



THE ROLE OF FINANCIAL DIGITIZATION IN ENHANCING DIGITAL FINANCIAL INCLUSION IN IRAQ (REALITY AND CHALLENGES)

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Article history:	Abstract:
Received: 11 th November 2024	The research examines the impact of financial digitization and information and communication technology on digital financial inclusion. The article focuses on three main areas, including the development of digital financial services and the enhancement of financial inclusion in Iraq, as well as the analysis of financial digitization indicators and financial inclusion in Iraq.
Accepted: 10 th December 2024	The digital transformation and the revolution in information and communication technology have led to the development of financial services by enhancing access for various segments of society and including them in financial services such as bank accounts and electronic payments through bank cards or digital wallets, among other financial services that have rapidly spread in recent years. This provides customers with increased diversity in products and services and a continuous reduction in costs due to the competition between traditional financial service providers and new non-traditional entrants. Additionally, it enables financial institutions to accelerate and enhance financial inclusion initiatives thanks to the ease of use, flexibility, cost-effectiveness, and security of mobile technology, all at a faster and lower cost. Financial digitization has enabled financial institutions to develop and deploy application-based banking services that encompass a more diverse customer base and new collaboration opportunities with both banking and non-banking companies.

Keywords: Financial Inclusion, Financial Digitization, Financial Technology.

INTRODUCTION:

Financial digitization has provided a new form and character to the banking industry, enabling banking institutions to expand access to financial services to other sectors and make wise financial decisions. On the other hand, financial inclusion focuses on ensuring access to financial products and services such as bank accounts, transfer and payment services, financial consulting, credit facilities, etc., for vulnerable groups, which has been achieved through the development of banking technology. Digital financial inclusion includes a variety of financial services, such as mobile payments, online loans, online insurance, etc. It has expanded the coverage of online financial services and created a robust financial system, especially in underdeveloped areas with scarce financial resources. In addition to identifying customer information through data, reducing potential credit discrimination by traditional financial institutions against low-income groups, and improving the finance industry's ability to manage risks. Therefore, digital financial inclusion can provide more convenient and effective services. This research will present a discussion on financial digitization issues and their impact on enhancing financial inclusion. The discussions will also address the main benefits and risks of the broad shift by monetary policy in Iraq towards digital financial inclusion.

RESEARCH METHODOLOGY

First: Research Problem: Despite the developments witnessed in banking operations due to the use of financial digitization, some challenges still hinder the future of financial inclusion in Iraq. These include the quality of the service provided, which is linked to the financial service provider on one hand and the technological service provider (internet, applications) on the other hand. Additionally, there are challenges related to maintaining information confidentiality and cybersecurity, as well as the high costs of financial transactions resulting from the shift to digital financial payments as part of the government's policy.

Secondly: Research Hypothesis: The research is based on the following hypotheses:

- The introduction of technological technologies in financial transactions has significantly contributed to enhancing financial inclusion and the development of financial services provided by banking and non-banking institutions.



- There is a complementary relationship between digital financial inclusion and financial digitization.

Third: Research Objectives: The main objectives of the study are as follows:

- Understanding the reality of financial digitization in Iraq and its challenges, particularly regarding security, trust, and costs.
- The extent of the community's response to the central bank's measures towards financial inclusion.
- Statement on the role of electronic payment methods in enhancing financial inclusion in the Iraqi banking sector.
- Introduction to digital financial services and financial inclusion.

Fourth: Importance of the Research: The importance of the research lies in the wide attention that digital financial inclusion has received in the global economy in general and the local economy in particular, due to the diverse financial services it offers, the ease of access to these services, and the elimination of previous financial exclusion.

Fifth: The temporal and spatial framework of the research: The research includes monitoring the development of financial inclusion for the period (2017-2023) in Iraq.

Chapter One / Theoretical Framework

The first requirement: financial digitization

Financial digitization is bringing about radical changes in the traditional model of financial service delivery. The provision of financial services by banking and non-banking institutions through the use of communications, the internet, and mobile phones, as well as the dissemination of platforms and applications that offer financial services including loan granting, money transfers, and payment processing, whether linked to a bank account or not, and the provision of customer support services around the clock, which improve in effectiveness and efficiency over time, has clearly contributed to the development of banking operations and the ease of accessing financial and banking services (Muyanja-Ssenyonga, 2020).

First: The concept of financial digitization:

Financial digitization is defined as financial innovations using technology that can create new business models, applications, processes, or products with a tangible impact on financial institutions and the provision of financial services. It is also defined as a set of financial services and products offered to individuals and companies, into which technology is integrated, thereby developing traditional financial services to obtain advanced services and products more quickly, easily, and at a lower cost. (Zainab Haman, 2024, p. 10) Financial technology was defined by the Basel Committee on Banking Supervision as "any technology or financial innovation that results in a new business model, process, or product that impacts markets and financial institutions." Financial technology is also defined as an invention that helps eliminate old financing habits, which required investors to approach local banks for credit. Instead, it has led to smarter technology, enabling crowdfunding in a much easier way, allowing for quick and low-cost money collection worldwide. This would have been impossible without the development of financial information technology, which has shortened the time and distances needed to start businesses. From the above, it can be said that financial technology refers to companies that use technology to make financial systems more convenient and advanced, and to provide financial services more efficiently and effectively. It is not limited to specific sectors but covers the entire range of services and products typically offered by the financial services industry.

