelaziz, p. 70)**

And even Today, about 2 billion people, or 38% of adults worldwide, do not have access to formal financial services or are unbanked due to high costs, long distances, and often burdensome requirements to open a financial account. In addition, there is a wide gap in account ownership between men and women, at 7% globally and 9% in developing countries. It is worth noting that women make up 55% of unbanked adults, and adults in the poorest 40% of households worldwide make up 50% of unbanked adults. **(abdelaziz, pp. 70-71)**

2-1- Reality Financial inclusion in the Arab region

Still The Arab region has one of the lowest levels of financial inclusion in the world, with only about 29% of adults in Arab countries having bank accounts, or about 168 million people (71% of adults) excluded from formal financial and financing services.

According toArab Monetary Fund: Arab countries, with the exception of the Gulf Cooperation Council countries, are the most deprived of financial services and products worldwide, as the financial inclusion rate in the Arab average, with the exception of the Gulf countries, did not exceed 21%, which is the lowest rate in the world.

As Statistics indicate that 93% of young people between the ages of 15 and 24 in the Arab region do not have bank accounts in any formal financial institution, which is the lowest rate in the world. And he owns7% of adults in the poorest 40% of households have bank accounts compared to 19% in the richest 60% of households, reflecting the inequality in access to formal financial services across segments of society (by income).

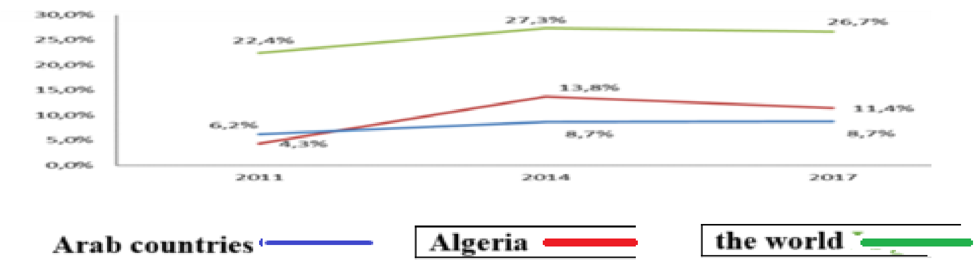

Figure No. 03: Percentage of citizens who have an account with an official financial institution in Arab countries and who are over 15 years old.
Source: Prepared by the researcher based on the Arab Monetary Fund report, 2017

It is worthy It is worth noting that the relationship between financial exclusion and income level is still clear and influential, as account ownership by the richest segments of society is much higher than account ownership by the poorest segments of society in all Arab countries.**(Saadouni, pages 24-25)**

From the figure above, we notice the clear difference between the percentage of ownership of savings accounts between Algeria and the global average, which reached26.7% in 2017, and although Algeria recorded better rates than the Arab average during the years 2014 and 2017, it still does not reach the required level. In Algeria, the rate rose from 4.3% in 2011 to 13.8% in 2014, i.e. an increase of more than 3 times, but it quickly declined again in 2017 to a value of 11.4%.

As for the ranking by country, the Gulf countries are superior, as the UAE ranks first in terms of ownership of an official bank account by adults over 15 years of age, at 87% in 2017 compared to 83% in 2014, followed by Bahrain and Kuwait at

83% and 80% respectively, while Algeria comes in the middle rank, with this percentage declining from 50% in 2014 to 43% in 2017, and Mauritania comes in last place.

And suffer Arab women are clearly excluded from banking and financial transactions, as only about 24.5% of women own bank accounts, which reflects a large gap in financial inclusion rates between the sexes. The reason for the continued gap in account ownership by gender is that men own almost twice as many accounts as women in most Arab countries.**(Qasi, 2021, p. 603)**

Figure 04: Ranking of countries' performance in the Middle East and North Africa in terms of closing the gender wage gap in 2022
Source:https://www.alhurra.com/business/2022/09/18/

By form and across the Middle East, Israel, the UAE and Lebanon are the best performers in terms of closing the gap between women and men in wages and equal value for work, while Qatar, Oman and Algeria are the worst performers. Compared to 2021, Saudi Arabia, Morocco and Kuwait have made progress in efforts to narrow the gender gap, according to the report.

