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The role of financial technology in achieving financial inclusion in banks: presenting the experience of the central bank of Egypt for the period 2018-2023

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Abstract:

This research paper aimed to highlight the effectiveness of financial technology and its role in achieving financial inclusion in banks. It addressed the definition of the financial technology, financial inclusion and banks and their types, adding to the functions and objectives of the central bank in particular by adopting the descriptive approach. Besides, it adopted the analytical approach in presenting the development of the financial inclusion indicator and the contributions of the financial technology to the Central Bank of Egypt for the period 2018-2023. The results of this study showed that financial technology plays an important role as it comes with the ability to streamline the complex processes, and enables community members to access to all basic financial services, and achieving social and economic development.

Keywords: *Financial Technology, Financial Inclusion, Financial Inclusion indicators, Banks.*

ملخص

هدفت هذه الورقة البحثية إلى إبراز فعالية التكنولوجيا المالية ودورها في تحقيق الشمول المالي بالبنوك. إذ تطرقت إلى التعريف بالتكنولوجيا المالية، الشمول المالي، البنوك وأنواعها، إلى جانب وظائف البنك المركزي وأهدافه بشكل خاص باعتماد المنهج الوصفي، كما اعتمدت المنهج التحليلي في عرض تطور مؤشر الشمول المالي ومساهمات التكنولوجيا المالية للبنك المركزي المصري للفترة 2018-2023، وأظهرت نتائج هذه الدراسة أنّ التكنولوجيا المالية تلعب دورا هاما في التمكين من تبسيط العمليات المعقدة، وتمّكن أفراد المجتمع من الوصول إلى كافة الخدمات المالية الأساسية، وتحقيق التنمية الاجتماعية والاقتصادية.

الكلمات المفتاحية: *التكنولوجيا المالية؛ الشمول المال، مؤشرات الشمول المالي؛ البنوك.*

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1. Introduction:

Financial technology plays a major role in improving financial service and making it more efficient. It is continuously developing at a remarkable rate, and it also plays an important role in achieving the objectives of financial inclusion. Financial inclusion refers to the availability of financial services provided by financial technology to all members of societies, regardless of their income, geographic location, or social and economic status, and this includes access to payments, savings, credit and insurance, all of this can be achieved through the various services of financial technology. The significance of the study resides in defining financial technology and its various services and the role it plays in achieving financial inclusion in banks. In addition, the banks and their types, the financial inclusion and its measurement indicators are defined. In order to achieve the study, the descriptive approach was adopted in describing the research variables in the theoretical part, by reviewing articles related to the subject, and the analytical approach in reading and analysing the annual reports of the Central Bank of Egypt for the period 2018-2023 related to financial inclusion in the bank under study. Thus, the research paper's problematic can be formulated: **How can financial technology contribute in achieving financial inclusion in banks?**

Literature reviews:

- Study by N. Mahiout, **promoting the culture of financial technology for the non-banking financial sector as an attempt to achieve financial inclusion: presenting Egypt's experience as a model through Law No. 05 of 2022 concerning regulating and developing the use of financial technology in non-banking financial activities**, 2023, the study aimed to highlight the fact of financial technology for the non-banking financial sector and to underline the importance of this sector and its contribution to achieving financial inclusion. It employed the descriptive and analytical approach. The study concluded by urging the necessity to expand the share of the non-banking financial sector and coordinate between it and the financial banking sector by establishing legal frameworks that allow the institution of a partnership between them to develop their performance and achieve financial inclusion;
- Study by A. R. AL-Mansbae, **mechanisms for digitizing financial and banking services to establish digital financial inclusion: Adopting financial technology innovations as a mean**, 2022, the study aimed to highlight the extent of the contribution of financial technology and the role it plays in expanding the range of financial inclusion through the mechanisms, technologies and developments it has achieved that meet the needs of the entire society. It employed the descriptive and analytical approach. The study concluded that the interaction between the financial sector and various financial technology innovations and the practical solutions they provided restored confidence among financial traders, especially after the consequence of the global financial crisis in 2008.

2. Financial Technology:

2.1. Definition of financial technology: “these are products and services that use technology to improve the quality of conventional financial services. They are characterized by speed, ease, and low costs, and can be accessed by many individuals. In most cases, these services and products are developed by emerging companies (startups)”; (Z. Siyed Amar & others, 2020, p. 08)

The Islamic Financial Stability Board (IFSB) also defined it as: “those financial innovations based on the use of technology, which can create new businesses, whether they are modern applications, processes or products that have a substantial impact on financial markets and institutions and on the provision of financial services”;

According to **the Digital Research Institute: “**financial technology is the modern technological inventions and innovations in the financial sector, these inventions include a set of digital programs that are used in banks’ financial operations, which include transactions with customers and financial services such as money transfer, currency exchange, interest rate calculations, and knowing expected profits from investments and other banking operations”. (S. Ben Yeza & J Boukthir, 2023, p. 06)