Secondly: Advantages of financial digitization

There are many opportunities offered by the use of financial technology that can be beneficial to customers, the most important of which are (Ibtisam Ali Hussein, Shatha Abdul Hussein, 2020):

1. Saving time, saving effort, reducing costs, and easy access around the clock And the spread in multiple places.
2. Improving the relationship between the bank and customers, as the speed of electronic transfer operations and their low cost ensure customer satisfaction and increase their trust in banking transactions.
3. Re-engineering banking systems to ensure accuracy and reduce costs.
4. Developing methods for banking supervision.
5. Improving the bank's competitive position.
6. Achieving the element of speed in execution.
7. The use of advanced systems in the bank's operations and the reduction of paperwork, which is reflected in decreasing reliance on paper forms, traditional checks, and other paper transactions.
8. Providing security and confidentiality of information to different parties.

Third: Challenges of financial digitization

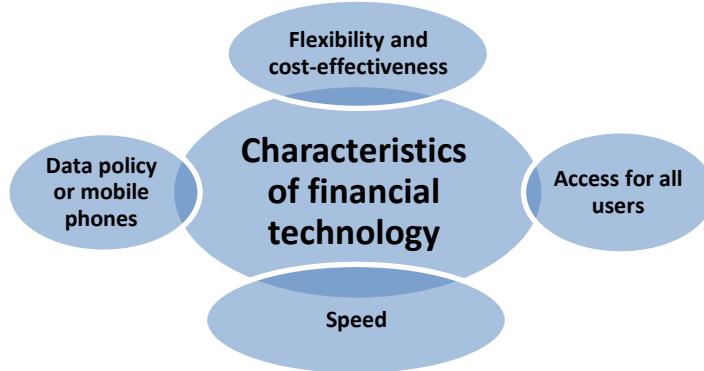
As for the main challenges of using financial technology, they lie in the following:

1. The difficulty of obtaining high-speed internet service in some places and for some users due to its high cost, which poses an obstacle to communication between electronic payment systems on mobile devices.



2. The lack of trust in using electronic transactions leads to many individuals being either supportive or opposed to their use, with a preference for dealing with the national currency in paper form.
3. The lack of necessary skills to use the service.
4. Social and cultural challenges, as the lack of awareness among individuals regarding modern technology and its benefits is one of the most prominent obstacles hindering the development of electronic banking services.
5. Some customers prefer to communicate with bank employees to receive service directly.

Figure (1) Characteristics of financial technology



Source: Based on the researcher's work relying on Zainab Haman, Digital Financial Services as a Mechanism to Enhance Financial Inclusion (A Study of International Experiences: UAE, India, Algeria), a thesis submitted to fulfill the requirements for an Academic Master's Degree, Faculty of Economic, Commercial, and Management Sciences, Mohamed Boudiaf University, Academic Year: 2023-2024.

The second requirement: digital financial inclusion

First: The concept of digital financial inclusion

Financial inclusion refers to the availability or use of all financial and banking products and services at reasonable costs for the largest number of communities and individuals, especially those with low incomes. Thus, it is the opposite of financial exclusion, which means that individuals are unable to access or use the prevailing financial services in the market that meet their needs and enable them to live a normal social life. Financial inclusion also means the generalization of financial and banking services to the largest number of individuals, communities, and public institutions, and benefiting from them.

The advancement in digital financial inclusion holds immense potential to facilitate the provision of effective, affordable, convenient, and accessible financial products and services for low-income individuals. This progress also has the potential to improve access to financial services in underdeveloped areas and enhance the effectiveness of financial services for the real economy (Wenzi Xia, Yingdong Wangb, 2023, p.1). Providing affordable banking services to large segments of deprived and low-income groups, in the sense of unrestricted access to public goods and services, is an indispensable condition for an open and efficient society. (Sundus Hamid Atiyah and Hassan Faleh Hussein, 2024, p. 95).

Secondly: The importance of financial inclusion

Given the challenges facing the global economy, the financial work environment requires banks to keep up with developments and challenges to maintain their market share. This can be achieved by innovating financial systems that provide diverse and required financial services to bank customers, reducing the time, effort, and cost of financial transactions. This is accomplished by expanding financial inclusion as a base for attracting and directing opportunities to all relevant parties, which contributes to enhancing the importance of financial inclusion and its role in improving the efficiency of the services provided by the banking sector. Additionally, it plays a role in boosting the country's economy, achieving economic development, spreading banking awareness, driving investment, directing credit, and encouraging community members to develop their activities and benefit from the services provided by the bank. Therefore, one of the most important functions of (digital financial inclusion) is to provide banking services with minimal effort and cost and to deliver them to those who deserve them. (Nawras Ali Mardan Alasadee, 2024, p. 94).

Third: The essential components of digital financial inclusion: (Iftikhar Muhammad Manahi, 2020, p. 42)

1. Enhancing and developing the financial education and literacy system for the human element: Financial literacy is considered one of the pillars of the national strategy for financial inclusion, which central banks are working



on to expand the base of access to financial services and products. There has been an increased interest from economic and monetary policymakers in enhancing and developing the financial education and literacy system and including financial services for various segments of society and all its institutions.