3- Fintech and its role in promoting financial inclusion
3-1- Financial inclusion is a fundamental pillar for achieving sustainable development goals:

Represents Financial inclusion is a fundamental pillar for achieving sustainable development goals, as follows: **(abdelaziz, p. 71)**

A-Inclusiveness Financial and poverty eradication: According to World Bank reports, there are more than 300 million people living on less than $3.90 a day, and their access to financial services is almost non-existent, making it difficult for them to manage their economic lives. The global database (Findex2015) indicates that out of 66% of wealthy adults in all countries of the world, 60% of them have formal bank accounts, while out of 12% of poor adults, 20% of them do not have bank accounts. This gap clearly reflects the lack of access to financial services, which can create what is called the poverty cycle.

B-From Among the financial services provided by the financial inclusion system is the savings service. When this service is available to individuals, it helps them increase their ability to confront financial crises, regulates their consumption, and increases their ability to own productive assets.

C- Contributes Financial inclusion in reducing hunger and enhancing food security: According to reports by the Food and Agriculture Organization of the United Nations (FAO 2015), there are about 391 million people suffering from food shortages worldwide, and most of these people live in remote areas far from banking coverage, which reduces their access to various banking services such as credit and insurance for their agricultural crops, and limits their ability to increase their agricultural investments. Undoubtedly, financial inclusion has played a fundamental role in increasing agricultural investment, by providing insurance services against disasters such as floods, torrents, and drought, and has enabled these individuals to save their profits, which helps them in the future to meet their capital needs for agricultural equipment and seeds, etc. In addition, digital financial services have contributed to facilitating the process of distributing wages and subsidies to farmers.

D- Contributes Financial inclusion undoubtedly improves the level of health through the set of services it provides. For example: the savings service helps individuals manage their medical expenses, whether planned or unplanned, and the insurance service makes individuals stable and free from anxiety or fear of the future. What the Egyptian government is doing now, based on the directives of the President of the Republic, to generalize the comprehensive health insurance service throughout the Republic is the best example of applying financial inclusion in a fundamental and sensitive sector that concerns all members of society. According to reports from the World Bank and the World Health Organization, one of the reasons people remain in the cycle of poverty in developing countries is the cash payments spent on health care, which absorbs their entire income and savings in most cases.

E- Inclusiveness Financial inclusion has a significant impact on the educational process, as statistics have shown that there are about 13 million children of primary school age who are not enrolled in the educational process. There is a close relationship between the quality of the educational process on the one hand and the ability of families to invest in educational opportunities on the other hand (direct relationship). Economic growth is also linked to human capital. The more efficiently trained human capital is, the more it helps to raise levels of development. On the contrary, poor educational performance can limit development. The positive impact of financial inclusion on the educational process is that the savings service helps individuals manage education expenses. Some studies have confirmed that there is an 80% increase in spending on education for families that were able to open bank accounts, and that the service of short-term micro-loans has helped families pay education expenses.

F- Helps Financial inclusion increases economic growth. Financial deprivation of a group of individuals within society has negative effects on economic growth. There is still a large gap between the poor and the rich in access to education and health in developing countries. Financial inclusion allows these groups to access financial services and products such as: mobilizing savings and directing them towards financing productive projects. With technological development and modern technologies, the use of this technology, such as mobile phones, has helped improve access to financial services in remote areas where there are no official branches of financial institutions, which enables individuals to benefit from financial services.

3-2- The relationship between financial inclusion and financial stability:

In this element, we highlight the causal relationship between financial inclusion and financial stability. We can ask the following question: Does an increase in financial inclusion tend to enhance or deteriorate financial stability? The answer indicates the direction of the relationship: financial inclusion – financial stability. We can also ask whether an increase in financial stability leads to an increase in financial inclusion. This indicates a relationship: financial stability – financial inclusion.