2.2. Significance of financial technology: Among the benefits of financial technology are as follows: (M. Ben Alkama & Y. Sahihi, 2018, p. 08)

- Promoting financial inclusion, inclusive growth, and diversification of economic activity through innovations that help provide financial services to those who do not deal with the banking system;
- Facilitates the availability of alternative financing sources for small and medium enterprises;
- Achieving financial stability through the use of technology to ensure regulatory compliance and risk management;
- Facilitation of foreign trade and remittances of workers abroad by providing efficient and cost-effective mechanisms for cross-border payments;
- The use of electronic payment methods increases the efficiency of government operations, which requires further reforms to fill the gaps in the frameworks concerned with regulatory rules, consumer protection, and information security.

2.3. The ecosystem of financial technology: Fintech services impact financial institutions, regulators and customers across a wide range of industries, and new trends and needs related to the delivery of financial services have led to the development of an entirely new ecosystem. A service ecosystem can be understood as a structure in which actors participate in creating shared value and exchanging services. This system is of an extreme importance to ensure the creation of technological innovation and make financial services more efficient. It essentially consists of five elements: the government, traditional financial institutions, startups, customers, financial technology developers and experts. (A. Derradji & others, 2022, p. 04)

2.4. Phases of financial technology: All countries of the world are currently present in one of the development cycles of financial technology, which is: (S. Chaoui & others, 2020, pp. 04-05)

2.4.1. The update phase: Or the phase of ideas, most startups in the field of financial technology innovations are still in the initial stages, which is characterized by slow corporate financing, and entrepreneurs carefully deal with the laws and try to acquire as many customers as possible and establish partnerships;

2.4.2. The evolving phase: This is the stage in which emerging companies in the field of financial technology innovations are supposed to acquire a large customer base and high annual investment rates, as the strategic imperative to support emerging companies by the relevant authorities increases;

2.4.3. The advanced phase: Or the saturation phase, it is characterized by few deals and large sizes, as companies with high value appear here with annual investment rates but at a slow rhythm.

It should be noted that currently only the United States has reached the phase of saturation as it is a pioneer in the field of financial technology, in addition to parts of Europe, which include world-leading centres in the field of financial technology innovations.

2.5. Services of financial technology: Financial technology companies provide a wide range of financial services, including: (K. Talhi & N. Zuouadi, 2023, pp. 09-10)

2.5.1. Credit services: Credit is considered one of the innovations that expand the reach of economic actors to the supply of credit, and this may result in an increase in the total volume of credit or a shift in some economic actors' access to credit from non-conventional channels represented in the capital markets;

2.5.2. Payment services: It means the most active and flexible banking activities offered by financial technology to customers, by providing them a variety of payment methods (mobile phone, money transfers abroad, managing payment flows for e-commerce and currency exchange at no cost);

2.5.3. Investment and financing: Financial technology attracts individuals' savings by providing simplicity in the offers granted, and providing crowdfunding platforms for companies, whether in the form of loans or capital investment, as well as providing financial advice online to individuals;

2.5.4. Services for banks and companies: Financial technology offers many solutions in order to improve corporate management. We find some of them directed to banks, such as Block tech technique, which develops solutions based on blockchain technology, regarding transaction recording, processing information, risk management, tax management... etc;

2.5.5. Money transfer services: Financial technology transfers money across the world in a safe and fast way. It also provides insurance management services, insurance solutions, and services based on the Block tech digital chain such as encoded digital currencies;

2.5.6. Services provided to banks based on a large database Big-Data: It provides solutions directed to the banking sector by collecting and analysing a large database of information, which improves customer relationship management, purchasing behaviour, savings and financial solvency.

2.6. Opportunities of financial technology: There are many opportunities provided by the use of financial technology that can be benefited from customers and various financial institutions in general and banks in particular, the main of which are: (S. Abdel Hussein & others, 2020, p. 07)

- Financial technology is safer if it is used as an alternative to money;
- Saving time and effort, reducing costs, and being easily accessible around the clock and spreading in several places;
- Speedy delivery, trading and improved reliability of cash flow;
- Improving the competitive position of banks and financial institutions;
- Providing security and confidentiality of information to various parties;
- Improving the relationship between banks and customers, as the speed and low cost of electronic transfer operations ensure customer satisfaction and increase their confidence in banking;
- Re-engineering banking systems to provide precision and reduce costs;
- Developing methods of monitoring the work of banks, and reviewing data processing operations for all components of the electronic information system, including personnel, hardware, software, and database;
- Using advanced systems in the bank’s work areas and reducing paperwork, which includes reducing dependence on paper forms, traditional checks, and other paper transactions.