2. Infrastructure Development: Infrastructure is a fundamental requirement in ensuring the security and availability of financial services. The design and construction of electronic payment and transfer systems by central banks ensure that financial services reach those who need them, especially through mobile payment systems. This allows individuals, businesses, and others to pay their dues or obligations, as well as to send and receive payments and transfer money at lower costs.
3. Developing digital financial services and products and making them available to individuals and institutions, as central banks seek to stimulate the financial sector, especially banks, to promote financial literacy and enhance financial inclusion by expanding networks for providing financial services, establishing branches or small offices to finance micro-projects, and increasing the number of ATMs, in order to make financial services accessible and available to all segments of society while developing electronic payment systems.
4. Enhancing Financial Consumer Protection Financial consumer protection is one of the pillars of achieving financial inclusion. Central banks should establish a special department for financial consumer protection that prepares a plan in line with international rules and standards, characterized by fairness and transparency, using mechanisms that ensure all customers receive their rights. The application of financial inclusion principles without appropriate financial consumer protection may lead to negative outcomes that harm consumers' interests, as some financial institutions exploit the conditions of marginalized and financially excluded groups by imposing excessive conditions and increasing their financing costs.
5. Achieving a balance between the innovative financial products and services offered by the banking sector (digital electronic products and services) and the demands of individuals and institutions for those products and services, ensuring they are suitable for the incomes and needs of different societal groups in general.

Fourth: Obstacles to the spread of financial inclusion

Despite the support from international institutions and government authorities for the financial inclusion project, there are challenges that prevent the widespread adoption of financial inclusion at the desired level. Of course, these challenges vary according to the characteristics of each country, which can be presented as follows: (Nahla Abu Al-Ezz, 2021, p. 348).

1. The number of financial service providers: The number of financial service providers decreases in areas that are far from cities.
2. Availability of infrastructure and technology: Infrastructure and technology contribute to providing the service as well as offering suitable alternatives for rural areas.
3. The participation of the private sector, provided that rules are established for dealing with it by regulatory authorities.
4. The extent to which financial service providers understand the spread of financial inclusion, in addition to understanding financial services themselves and their personal ability to convey that knowledge.
5. Financial literacy: It is considered one of the main challenges, especially among residents of rural areas and informal settlements.
6. Inflation rate: It represents the inability of the population to save in the case of the economy achieving double-digit inflation, along with its effects on the real interest rate and the continuous loss in the value of money, which leads savers to seek other non-banking methods to achieve gains.
7. The poverty rate in society: There is an inverse relationship between the increase in poverty rates and the extent of financial inclusion. In more needy communities, individuals struggle to provide basic necessities and often do not require financial transactions.
8. The existence of a non-competitive wage system: A large segment of the workforce in the public, private, and informal sectors in developing countries is classified into low wage levels, which places them in the financially excluded categories.

Figure (2) Requirements for implementing financial inclusion



Requirements for implementing financial inclusion

Automation
of financial
and banking
services

Financial
education

Development
of financial
and banking
services and
products

Consumer
financial
protection

Financial
infrastructure

Enhancing
the diversity
of financial
institutions

Source: From the researcher's work.

Fifth: The challenges facing financial inclusion

1. Restrictions: In every payment system, there is a limit regarding the number of transactions you can make in a single day and the maximum amount you can withdraw.
2. The need for internet access: When you don't have an internet connection, you can't manage your account online.
3. Risk of hacking: The electronic payment system can be hacked at any time if a strong security system is not in place, and the information of electronic payment users can also be compromised.
4. False identity: There is no way to verify whether the person entering information online is the same person they claim to be. Unlike physical transactions, the individual is not present in person, and their identity has not been verified using a photo or physical signature.

Chapter Two: The Scientific Aspect of the Study

The first requirement: Financial inclusion in Iraq

Digital financial inclusion is a response to technological advancements in the financial sector, encompassing all electronic financial services and products, including financing, investment, payment, insurance, and financial information provided through digital channels. On the other hand, digital inclusion offers numerous benefits to the government, individuals, institutions, and the economy, as it provides a platform for the government to increase its total tax revenues resulting from the growth of financial transactions, as well as enhancing GDP growth by expanding access to credit facilities for individuals and institutions. It is expected that the use of credit facilities will lead to an increase in GDP. (Al-Smadi, p 462) The development of mobile banking, agent banking, artificial intelligence, blockchain, and digital currencies These developments have changed the way financial inclusion is achieved, and more changes will emerge in the future. As the global economy has become more digital, investment in technology is growing, the automation of financial services is increasing, data usage is rising, and cash usage is declining. (Ozili, Peterson, 2023, p4) These developments will play a key role in driving inclusive growth and reshaping the financial sector, and they will have implications for the future of financial inclusion.

The accelerated use of digital financial services requires financial institutions to change their strategies and adapt their methods of service delivery, in addition to building a more dynamic and competitive market. The way banks deal with new opportunities arising from technological advancements and their handling of potential threats will be crucial for their survival in the future. (Mateus Feld, p87).

Financial digitization in the world of banking has contributed to raising the level of banking financial services and improving the quality of delivering these services in a way that achieves customer satisfaction. This is done by adopting a project to introduce electronic payment methods as a source of financing at the required time for all customers, with the aim of raising the standard of living and enhancing economic development. Therefore, the broader the base of financial inclusion, the wider the search for developing modern financial tools that primarily rely on the internet, which helps reduce the percentage of individuals and institutions without bank accounts and encourages them to use new financial methods that are more beneficial. This plays a significant role in enhancing the competitive edge of the Iraqi banking sectors. (Nawras Ali Mardan, p. 93). Financial digitization can also lead to increased financial inclusion and the expansion of financial services to non-financial sectors. Additionally, digital financial inclusion improves the efficiency of financial services and increases the basic services available to individuals, as well as enhancing the business environment



for banks by reducing customer waiting lines, minimizing paperwork and manual tasks, and enabling them to operate with fewer physical branches. (ThangarajRavikumar, 2019, p. 3435).