We hasten to say that this last question is not important, as it seems unlikely that increased stability will occur. Financial instability can lead to a decrease in financial inclusion, but it is certain that financial stability leads to the following results:**(Qasi, 2021, p. 603)**

- Financial stability enhances customer confidence in the financial sector as a whole, making them more willing to join the financial sector and enhancing the degree of financial inclusion.
- Financial stability has a positive impact on the following factors, for example: inflation, interest rates, which leads to a reduction in some basic products and services, thus making financial services available to the poor at reasonable prices, thus expanding the scope of financial inclusion.

Studies have shown that the relationship between financial stability and financial inclusion is a coexistence. On the one hand, it is difficult to achieve financial inclusion without a stable banking system. On the other hand, it is difficult to imagine the continuation of financial stability when a large sector of the social and economic system is financially excluded. Means of enhancing financial inclusion:

- Innovation New, innovative and unconventional financial products that attract marginalized and poor groups to deal with financial institutions.
- Attract Categories not included in the formal economy to deal with financial institutions through the following procedures:
  - Give them Long-term loans to be repaid, for example a ten-year loan, with interest exemption completely, or at least for the first two years only, while working to regularize the status of these groups by granting them licenses on an exceptional basis, and urgently, with the provision of protection by the state.
  - a contract Periodic economic, educational and marketing courses for these groups, but in a simplified manner that is appropriate to the intellectual and educational level of these groups.
  - Helping these groups to develop expansions for their projects.
- Attract Categories of recent graduates for self-employment, training and educating them on it, while granting them long-term loans with a simple interest rate, similar to marginalized groups, while working to exempt them from interest for the first two years, for example, while collecting a simple interest for the remaining years, with the imposition of deterrent penalties in the event of non-payment.

- Qualification Newly released prisoners for commercial self-employment, by training them during the period of serving their sentences on small and medium-sized projects, especially industrial ones, and helping them with loans and marketing after their release.
- Training The category of women breadwinners, divorcees and widows, on small, medium and micro projects. **(abdelaziz, p. 32)**

Third: The contribution of financial technology to enhancing financial inclusion in Arab countries

1- Developments in the global financial system:

In the wake of the financial crash of 2008, the financial services industry was hit by a complex crisis, which sparked a new wave of financial innovation that would transform the industry and spark a new boom in fintech. The crisis created opportunities for new companies to step in and respond to the needs of individuals and small businesses, by offering affordable finance and increasing flexibility in the financial services system. Since then, the world has seen a continuous transformation in financial services, with new innovators giving consumers more choice all the time, and access to a wider range of products. By 2019, 'alternative' lenders – new financial services providers replacing banks – were providing more than half of all small business loans in the UK.

Facing an unprecedented global pandemic, as well as the repercussions of the Russia-Ukraine war, and climate change, we have once again seen the world of fintech rise to the challenge. These crises have highlighted the role that technology can play in all areas of life, and financial services are at the forefront. Financial innovation has helped individuals and businesses across the globe, providing solutions that have improved financial well-being and business stability, and supported the most vulnerable. As a result, the adoption of fintech has accelerated.**(Nafeh, 2025)**

2- FinTech Contribution to Enhancing Financial Inclusion in Light of the Corona Pandemic

I influenced The Corona pandemic has greatly affected individuals' payment habits and financial transactions, as 60% of financial authorities have announced increases in digital transactions, and nearly 70% of financial regulatory bodies have made financial technology a top priority, as they have worked to align their procedures and operations to combat the Corona pandemic, in order to ensure the continuity of their activity and confront the financial repercussions of the health crisis and its aftermath, as well as in an effort to preserve the health of their customers by providing easy services at home during quarantine periods, taking advantage of the development and spread of mobile phones and smartphones.