3. Financial Inclusion:

3.1. Definition of financial inclusion: Financial inclusion refers to the availability and use of all financial services for various segments of society, and its definitions differ according to various authorities as follows:

The Organization for Economic Co-operation and Development (OCDE) defines it as**:** **“**The process of enhancing access to a wide range of formal and regulated financial services and products at a reasonable and adequate time and price, and expanding the range of use of these services and products by various segments of society, through the application of innovative approaches that include awareness and financial education, with the aim of promoting financial well-being and social and economic inclusion”; (Y. Kassi & T. Meziane, 2022, p. 03)

As for Algerian Bank it defines it as**:** "Making available and using all financial services to various segments of society, including its institutions and individuals, especially those marginalized, through official channels, including bank and savings accounts, payment and transfer services, insurance services, and financing and credit services, and creating more appropriate financial services at competitive and fair prices, beside working to protect the rights of consumers of financial services and encouraging these groups to manage their money and savings correctly in order to avoid some resorting to informal channels and means that are not subject to any of the oversight and supervision authorities that impose relatively high prices, which leads to abuse the needs of these channels for financial and banking services. Financial inclusion is measured by what represents the supply side, its use, which is the demand side and the quality of those services, which merges the supply and demand sides". (M. Ben Aichouch & A. Hamou, 2023, p. 04)

The World Bank defines financial inclusion as: "access to useful and affordable financial products and services that meet individuals' needs for transactions, payments, savings, credit and insurance and are provided to them in a responsible and durable manner". (S. Hafifi & others, 2019, p. 03)

3.2. Objectives of financial inclusion: Financial inclusion is based mainly on supporting financial stability, which is its primary goal through the following: (O. Azaoui & T. Rifae, 2021, p. 10)

- Reinforcing the local capital base, thus reducing dependence on foreign capital flows and reducing the risks of external shocks;
- Improving the efficiency of the financial intermediation process between saving and investment by changing the structure of the financial system and counting on new products and transactions (digital financial innovation);
- Working to increase the share of the formal financial sector versus the informal sector in order to support monetary policy;
- Improved risk management and better distribution of it.

Adding to: (S. Rachid & others, 2022, pp. 32-35)

- Simplifying the understanding of financial inclusion, including the current state of digital finance;
- Highlight the impact of financial inclusion channels and programs they can provide, the adoption of technology around the world and opportunities for innovation to deal with financial inclusion challenges in developing countries;
- Explaining the best practices and lessons learned in designing innovative products, durable business models and impacting financial inclusion in terms of improving access, use and quality;
- Identify the main obstacles facing the private sector in developing and diffusing financial inclusion initiatives, and how policymakers and regulators can contribute to raising the level of financial inclusion solutions;

- Identifying the potential intentional risks posed by financial inclusion models, and identifying relative regulatory and supervisory approaches that enable financial inclusion initiatives to flourish in a durable manner;
- Enhancing the access of all segments of society to financial services and products, and informing citizens of the importance of financial services and how to obtain and benefit from them to improve their living, social and economic conditions to achieve financial and social stability;
- Promoting and protecting the rights of financial services consumers by preparing policies and instructions in particular and informing the dealers with current financial institutions of their rights and duties;
- Facilitating access to financing sources with the aim of improving the living conditions of the citizens;
- Facilitating the mechanisms of access and use of the target community groups to various financial services and products, by unifying the efforts of all parties participating in the strategy to inform the citizens of the importance of financial services and how to obtain them and benefit from them to improve their social and economic conditions;
- Encouraging the citizens to save and invest money in optimal ways, by preparing programs designed at different segments of society to enhance their culture of saving and investment, as well as stimulating competition between financial service providers to provide savings and investment products that suit different segments of society, for example the basic account program for every citizen;
- Reducing the gap in awareness or financial education among different segments of society through the cooperation of all parties participating in the strategy, and this can be done by enhancing educational curricula with financial awareness materials or topics, or by promoting various cultural awareness programs that deal with low cultural levels, as financial awareness programs must ensure that the future generation of children and youth are included in financial awareness and education campaigns;
- Reinforcing procedures to protect the rights of financial services consumers by preparing appropriate policies and instructions to ensure transparency and full disclosure of products and services and their terms and conditions to ensure fairness in dealing, also, current and potential dealers with financial institutions must be informed of their rights and duties, which include, for example, their right to obtain a copy of their financial credit reports that relate to them, giving them the right to object to their data, and informing them of the mechanisms and methods for submitting complaints against financial institutions and the procedures for following up and treating them;
- Reducing the risks of providers of financial services and products who operate outside the framework of the formal financial system and thus enhancing the capacities and capabilities of the formal system, and controlling the offer of financial services and

products in accordance with the principles, applicable legislation and international standards;

- Reducing the use of paper currencies and cash in exchange for the trend towards formal financial dealings through banking and legal sources, which are represented by many sources such as banks, accredited financial and banking authorities, mobile phone companies, and also civil associations that work with financing, as all of these parties can cooperate with the Central Bank in launching many banking services that help implement the financial inclusion initiative, by issuing many financial and banking services that serve all segments of society and accommodate low-income classes.