The Iraqi government, through the Central Bank of Iraq, has begun to develop financial and banking transactions and transition to the era of financial digitization and achieving financial inclusion through the reform project of the salary payment mechanism for employees of institutions and state departments as a first step. This is for two reasons: first, the state's control over the salary payment mechanism for employees, and second, the significant proportion of employees in the country's economy. Perhaps the first steps in this regard were the issuance of the Electronic Money Payment System No. 3 of 2014 and the legal regulations and instructions that govern the work of banks and electronic payment service providers. This was followed by Cabinet Resolution No. 313 of 2016, which included the transition of the salary payment system to an electronic system, and Cabinet Resolution No. 281 of 2017, which included the start of the project. This project aims to pay the salaries of state employees through cards issued by banks operating in Iraq, in order to reduce the overall cost of the salary payment process and keep cash within the banking system. This is achieved by opening bank accounts for employees, enabling them to use all ATMs and point-of-sale systems both inside and outside the country, as well as benefiting from all other banking services provided by banks. Additionally, using cards offers security instead of keeping cash. (Central Bank of Iraq).

The Central Bank of Iraq has undertaken a financial inclusion program and the transition towards providing digital services through a series of measures aimed at achieving this goal, in order to increase the number of people within the financial system and shift towards electronic transactions instead of cash transactions. Therefore, financial inclusion is directly related to financial digitization. (Hassan Karim, Amal Hussein, p. 2182) The Central Bank of Iraq launched its strategy for the years 2016-2020 in conjunction with Iraq facing an economic and financial crisis due to the global decline in oil prices, and a security crisis represented by the occupation of large areas of the country by terrorism, which entails high military costs. The strategy outlined a clear roadmap of objectives and policies for the next five years, while Iraq's economic situation at that time was complex and fraught with risks, confusion, and chaos.

The Central Bank's strategy outlined and paved the way for banking reform according to five main objectives, the first of which was to support and achieve financial stability, from which five objectives were derived, the most important of which is enhancing financial inclusion in Iraq. (Central Bank of Iraq, Strategic Plan 2016-2020, p. 5) The most important executive and procedural steps taken by the Central Bank during the implementation period of the first strategic plan can be identified as follows:

1. The necessity of following all procedures that enhance the fight against money laundering and terrorist financing, and using all the required methods and procedures to verify the sources of funds and continue the fight against money laundering and terrorist financing in accordance with the Anti-Money Laundering and Terrorist Financing Law No. 39 of 2015. (Iraqi Facts, Issue No. 4387, 2015).
2. Working to encourage and stimulate financial inclusion processes and attempting to increase its rate in Iraq by adopting the salary localization project, which is a step to reduce cash usage.
3. The central bank, banks, and electronic payment companies possess advanced payment systems.
4. Granting work licenses to electronic payment service providers.

The central bank's direction towards financial inclusion has made it ready to adopt all means that lead to the expansion of electronic transactions in banks, which in turn leads to achieving stability and positive changes in the economy in general and the banking system in particular, through the following: (Ibtisam Ali Hussein, p. 53).

1. Building a digital economy as the foundation for launching new digital projects based on financial digitization, and utilizing information and knowledge in managing those projects.
2. Reducing the phenomenon of hoarding, which has become a threat to the national economy still suffering from a series of imbalances, and thus, adopting financial digitization and establishing electronic payment systems will facilitate the entry of money into the banking market.
3. The Iraqi banks' keeping pace with global developments, especially in the field of electronic banking services, facilitates their integration into the global economy and attracts foreign investment.
4. Reducing costs by cutting the expenses incurred by banks in providing services and establishing new branches in different areas, especially since Iraq has a large area and an online presence can handle reaching a large number of customers and providing good and diverse services at a lower cost, in addition to the possibility of marketing banking services.
5. Enhancing Transparency: The use of the internet in Iraqi banks serves as a media window to enhance transparency by introducing these banks, promoting their services, and announcing developments in financial indicators to make them available to researchers and other concerned parties.

Electronic payment tools in Iraq are diverse, and perhaps the most important among them are the following:



- Credit cards:** Cards are the most common type of electronic payment for online transactions. Credit and debit cards are among the available payment options; however, credit cards are the most common payment method for online purchases, with Visa and MasterCard being the most popular credit cards.
- The electronic wallet:** A form of prepaid account that stores the user's financial data, and it is a type of online payment service that helps customers cover online payments.
- Mobile payment:** It is one of the fastest types of electronic payment systems because you only need to download an app and then enter your credit card information to start making payments, after which the payments are processed immediately. (Hussein Reda Mahdi, p. 3).

The second requirement: Analysis of digitalization and financial inclusion indicators in Iraq

As previously explained, financial digitization means using modern technology in the financial and banking services provided, while financial inclusion represents the level of use of financial services by individuals in the community and their possession of bank accounts, which reduces the rates of financial exclusion. Therefore, it is possible to achieve financial inclusion without resorting to modern financial technology and relying on opening traditional bank accounts for individuals in the community, in a way that increases the number of bank accounts and reduces the rates of financial exclusion. However, this will increase the burdens on account holders, especially in light of the government policy that has shifted salary payments to the employee's account instead of the previous cash payments. This means that the employee has to bear the costs of traveling to the bank to withdraw their money. Therefore, it was necessary to introduce technology in financial aspects to achieve financial digitization in banking services. Thus, the research begins by reviewing some indicators of digitization that contribute to enhancing financial inclusion.

First: Analysis of Digitalization Indicators

Achieving financial inclusion and ensuring that individuals in the community have access to financial services depends on two important elements: mobile phones and internet service. The mobile phone is the most commonly used device by individuals, and when linked to internet service, it will ensure the first step towards reaching community members, engaging them in required activities, providing services, and implementing financial and banking policies. Most financial and banking transactions (money transfers, buying, selling, opening bank accounts, subscribing to financial wallets, etc.) are currently conducted via mobile phones.