The size of global investments in the financial technology sector in light of the Corona pandemic

According to the fintech reports published by the company,KPMG for the years 2019, 2020 and 2021, global investments in the fintech sector fluctuated during the period 2015-2020, sometimes increasing, especially in the years 2016, 2018 and 2019, due to the strong activity of financial innovations witnessed by various countries of the world, and other times decreasing, especially in the years 2017 and 2020, due to the decline in the volume of online lending in 2017 compared to 2016, in addition to the decline in merger deals and big data in 2020 compared to 2019. However, overall, it achieved rapid growth in the past five years, as its value increased by 87.21% in 2020, compared to 2015, as the volume of global investment in fintech companies amounted to about 5.121 billion dollars in 2020 compared to 9.64 billion US dollars in 2015. The same reports also indicated that 3,520 deals were concluded in 2020, after this number reached 2,123 deals in 2015, noting that the geographical diversity of venture capital funding fintech investments contributed significantly to increasing the volume of deals. The volume of investments and the number of deals in the field of fintech are expected to increase in the coming years, especially with the spread of the Covid-19 pandemic, despite the increasing geopolitical uncertainty and trade concerns, which may place a greater burden on investment in fintech.**(Aman, 2022, p. 16)**. The following table shows the total global investments in the field of financial technology during the period 2015-2020.

Table 04: Total global investments in fintech during the period 2015-2020

Years	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Investment size (billion dollars)	**64.9**	**73.7**	**59.2**	**147.9**	**215.4**	**121.5**
Number of deals	**2123**	**2173**	**2968**	**3985**	**3794**	**3520**

Source: Amarouche Khadija Aman, Drivers of Growth of Fintech Startups in North Africa, Al-Mudabbar Magazine, Volume 09, Issue 01, 2022. P. 14.
Number and value of global investments in the fintech sector in light of the Corona pandemic

And The field of financial technology has witnessed rapid growth following the 2008 crisis, but it has achieved a clear boom in light of the Corona pandemic due to the conditions it provided that contributed to imposing the use of technology to communicate in various fields, not to mention the field of financial services, as the KPMG report indicated during the second half of 2021 that the total global funding in the field of financial technology reached $ 210 billion, through the conclusion of 5,684 deals during the year 2021, and according to the same report, the volume of investment in financial technology companies in Europe, the Middle East and Africa reached $ 77.4 billion, with 1,859 deals concluded. The following figure illustrates this**.(Al-Arabi, 2022, p. 615).** And the shape is number05Shows the value and number of investments in fintech technologies.

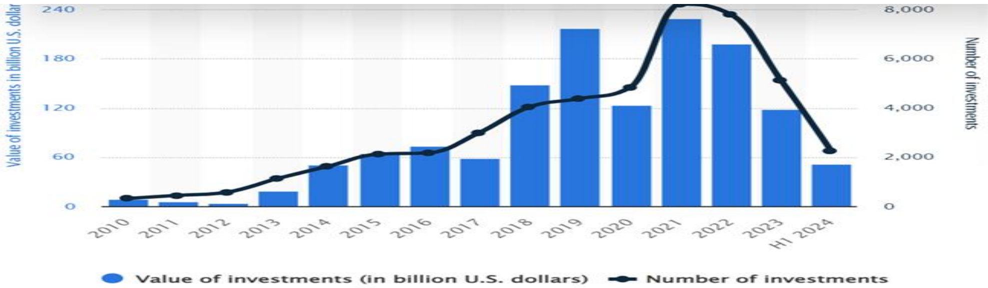

Figure 05: Number and value of investments in FinTech technologies from 2010 to 2024 Source:https://www.statista.com/statistics/719385/investments-into-fintech-companies-globally/

أ- **Obstacles and future developments of financial technology in light of the instability of the global financial system:**

May Fintech does not seem likely to be the cause of the interconnected financial crisis at this point, but it could happen in the future. For example, a new fintech-based shadow banking system could emerge and become the stage for the next financial crisis in the near term. However, according to recent trends in the US and Japan, incumbent financial institutions appear to be taking the lead in introducing new technologies and partnering with fintech companies. In the early days, there was a sense that fintech companies were a disruptive force and a threat to established financial institutions, but this perception seems to have changed over the past few years, since around 2016, at least in the US.