3.3. **Significance of financial inclusion**: The importance of financial inclusion is reflected in the extent of the development of the financial and banking sector, beside achieving growth, economic stability and social development, by achieving the following: (Hassini, 2020, pp. 06-07)

- Reinforcing economic development efforts;
- Reinforcing the stability of the financial and banking systems;
- Developing new innovations and services that suit society members;
- Reaching a greater number of segments of society;
- Enhancing individuals' ability to integrate and contribute to building their societies.

3.4. **Axes of financial inclusion**: The basic axes on which financial inclusion is based are as follows: (Kadem, 2023, pp. 05-06)

- Collecting financial products by providing formal, regulated, and affordable financial services;
- Managing the money effectively and planning to deal with any financial distress in the future;
- The use of financial products and services regularly and frequently;
- Designing financial services and products according to customer needs and with high quality;
- Partitioning the services in order to develop them for all segments of society;
- Effective regulation and oversight in order to ensure the provision of financial products and services in a financially stable environment.

3.5. Dimensions of financial inclusion: The financial inclusion includes the following basic dimensions: (Lakwes, 2023, p. 04)

3.5.1. Access to financial services: This means the ability to use financial services from formal institutions, as determining levels of access requires identifying and analysing potential obstacles to opening and using a bank account such as cost and proximity to banking service points;

3.5.2. Use of financial services: This means the extent to which customers use financial services provided by banking sector institutions, which requires collecting data on the regularity and frequency of their use in a given period;

3.5.3. Quality of financial services: The concept of financial inclusion has moved to the agenda of developing countries during the past 15 years, where access to financial services had to be improved, and it is an unclear dimension, as there are many factors that affect the quality and the kind of financial services (cost, consumer awareness, effectiveness of the compensation mechanism, adding to consumer protection services, financial guarantees, and transparency of competition in the market). Thus, the process of developing indicators to measure the quality of financial service is considered a challenge in itself.

3.6. Indicators of financial inclusion: There is a set of indicators and measurement tools approved and internationally recognized that are used to measure the level of financial inclusion, the main of which are the following: (B. Bel Abbes & others, 2019, pp. 09-10)

- Proportion of adult citizens who own a bank account (current/savings/deposit);
- Number of savings, current or deposit bank accounts (per 10,000 adult citizens);
- Proportion of adult citizens with any type of banking facilities;
- Number of bank facilities accounts per 10,000 adult citizens;
- Proportion of small and medium enterprises that own a bank account (current/savings/deposit);
- Proportion of small and medium enterprises with current financing;
- Number of adult nationals with insurance policies per thousand adult citizens, divided into life and other insurance;
- Number of beneficiaries of financial leasing services, both operational and ending with ownership;
- Number of people dealing with the financial market by gender during a specific time period and the volume of dealing;
- Number of access points (bank branches and offices, lending institutions, money changers, ATMs, points of sale, branches and offices of insurance companies, financial intermediate companies, financial leasing companies and other financial institutions... etc).

The indicators for measuring financial inclusion can be classified according to the above-mentioned dimensions, as shown in the following table: (Khemili, 2022, p. 05)

Table 1: Dimensions of indicators for measuring financial inclusion

Dimensions	Indicators
Access to financial services	Number of access points to services; Electronic money accounts;

	The extent of interconnection between service delivery point.
Use of financial services	Adults who have made a bank transaction; Adults with a regular credit account; Adults with insurance policyholders; Number of non-cash payment transactions; Number of phone payment transactions; High frequency of use of bank accounts; Holding a bank account; Transfers; Companies with official accounts; Companies that have current loans with legal institutions.
Quality of financial services	Financial knowledge; Financial behaviour; Transparency requirements; Conflict Resolution; The costs of using financial services; Credit obstacles.

Source: R. Khemili, 2022, page 05.

4. Banks:

4.1. Definition of Banks: "It is the organization that exchanges financial benefits with groups of customers in a manner that does not conflict with the interest of society and is in line with the continuous change in the banking environment";

Or: "It is a group of financial intermediaries that receive deposits that are paid upon demand, or for specific periods, and carry out internal and external financing operations and services in order to achieve the objectives of the development plan, state policy, and support the national economy"; (Al-Sayrafi, 2014, p. 13)

The definition of a central bank: the banking system in which there is one bank that has the entire authority to issue the money, and controls and regulates credit. (Y. Al-Samarrai & Z. Al-Douri, 2013, p. 24)

4.2. Significance of Banks: In general, the importance of banks is as follows: (Hassen, 2019, p. 24)

- Reducing the risk of the sharing economy on a single project;
- Contributing to the distribution of risks through diversification of investments, which makes it possible to enter into high-risk projects;
- Participation in long-term projects due to the large size of funds;
- Bank intermediation increases the liquidity of the economy by providing assets close to the money that generate a return, which reduces the demand for money;

- Providing financial assets with varied risks, different returns and different conditions to investors, which contributes to responding to the desires of all investors;
- Encouraging primary markets that invest and issue financial assets that individuals refrain from for fear of risk.