Table (1)
Teledensity in Iraq for the Period 2017-2023

Year	Number of mobile phone subscribers	Growth rate %	Population	Growth rate %	Teledensity per 100 people
2017	40,001,723	---	37139519	---	107.7
2018	39,150,741	-2	38124182	2.6	102.7
2019	39,671,125	1	39127886	2.6	101.4
2020	39,281,711	-1	40150174	2.6	97.8
2021	40,727,153	4	41190658	2.5	98.8
2022	44,146,973	8	42248883	2.5	104.5
2023	40,054,869	-9	43324018	2.5	92.5

Source: Based on the researcher's work relying on (Communication and Postal Statistics for the years 2017-2023 / Directorate of Transport and Communications Statistics)

* Teledensity: Total telephone lines / Population * 100

It is clear from Table (1) that the number of mobile phone subscribers during the study period approached the population of Iraq, and even exceeded it in more than one year, reaching its peak in 2022 with more than 44 million subscribers. The highest mobile phone density rate was in 2017, exceeding 107%, while the number of subscribers and the banking density rate decreased in 2023 to 92.5%. The high rates of subscribers were not only due to the spread of mobile phone usage in Iraqi society but also because there were multiple phone lines for each subscriber, in addition to a large number of lines that were abandoned by their subscribers but remained active. This continued until mobile phone companies, in agreement with the Ministry of Communications, decided to close the abandoned lines and resell them instead of issuing new lines. Furthermore, the procedures for registering lines, requesting identification documents, and taking hand and eye fingerprints contributed to organizing the purchase of new lines, which is evident in the decrease in the number of mobile phone subscribers from 44 million in 2022 to 40 million in 2023.

Table (2)
Number of Internet Service Subscribers in Iraq for the Period 2017-2023



Year	number of subscribers to the mobile internet service	Growth rate %	Number of internet towers	Growth rate %	number of subscribers to the optical access service	Growth rate %
2017	19,169,217	---	---	---	---	---
2018	15,297,411	-20.19	---	---	---	---
2019	19,406,438	26.86	18,276	---	79,126	---
2020	20,300,000	4.60	20602	12.72	100,000	26.38
2021	20,324,273	0.11	22,929	11.29	129,483	29.48
2022	20,548,838	1.104	27,021	17.84	165,174	27.56
2023	23,990,630	16.74	31,578	16.86	216,751	31.22

Source: Based on the researcher's work relying on (Communication and Postal Statistics for the years 2017-2023/ Directorate of Transport and Communications Statistics).

We notice from Table (2) the increase in the number of mobile internet service subscribers from 19 million in 2017 to nearly 24 million in 2023, with a subscription rate exceeding 59% of the population as shown in Table (3). There is also a continuous increase in the number of internet towers equipped to provide internet services to homes and institutions, in addition to the start of optical internet services provided by companies cooperating with the Ministry of Communications, where the number of subscribers to this service rose from 79,000 in 2017 to more than 216,000 in 2023. The increase in the number of internet service subscribers, whether on a personal level or for homes and institutions, significantly contributes to enhancing financial inclusion by increasing the community's access to digital financial services.

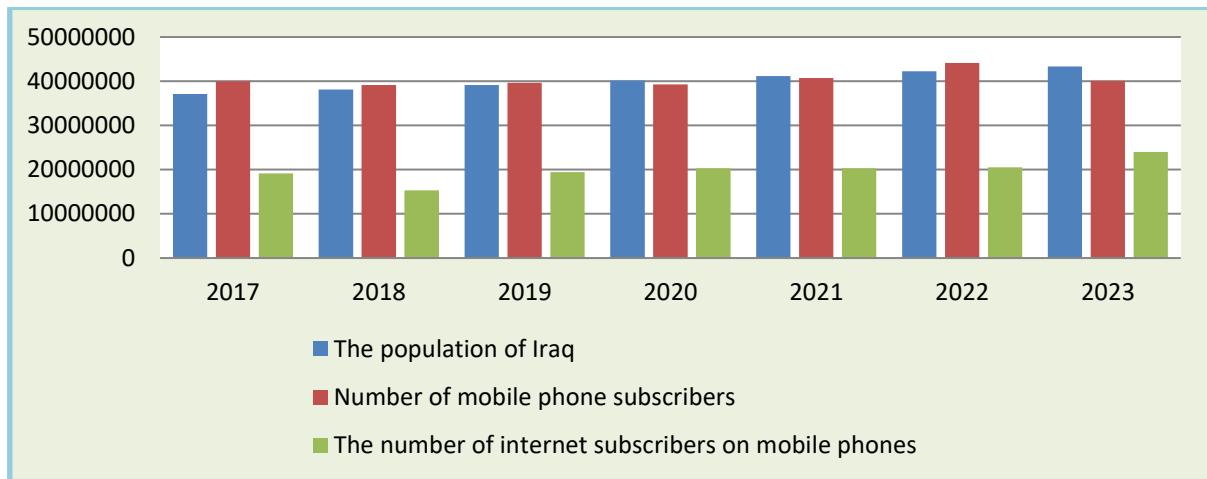
Table (3)
Percentage of Mobile Internet Subscribers in Iraq for the Period 2017-2023

Year	Number of mobile phone subscribers	The number of subscribers to the internet service on the phone	Percentage of mobile internet subscribers to the total number of mobile subscribers %
2017	40,001,723	19,169,217	47.9
2018	39,150,741	15,297,411	39.0
2019	39,671,125	19,406,438	48.9
2020	39,281,711	20,300,000	51.6
2021	40,727,153	20,324,273	49.9
2022	44,146,973	20,548,838	46.5
2023	40,054,869	23,990,630	59.8

Source: Based on the researcher's work using the data from Tables (1) and (2).