Evolve Fintech companies now partner with existing financial institutions, which have been dealing with fintech companies through acquisition or partnership with them. It seems likely that fintech companies will develop within the framework of existing regulations and safety nets.

noThere seems to be a strong need to worry that it will develop as a shadow banking system, outside the current system or scope of regulations and safety nets, at least in the case of the United States and Japan. The situation in China may be somewhat different. In particular, the nature of payment platforms such as"Alipay" and"WeChatPay“It could evolve into shadow banking systems. These platforms use so-called digital wallets where customers load their digital wallets with cash, which is converted into electronic money within the wallet system and used to make payments and money transfers. The electronic money transferred to your own wallet can also be converted into cash and withdrawn.

Given As the technological revolution brings about changes that enable the creation of a data economy, major new advantages emerge from the integration of banking and commerce, yet concerns remain that these benefits may be accompanied by new types of risks and that conflicts of interest may arise. It will be interesting to see how the financial system and financial institutions are redesigned while preserving this commerce. The success or failure of efforts to redesign the financial system as a whole will depend on whether the risks of destabilizing the financial system alone, among the many types of risks associated with fintech, can be eliminated in the long run. **(kaji, 2021, pp. 208-211)**

3- Evaluating the extent to which financial technology contributes to achieving financial inclusion in the Arab world:

3-1-Fintech techniques used in the Arab world

In a survey conducted by the Arab Monetary Fund, which included 14 countries that have three digital technologies that have been adopted, cloud computing and digital wallets were the most common technologies adopted by Arab countries. In conjunction with the efforts made by banks to change the infrastructure to keep pace with modern financial technologies, the trend towards employing computing in financial applications has increased, due to its ability to provide the tools that companies need to develop applications and provide new solutions to the market at the speed required by customers. The survey also showed that there are 12 countries that use at least one financial technology, and cryptocurrencies, digital currencies, and the financial assets transfer model are considered new technologies that have not yet been applied in most Arab countries. The following figure shows the financial technology technologies used in the Arab world.

Figure 06: FinTech Technologies Used in the Arab World
Source: Arab Monetary Fund, Arab Financial Stability Report, October 2019, p. 165

The figure shows that 10 Arab countries apply digital wallets, 9 countries apply cloud computing, while only four countries apply crowdfunding technology and three countries apply the financial assets transfer model A, known as the blockchain. Only two countries adopt digital currencies and only one country adopts cryptocurrencies, while Palestine and Libya do not have any approved digital technologies at the present time. Bahrain is the only country that has adopted five technologies out of the six listed technologies and has included the financial assets transfer model as the only technology that has not yet been used in the country. The United Arab Emirates applies four technologies out of the six listed, excluding cryptocurrencies and digital currencies. In contrast, Egypt, Tunisia and Lebanon only apply one technology each.**(Al-Arabi, 2019, p. 166)**

3-2-The role of financial technology in achieving financial inclusion in the Arab world

Despite the efforts made by Arab countries to enhance financial inclusion, it remains below the required level compared to the countries of the world, which requires efforts to enhance it and establish its foundations. Financial technology is considered a necessary and important requirement that must be activated in the Arab world, due to the importance of the activity of financial technology companies as it allows the achievement of the following goals:**(Zarqata, 2023)**

- Providing simple solutions and alternatives: Financial technology provides solutions that suit consumers, and develops all financial tools controlled by banks, such as money transfers, commercial credit cards and other tools, in order to provide useful alternatives for the consumer and easy to use, such as Transfer Wise, which was able to significantly reduce the value of money transfers away from banks and traditional transfer methods.
- Its global nature: Financial technology is distinguished by providing its financial services globally, as all services are provided via the Internet and mobile phones, which enables anyone to perform the service they want quickly and anywhere, just by connecting to the Internet.
- Low-cost method: Fintech offers low-cost solutions compared to traditional banking and financial services. The expected benefits of digital finance can only be fully realized if the cost of providing digital services is minimal or non-existent.
- It is a safe method: The services provided by financial technology companies are more secure than traditional banking services, as you can use cryptocurrencies in financial technology/such as Bitcoin, which is done through blockchain technology, and provides you with security, protection and trust while transferring money.
- Quality of its services and continuous improvement: Fintech companies provide continuously advanced services, and are keen to provide all necessary improvements that meet the needs of customers, as they witness continuous development in light of the information and communication technology revolution.