4.3. Objectives of Banks: The central bank's basic objectives are particularly focused on the following points: (F. H. Thuweini & K. Badji, 2016, pp. 01-03)

- **Achieving economic stability:** Changes in the price level must be limited and controlled;
- **Achieving economic growth:** by creating an appropriate environment by impacting the money supply, interest rates, and investment sizes;
- **Achieving a moderate balance of payments situation**: by working to avoid a deficit or surplus in the balance and stabilizing it;
- Achieving a high operational level.

4.4. Type of Banks: Banks can be divided according to many categories, including the following: (Mahmoud, 2019, pp. 15-16)

4.4.1. Banks according to their effectiveness: are divided into:

- **Deposit banks:** The French law of 1945 defined deposit banks as those banks that receive deposits from the public on demand or for a period not surpassing two years (they are characterized by their contact with a large audience of people);
- **Business banks:** These are the banks whose main activity is to participate and contribute to current projects or those in the process of being instituted and to open credits for an indefinite period for the public projects to which the subscription relates.

4.4.2. Banks according to their coverage: are divided into:

- **Banks with multiple branches:** These are banks whose activities include multiple regions of the country and have branches in the main commercial and industrial centres, and they play an important economic role as they receive the largest share of deposits and provide the largest share of credits and facilities;
- **Regional banks**: These are banks that limit their effectiveness to one city or one centre, and usually play the role of mediator between various customers and other regional banks.

4.4.3. Banks according to their relationship with the country: are divided into:

- **Public sector banks**: They are owned by the state and represent central banks;
- **Private sector banks**: They are owned by the private sector, whether in the form of individual projects, individual companies, or financial companies;
- **Composite banks**: They are owned by both the public and the private sector.

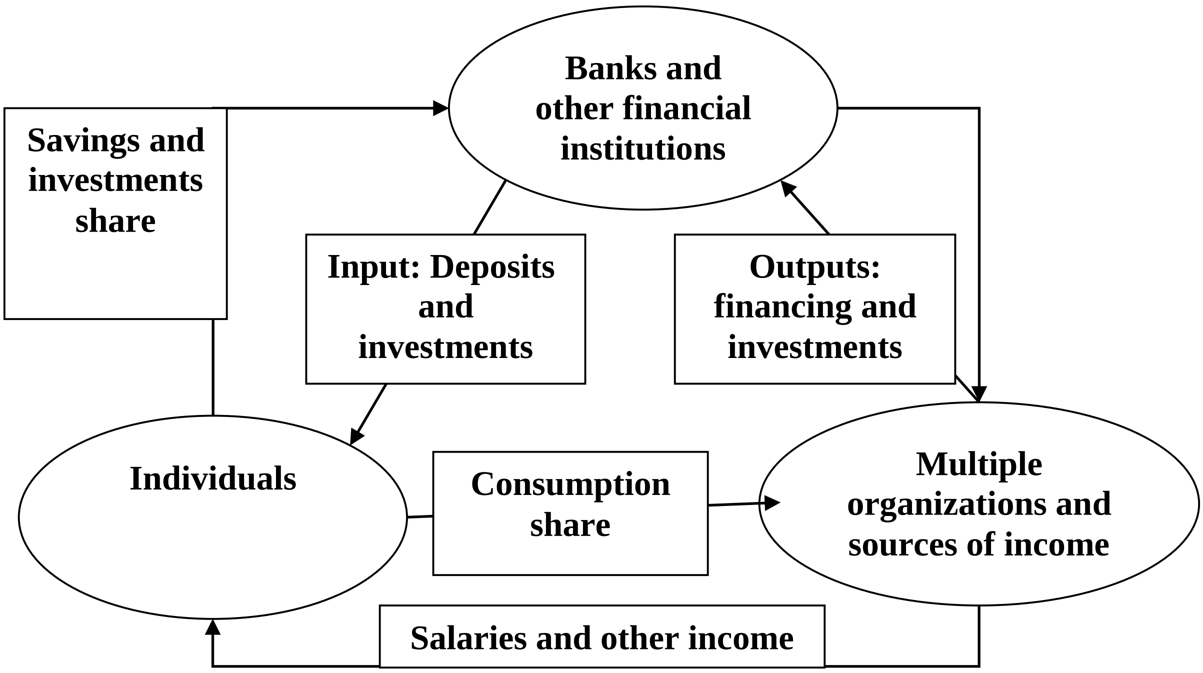
4.4.4. Banks by nationality: are divided into:

- **National banks:** These are banks that are owned by natural or statutory persons affiliated with the country in which these banks are located;
- **Foreign banks**: Their ownership is under the patronage of another country in which these banks are not registered;

- **Regional banks**: This type is owned by a number of countries in the region, such as the Arab Monetary Fund;
- **International banks**: These are banks deriving from international authorities such as the International Bank for Reconstruction and Development.