Plan (1)

The number of mobile phone and internet service subscribers relative to the population of Iraq for the period 2017-2023



Source: Based on the researcher's work using the data from Tables (1) and (2).

Secondly: Analysis of Financial Inclusion Indicators

The analysis of financial inclusion indicators is divided into two main categories (access indicators – usage indicators), which can be presented and analyzed as follows:

1- Access indicators: They represent the main pathway to achieving and enhancing financial inclusion by reducing the effort and time expended by individuals to obtain financial services. These indicators include the following:

A- Banking penetration index:

This indicator is one of the important criteria for measuring and determining the level of financial inclusion in the country, as it primarily relies on the number of bank branches spread across the country that aim to provide financial services to the public. Consequently, the indicator measures the rate of banking spread within Iraq, which is calculated by dividing the number of bank branches in Iraq by the population (per thousand people). The decline in this indicator during the study period is noted, from 2.26 for the years 2017-2019 to 2.01 in 2023. This is attributed to the population increase, which was met with a decrease in the number of operating banks in Iraq, which reached its peak in 2020 with 76 banks and a total of 904 branches in 2021. However, these numbers decreased to 70 banks and only 873 branches in 2023, leading to a decline in this indicator. This can be attributed to the closure of some banks due to local and international sanctions.

B- Banking density:

Banking density is considered a positive indicator of financial inclusion, which reflects the extent of easy and sustainable access to banking services and the spread of ATMs. It is calculated by dividing the population by the number of bank branches in Iraq. It is noted that the indicator has increased during the study period, which is a negative sign, as a decrease in this indicator is considered evidence of increased financial inclusion. Banking density rose from 44,056.3 people per bank branch in 2017 to 49,626.5 people per bank branch. Therefore, there is an inverse relationship between the banking density ratio and financial inclusion.

Table (4)
Banking Penetration and Density Index in Iraq for the period 2017-2023

Year	number of banks in Iraq	Number of bank branches	Population	Banking penetration index	Banking density index
2017	69	843	37139519	2.269	44056.3
2018	71	864	38124182	2.266	44125.2
2019	73	888	39127886	2.269	44062.9
2020	76	891	40150174	2.219	45061.9
2021	74	904	41190658	2.194	45564.8
2022	70	876	42248883	2.073	48229.3
2023	70	873	43324018	2.015	49626.5

Source: Based on the researcher's work relying on (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq)



C- Index of the spread of electronic payment services:

Electronic payment services are a fast and effective means of accessing financial and banking services. They also contribute to cost reduction. The Central Bank of Iraq is working to increase the spread of these services, including the number of ATMs, POS devices, and POC devices.

ATMs are considered one of the most important tools for electronic payment that contribute to integrating the largest number of individuals into the financial system, gradually eliminating cash transactions. This indicator is calculated by dividing the number of ATMs by (1000) km² of the country's area. (Sundus Hamid, 106) The significant increase in the number of ATMs is evident, rising from 656 in 2017 with the beginning of the implementation of the localization of state employees' salaries, to 4,021 in 2023, which raised the percentage of these devices to the country's area from 1.5% in 2017 to 9.2% in 2023. As for the number of these devices in relation to the population, it has increased from one device for every 56,615.1 individuals to one device for every 10,774.4 individuals. It is expected that these ratios will continue to rise with the ongoing efforts of the Central Bank of Iraq to enhance these services in order to achieve the goals of developing electronic payment systems and facilitating electronic financial transactions.

Table (5)
Spread of Electronic Payment Services in Iraq for the Period 2017-2023

Year	Number of ATM machines	Ratio to country area %	Ratio to population %	Number of POS	Ratio to country area %	Ratio to population %
2017	656	1.50	56615.1	918	2.10	40457.0
2018	865	1.98	44074.2	2,200	5.03	17329.2
2019	1,014	2.32	38587.7	2,226	5.09	17577.7
2020	1,340	3.07	29962.8	7,540	17.25	5325.0
2021	1,566	3.58	26303.1	8,329	19.06	4945.5
2022	2,223	5.09	19005.3	10,718	24.52	3941.9
2023	4,021	9.20	10774.4	23,066	52.77	1878.3

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

As for the indicator of the number of Point of Sale (POS) terminals, it provides easy access to financial and banking services in the shortest time and at the lowest cost, thereby contributing to increased sales, reduced risks, increased investment, and ease of auditing and monitoring (Mustafa Nizar, p. 71). The number of POS devices increased from 918 in 2017 to 23,066 in 2023, with a total growth rate of 2412%. As for POC devices, their numbers rose from 5,143 in 2017 to 17,610 in 2023, with an annual growth rate reaching 76% in 2019. This is due to the Central Bank's requirement for companies and banks to increase the number of these devices and provide them in public locations to achieve financial inclusion and enhance financial awareness and education for individuals and companies about the benefits of electronic banking services.