3-3-Challenges facing financial technology in Arab countries

There are still several major structural and institutional obstacles facing and limiting the growth of financial technology in Arab countries. The most important of these can be mentioned as follows:**(Harfoush, 2019, p. 740)**

- The weak business environment and the problem of restrictions that still exist on the entry of foreign entities into the markets limit the possibility of entry of existing global fintech companies into the markets.
-The scarcity of private equity and venture capital, which underpins the growth of fintech in advanced economies.
-Legal uncertainty due to regulatory gaps hinders the growth of the fintech sector, despite ongoing work to develop regulatory frameworks for digital financial services, and to establish laws on the issuance of electronic money.
-The poor quality and prices of internet and mobile phone services, despite the high rates of penetration of information and communications technology in recent years.
- Broader institutional support is still limited, with only a few Arab countries having established incubators and accelerators, such as Egypt, Lebanon, the UAE, and the United Arab Emirates, which allow fintech companies and traditional institutions to test innovations in the real environment.
-From the demand side for financial technology services, the trust gap and financial awareness levels constitute major constraints for emerging companies in the field of financial technology, as the use of financial technology as a payment

channel requires the availability of trust to reduce uncertainty. In addition to this, there is the problem of promoting this type of service and the problem of the customer's educational level in Arab countries.

-The problem of electronic risk, as electronic attacks may lead to operational disruption, financial losses, damage to reputation and systemic risks, and may become a hindering restriction unless work is done to strengthen information security frameworks.

Conclusion

Financial technology has contributed to supporting global financial inclusion in light of global crises, especially those caused by the Covid-19 virus sweeping the world, as financial technology played an effective role in supporting digital financial inclusion, as adopting and employing financial technology has become inevitable for financial institutions wishing to continue Her activity And to maintain its competitive advantages in light of the tremendous development of digital globalization and the accompanying provision of easy and fast financial services that break the barrier of space and time.

It was concluded that Arab countries are open to the developments and innovations of the global financial environment, which has witnessed significant developments in recent years, one of the manifestations of which is the growth of investment in financial technology, as they seek, like other countries, to encourage investment in financial technology due to its significant role in generalizing and delivering financial services to various segments of society and enhancing financial inclusion. However, this trend remains weak due to the accumulation of many obstacles and difficulties related to the unsuitability of the business environment. The study came out with the following results and recommendations:

Study results:

✓ The use of financial technology facilitates and speeds up financial transactions, which contributes to their access to all segments of society at the lowest cost, which enhances financial inclusion.
✓ Financial inclusion contributes to enhancing financial stability, economic growth and achieving sustainable development.
✓ The level of financial inclusion in Arab countries has recorded the lowest levels in the world, as the percentage of adults who have an account with financial institutions has reached 20% of the total, which is a lower percentage compared to its rates in other countries.

Study recommendations:

➢ Benefit by applying modern technologies in the field of financial technology, such as providing digital financial services, and working to provide an appropriate legal and legislative environment that enables the promotion of financial inclusion, especially in Arab countries.
➢ Inclusiveness Finance is a strategic axis that helps integrate all categories into the formal financial sector.

➢ Achieving greater innovation in fintech by providing an environment that is conducive to compliance with financial rules and greater confidence in the financial system.

➢ To improve Technological infrastructure would contribute to strengthening the financial infrastructure and leveraging information and communication technology in the financial field to deliver financial services to financially excluded individuals.