4.5. The role of bank in operating the financial system: The financial system refers to all the elements that make up the circulation of funds and their circulation among various parties, in order to achieve each party a set of goals that it seeks, by taking into account the surrounding factors, variables, and circumstances. The Figure 1 shows the role of banks in operating the financial system in society, and from the figure it is clear that the elements of the financial system are banks, other financial institutions, organizations and multiple sources of income, as follows: (Al-Maghribi, 2004, pp. 55-56)

Figure 1: The role of banks in operating the financial system



Source: A. A. Al-Maghribi, 2004, page 58.

4.6. Functions of Banks: There are many types and categories of banks, including commercial, central, Islamic and specialized, and the functions differ according to the bank’s character, we will focus on the functions of the central bank in this section due to the selection to presenting the experience of a central bank in the applied part, and its main functions are: (Mahmoud T. , 2022)

- Issuing legal banknotes under certain restrictions consistent with the need of transactions;
- Carrying out banking services for the government, which makes the central bank called the “government bank”;

- Performing banking services and providing assistance to commercial banks, so it is called the “Bank of Banks” in affirmation of this function;
- Managing the country's foreign currency reserves and monitoring foreign trade conditions for the purpose of contributing to the stability of foreign exchange rates;
- Monitoring credit quantity and quality and directing it to serve the established monetary policy.

5. The contribution of financial technology in achieving financial inclusion in banks:

5.1. The significance of financial technology in achieving financial inclusion in banks:

Financial technology seeks to expand the work of banks and microfinance institutions to include people who are not reached by formal financial services through the following: (A. Khelj & others, 2023, pp. 07-08)

5.1.1. Digital identity: Digital technology contributes to enhancing financial inclusion through innovative and secure methods of identification, and with more than a billion people around the world not having an official ID card, many countries are implementing digitally enabled identification systems that facilitate transactions between people and institutions, and increase access of individuals to formal financial services;

5.1.2. Digital payments: Electronic payment is made via digital platforms, such as mobile point-of-sale transactions and online payment gateways, and as a result of the aftermath of the Covid-19 pandemic and the social distancing it imposed, and with the aim of extending access to dependents’ accounts, many countries have begun to deal with the basic factors for managing electronic financial services and digital payments represented by the commitment of the public and private sectors, adding to the existence of an appropriate legal and regulatory framework, as well as investment in infrastructure projects for financial services and information and communications technology;

5.1.3. Mobile financial services: The use of mobile phones as a means of providing financial services has increased with the increase in the population, and the millennial generation is characterized by having grown up using technology avenues, and this type of customer is difficult to satisfy, Especially that mobile devices provide new payment models and provide personalized services to customers, and they still continue to expect more from banks that they deal with it, they want fast services, easy to implement, at reasonable costs and with transparency.

5.2. Introduction to the Central Bank of Egypt:

The Central Bank of Egypt is one of the independent regulatory bodies provided for in the Constitution. It has a public legal personality and technical, financial, and administrative independence. It aims to achieve the soundness of the monetary system and banking system and price stability within the framework of the State's general economic policy, in accordance with the

Constitution and the Central Bank and Banking System Law No. 194 for the year 2020. Its main specializations and avenues that ensure it achieves its goals are the following: (Egypt)

- Issuing, managing, and determining money categories and specifications;
- Monetary policy development and implementation;
- Development and implementation of a system and policy for foreign exchange rates and regulating and controlling the foreign exchange market;
- Supervision and control of the banking system's units;
- Managing banking crises and regularizing distressed banks;
- Maintaining and managing the State's reserves of gold and foreign exchange;
- Serving as an advisor and financial agent for the government;
- Determining and monitoring the government's external indebtedness, public service and economic authorities, public sector companies, public sector businesses, and the private sector;
- Protect the rights of licensee's customers and settle related disputes;
- Protect and promote competition and prevent licensees' monopolistic practices;
- Achieve the soundness of payment systems and services and enhance their efficiency;
- Cooperation and exchange of information with its foreign counterparts within their competencies;
- Contribute and participate in international institutions and authorities relevant to its field of work;
- Promote financial inclusion, expand the banking beneficiary base, and develop frameworks to reduce the physical use of money;
- Establishing and managing payment systems and services.