Table (6)
Growth Rate of Electronic Payment Services in Iraq for the Period 2017-2023

Year	Number of ATM machines	Percentage change %	Number of POS	Percentage change %
2017	656	-	918	-
2018	865	31.86	2,200	139.65
2019	1,014	17.23	2,226	1.18
2020	1,340	32.15	7,540	238.72
2021	1,566	16.87	8,329	10.46
2022	2,223	41.95	10,718	28.68
2023	4,021	80.88	23,066	115.21

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

2- Usage indicators:

A- Mobile Payment Index: This index illustrates the extent of the spread and use of mobile payment technologies. These technologies include digital payment applications and electronic wallets that allow individuals to conduct



financial transactions and send and receive money via their mobile phones. This index is important for financial inclusion as it contributes to providing easy and efficient access to financial services for various population groups. It is evident from Table 7 that the number of electronic wallets increased continuously during the study period from 222,442 to 4,980,427 between 2017 and 2023. The value of electronic payments also rose from 386 billion in 2017 to over 5 trillion in 2023, with a total growth rate of 1251% during the study period. Meanwhile, the number of electronic financial transactions increased from 1,036,374 to 13,193,417 during the period between 2017 and 2023.

Table (7)
Mobile Payment Index in Iraq for the period 2017-2023

Year	Number of e-wallets	Value of electronic payment via mobile	Number of transactions
2017	222442	---	---
2018	271,906	386,401,630,041	1036374
2019	403,797	858,128,080,350	2044931
2020	1,226,235	1,402,301,877,537	5192534
2021	2,107,265	913,356,442,254	3799149
2022	2,970,390	1,069,699,244,744	5483198
2023	4,980,427	5,223,005,486,519	13,193,417

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

B- Indicator of the number of electronic payment cards: Electronic cards play an important role in achieving financial inclusion by providing easy and secure financial means for money management. Electronic cards allow individuals to conduct payment and cash withdrawal transactions easily and securely, whether through ATMs or online, thus providing an easy way to handle and control money. The number of electronic cards increased from 6.3 million cards in 2017 to 19.7 million cards in 2023. In relation to the population, the percentage rose from 17.2% to 45.6% during the same period. This is attributed to the salary localization policy adopted by the Central Bank for the salaries of employees, retirees, and social welfare, as well as the transition of some public services and facilities to electronic cards for financial transactions in paying public fees and purchasing improved fuel.

Table (8)
Number of electronic cards in Iraq for the period 2017-2023

Year	Number of debit cards	Number of credit cards	Number of prepaid cards	Number of electronic payment cards	Ratio to population
2017	127,594	15,158	6,234,553	6,377,305	17.2
2018	872,894	22,067	7,915,069	8,810,030	23.1
2019	1,460,891	38,883	9,006,951	10,506,725	26.9
2020	2,811,503	46,469	8,891,436	11,749,408	29.3
2021	5,083,997	50,927	9,771,370	14,906,294	36.2
2022	5,430,434	61,320	10,711,017	16,202,771	38.4
2023	6,484,402	126,491	13,143,336	19,754,229	45.6

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

C- Bank account ownership index: Opening bank accounts is considered one of the most important factors enhancing financial inclusion and benefiting from traditional financial and banking services. Individuals can deposit and withdraw money, conduct financial transfers, and receive salaries and payments through their bank accounts. (Financial Stability Report, 2023). Table 9 shows an increase in the number of bank accounts in Iraq from 1.3 million accounts in 2017 to 13.2 million in 2023, with an annual growth rate reaching 101.58% in 2019. The increase in this indicator enhances financial inclusion in Iraq and contributes effectively to achieving financial stability.

Table (9) Number of Bank Accounts in Iraq for the Period 2017-2023

Year	Number of company accounts	Number of deposit accounts	Number of savings accounts	Number of current accounts	Total number of bank accounts	Growth rate %
2017	91460	20811	634280	614483	1,361,034	19.81
2018	101881	23202	731835	773759	1,630,677	86.40



2019	355904	83612	1446969	1153037	3,039,522	101.58
2020	470,074	186,036	3,489,040	1,981,826	6,126,976	9.30
2021	573,205	191,955	3,915,175	2,016,322	6,696,657	31.35
2022	655,828	226,223	4,999,188	2,914,652	8,795,891	51.09
2023	758,172	253,413	7,699,596	4,578,151	13,289,332	19.81

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

3- The costs of financial inclusion in Iraq

The costs of electronic financial transactions are the most significant challenge facing the enhancement and development of financial inclusion in Iraq. Despite the instructions issued by the government and the central bank to provide some free services aimed at encouraging community members to adopt financial inclusion and promote its transition, the withdrawal fees for salaries (for employees, retirees, and beneficiaries), which constitute the most important part of the financial inclusion program, remain high when done through traditional outlets or ATMs. These fees reach (0.006) for withdrawals from private outlets and (0.003) for withdrawals from ATMs, due to the limited number of bank branches. In addition to the banks charging extra commissions from individuals who have their salaries deposited, resulting from each deposit of 1000 dinars into their accounts, which creates financial burdens on bank customers, some amounts received by banks and electronic companies issuing bank cards can be estimated as shown in Table 10. Banks and electronic card management companies with private outlets achieved annual profits ranging between 461 billion dinars in 2019 and 442 billion dinars in 2023. This constitutes the main challenge for individuals in the community to shift towards using electronic financial services.