Bibliography

1. Board, T. F. (2017). The Financial Stability Board Report, Financial Stability Implications From Fintech.
2. kaji, Sahoko. (2021). the economics of fintech,. tokyo, japan: springer.
3. Islamic economics,Islamic Financial Technology: A Regulatory Vision towards Modern Digital Banking. College of Sharia and Islamic Studies: Kuwait University.
4. Al-Ajaj Fatima Al-Zahra, succeeds Samia. (2023), January. Uses of financial technology in light of the Corona pandemic and the extent of its contribution to enhancing financial inclusion in Algeria. Journal of Economics and Management Research, Volume 04, Issue 01.
5. Adel Abdel Aziz alsin,The role of financial inclusion in achieving economic stability and growth. League of Arab States: p. 70.
6. Al Arabi Mustafa, Dahinin Ahmed. (2022). Islamic financial technology is the gateway for Islamic banks to achieve financial inclusion and adapt to the Corona pandemic (An analytical study of some models of Gulf Islamic banks. Journal of Economic Integration, Volume 10, Issue 03.
7. Arab Monetary Fund. (2019). Arab Financial Stability Report.
8. Council of Governors of Arab Central Banks and Monetary Institutions. (2015). Requirements for adopting a national strategy to enhance financial inclusion in Arab countries. United Arab Emirates: International Monetary Fund.
9. Amarouche Khadija Aman. (2022). Drivers of FinTech Startup Growth in North Africa. . Al-Mudabbar Journal, Volume 09, Issue 01.
10. Ahmed's Bazaar,Sadakawi Suriya, Ben Ayousha Rafika. (2021), April. Financial technology and enhancing financial inclusion in light of the Corona virus pandemic, M, . Journal of Economics and Environment, Volume 04, Issue 01.
11. Happy Harfoush. (2019). Financial technology is a promising industry in the Arab world, University of Djelfa, Scientific Horizons Journal, Volume 11, Issue 3.
12. Zarqata Wahiba, Maryam's guarantor. (2023). The Reality of Financial Technology in the Arab World and Its Role in Promoting Financial Inclusion. Journal of Economics and Management Research, Volume 4, Issue 1.
13. Saadouni Mohamed Mahrous. (sd). Financial inclusion and its impact on achieving sustainable development goals. Menoufia University: Faculty of Law.
14. Ben Bouzid Suleiman, Ben Salim Mohsen, Ezz El-Din Fouad. (sd). The role of financial technology in achieving economic take-off in Algeria. (K.G. Algeria, Artista) University of Mohamed Cherif Messaadia, Souk Ahras.

15. Tough, fat. (2021 Boulsnam Mohamed, December). The role of the fintech industry in promoting financial inclusion. University of Tissemsilt.
16. Gold detachment. (2023). An Analytical Study of the Opportunities and Risks of Financial Technology on Financial Stability. Journal of Finance and Business, Volume 8, Issue 1.
17. Nadia's pants(2021). December The Reality of Financial Inclusion in Arab Countries and Mechanisms for Enhancing It, Journal of Economics and Management Research. Volume 02, Issue 02.
18. Nasira's eyebrows, Rabah Braish(2022). December. Use of FinTech Technologies in the Islamic Financial Industry - A Case Study of OIC Countries. Annals of Guelma University of Social and Human Sciences, Volume 16, Issue 02.
19. Source : Fintech Q1, (2022). Report, ABN ARMO venture, dealroom.com,april 2022.
20. Nice,. (sd). The role and importance of financial inclusion in Algeria and sustainable development - an analytical study of financial inclusion indicators in Algeria and Arab countries. Al-Manhal Economic Journal, Volume 05, Issue 01, p. 599.
21. Nafeh Madhat. (2025). February. How can financial innovation help address global crises?. Tratto da https://futureuae.com/ar-AE/Mainpage/Item/7658/
22. https://www.statista.com/statistics/719385/investments-into-fintech-companies-globally/
23. https://www.alhurra.com/business/2022/09/18/