5.3. An overview of the development of financial inclusion at the Central Bank of Egypt for the period 2018-2023: Egypt is considered one of the largest countries in the Middle East and North Africa region in terms of population, with 104.4 million people. The number of employees working in all parts of the financial technology system is estimated at 25,500 employees, including 4,200 (16.5%) female employees. The financial technology system in Egypt _ as in different countries of the world _ is in constant need of development to keep rate with the rapid change in this domain. (2023, p. 12)

The Central Bank and Banking Sector Law No. 194, issued in 2020, defined financial inclusion as**:** Making various financial services available for use by all segments of society through official channels with appropriate quality and cost and protecting the rights of the beneficiaries of those services in a way that enable them to manage their money properly. The Central Bank has established a financial inclusion database categorized by type for natural individuals, using the national number "Unified Individual Identification Number" as a basis to collect data from banks and financial service providers, including the Egyptian

Post, with the aim of monitoring the development of financial inclusion levels. (2020, p. 58)

The Central Bank issued the circular in September 2018, which obligated banks to report customer data in the database on a monthly basis, and it also issued the unified definition of active and dormant accounts in August 2021, with the aim of unifying concepts in the banking sector. (2020, p. 57)

5.4.Financial inclusion data of the Central Bank of Egypt:

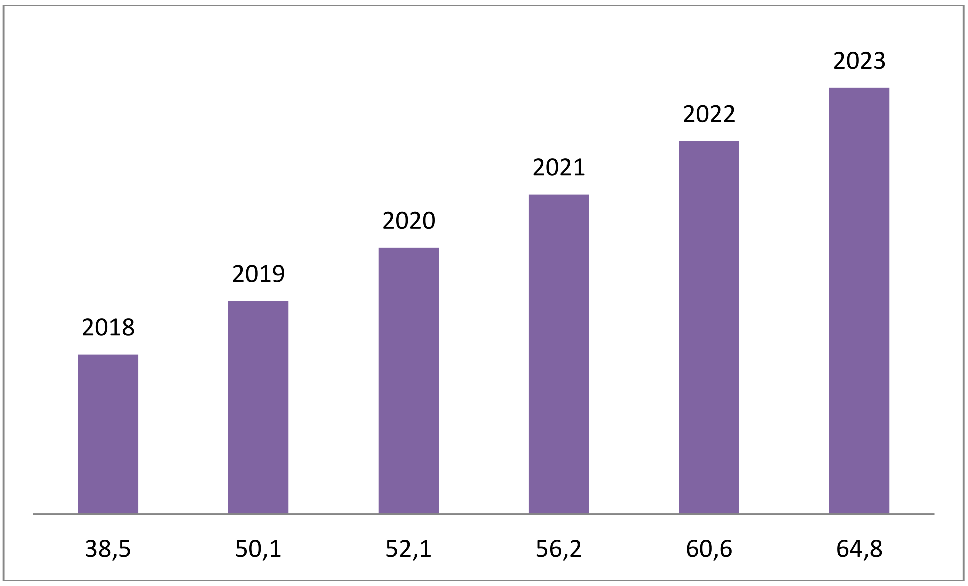
Table 2: The growth rate of the number of citizens included during the period 2018-2023

Year	2018	2019	2020	2021	2022	2023
Percent	38.5	50.1	52.7	56.2	60.6	64.8

Source: Financial Stability Report of the Central Bank of Egypt, 2022 + Egypt Fintech Landscape Report, 2023

The table above, which reflects the growth rate of the number of citizens included for the period extending from 2018 to 2023, can be represented in the following figure:

Figure 2: The growth rate of the number of citizens included during the period 2018-2023



Source: Prepared by the researchers based on table data.

Analysis: The table shows a constant increase in the financial inclusion indicator all over the six years at varying proportions, this increase in the financial inclusion rate is due to the banks' efforts to target different customer segments, as the number of prepaid cards increased over the past year by about 2.5 million cards, and the number of mobile phone wallets also increased by about 5.2 million wallets, adding to the increase in the number of financial availability points by about 90 thousand points during the same period.

Database indicators demonstrate a significant increase in financial inclusion rates during the period from December 2018 to January 2022, achieving a growth rate of 131%, bringing the total number of citizens who have accounts that enable them to conduct financial transactions to 39.6 million citizens, equivalent to 60.6% of the total citizens in the 16-year-old age group for more than 65.4 million citizens according to population estimates issued by the Central Agency for Public Mobilization and Statistics in 2014.