Table (10)**Costs of Financial Inclusion in Iraq for the period 2017-2023 (Iraqi Dinar)**

Year	Costs in case of withdrawal from outlets	Costs in case of withdrawal from ATM	Costs of depositing salary into the card
2017	286,134,492,000	143067246000	---
2018	306,013,932,000	153006966000	---
2019	361,977,498,000	180988749000	10000000000
2020	338,791,014,000	169395507000	19000000000
2021	368,555,976,000	184277988000	40000000000
2022	410,385,102,000	205192551000	66000000000
2023	433,230,798,000	216615399000	93000000000

Source: Based on the researcher's work relying on the (Annual Statistical Bulletin – Financial Stability Report for the years 2017-2023 / Central Bank of Iraq).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions :

1. Financial digitization works on saving time and effort, reducing costs, and facilitating access to financial services, in addition to its role in developing methods of banking supervision.
2. The difficulty in obtaining high-speed internet service in some places and for some users due to its high cost poses an obstacle to communication between electronic payment systems on mobile devices.
3. Weak trust in using electronic transactions with a lack of necessary skills to use the service.
4. Financial inclusion leads to the development of digital financial services and products, making them available to individuals and institutions, and providing them to all segments of society along with the development of electronic payment systems.
5. The extent of the availability of infrastructure and technology is one of the significant challenges on the path to financial inclusion.
6. The percentage of mobile phone subscribers has risen to more than 90% of the total population, while the percentage of internet users has exceeded 59% of the total population in Iraq.
7. The decline in banking density and spread indicators in Iraq is due to the low number of bank branches, which are not proportionate to the population and the country's area.
8. The number of ATMs has developed during the study period, but it is still below expectations and what is suitable to enhance financial inclusion.



9. The increase in the number of electronic cards and electronic financial transactions during the study period and by significant percentages due to the policies of the Central Bank of Iraq.
10. The financial costs of financial transactions constitute the most significant challenge to enhancing financial inclusion in Iraq.

RECOMMENDATIONS

1. Promoting the use of financial technology as part of national strategies for financial inclusion to enhance financial awareness and knowledge among individuals.
2. Enhancing the use of financial digitization to contribute to the development of financial services provided by improving infrastructure and enhancing access to them easily and at low costs.
3. The necessity of organizing awareness campaigns to enhance customers' understanding of the benefits of electronic payment and how to use it effectively, which can be achieved through social media and workshops.
4. The necessity of enhancing geographical outreach by increasing the number of bank branches and financial service providers, as well as establishing access points for financial services such as bank agents, electronic payment points, ATMs, and others.
5. Promoting and supporting new innovations that reduce the costs of financial transactions or provide financial services more effectively.
6. Establishing a local telecommunications company that covers various areas to facilitate the provision of financial inclusion services to different segments of society, as well as protecting users' information and data.

SOURCES

1. Ibtisam Ali Hussein, Shatha Abdul Hussein, The Role of Financial Information Technology in Enhancing Financial Inclusion in the Knowledge Economy, An Exploratory Study at Al-Nahrain Islamic Bank, Journal of Management and Economics / Al-Mustansiriya University, Issue 124 – June 2020.
2. Iftikhar Muhammad Manahi Al-Rifai, The Role of the Central Bank of Iraq in Achieving Financial Inclusion, Al-Israa University College Journal for Social and Human Sciences - Volume 2 - Issue 2 - Year 2020.
3. The Central Bank of Iraq, the Strategic Plan 2016-2020.
4. The Central Bank of Iraq, Salary Localization Project, link: <https://cbi.iq/news/view/611>.
5. Hussein Redha Mahdi, The Development of Electronic Payment in Iraq, Central Bank of Iraq, Banking Supervision Department, 2024.
6. Zainab Haman, Digital Financial Services as a Mechanism to Enhance Financial Inclusion (A Study of International Experiences: UAE, India, Algeria), Thesis Submitted to Fulfill the Requirements for the Academic Master's Degree, Faculty of Economic, Commercial, and Management Sciences, Mohamed Boudiaf University, Academic Year: 2023-2024.
7. Samir Al-Nasiri, The Strategy of the Central Bank of Iraq (2016-2020): A Systematic Approach to Banking Reform, 2020, available at: <https://economy-news.net/content.php?id=18934>.
8. Sundus Hamid Atiyah – Hassan Faleh Hussein, Analysis of Financial Inclusion Indicators in Iraq for the Period (2014-2018), Journal of Kufa Studies Center – Kufa University, Issue 73, 2024.
9. Electronic Money Payment System No. 3 of 2014
10. Nehla Abu Al-Ezz, The Impact of Financial Digitization Technology on Financial Inclusion in the Banking Sector of African Countries, Journal of the Faculty of Political Science and Economics, Issue 10 - April 2021.
11. Muyanja-Ssenyonga Jameaba, Digitization Revolution, FinTech Disruption, and Financial stability: Using the Case of Indonesian Banking Ecosystem to highlight wide-ranging digitization opportunities and major challenges, Universitas Gadjah Mada (UGM) - Master Program in Public Policy and Administration, 5 Mar 2020.
12. Wenzhi Xia, Yingdong Wangb , Digital financial inclusion and quality of economic growth , Heliyon, 2023. p1, journal homepage: www.cell.com/heliyon.
13. Nawras Ali Mardan Alasadee, The impact of electronic payment methods in enhancing financial inclusion: An applied study in the Iraqi banking sector , Afro-Asian Journal of Scientific Research (AAJSR), Volume 2, Issue 1, January - March 2024.
14. Mohammad O. Al-Smadi, Examining the relationship between digital finance and financial inclusion: Evidence from MENA countries, Borsa _I stanbul Review 23-2 (2023) 464–472
15. Ozili, Peterson , The Future of Financial Inclusion, Published in Springer Book, titled: "Economic Inclusion in Post-Independence Africa: An Inclusive Approach to Economic Development" , 2023.
16. Mateus Feld, Tatiana Silva Fontoura de Barcellos Giacobbo, Wagner Eduardo Schuster, Technological progress and finance: The effects of digitization on Brazilian banking fees, EconomiA.



17. Thangaraj Ravikumar , Digital Financial Inclusion: A Payoff of Financial Technology and Digital Finance Uprising in India, Article in International Journal of Scientific & Technology Research • November 2019, INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH VOLUME 8, ISSUE 11, NOVEMBER 2019.