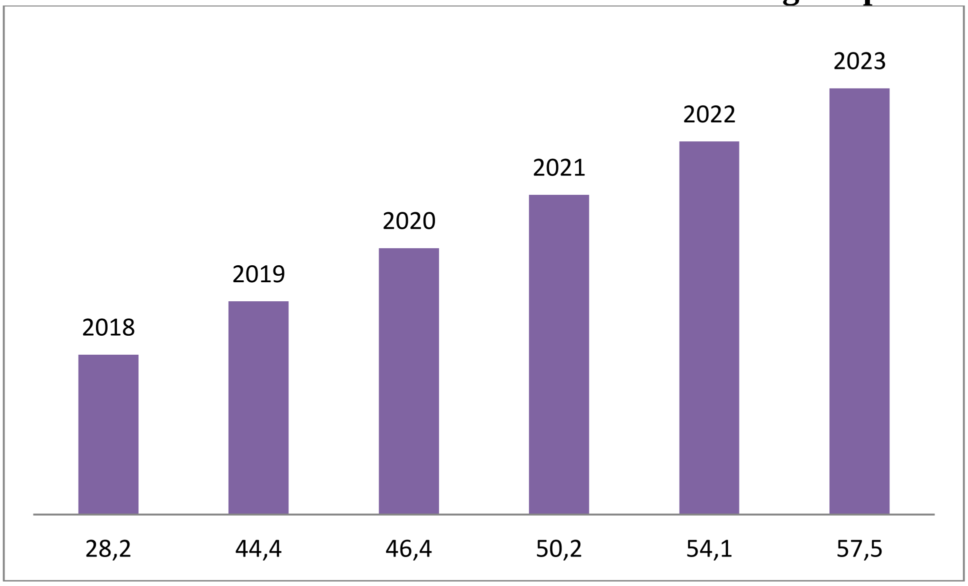
Table 3: Growth rate of the number of females included during the period 2018-2023

Year	2018	2019	2020	2021	2022	2023
percent	28.2	44.4	46.4	50.2	54.1	57.5

Source: Financial Stability Report of the Central Bank of Egypt, 2022 + Egypt Fintech Landscape Report, 2023

The table above, which reflects the growth rate of the number of females included for the period extending from 2018 to 2023, can be represented in the following figure:

Figure 3: Growth rate of the number of females included during the period 2018-2023



Source: Prepared by the researchers based on table data.

Analysis: There is a continuous increase in the women's category of the financial inclusion indicator over the six years, at varying proportions, and in terms of women's financial inclusion, the indicators demonstrated a significant increase in the number of women who own bank accounts, as their number reached 17.2 million women in 2022, with a growth rate of 192%.

On 2021, the number of subscribers to mobile phone services reached about 95.95%, and the number of Smartphone users was about 57.3%, and financial technology is considered the highest sector in terms of venture capital investments in Egypt, where we find: (2021, p. 10)

- 14.4 million Internet banking users;
- 13.2 million mobile banking service users;
- 88% of customers use at least one payment method;
- 24% of the customers paid using the QR Code service;
- 27% of customers have used digital money transfer applications.

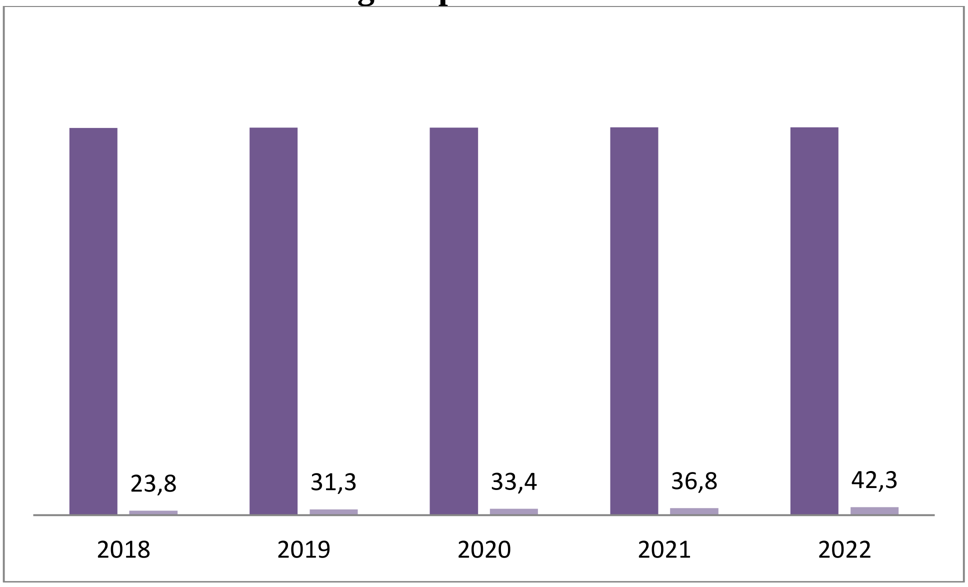
Table 4: Development of the financial inclusion rate of the Central Bank of Egypt during the period 2018-2023

Year	2018	2019	2020	2021	2022	2023
Percent	23.8	31.3	33.4	36.8	42.3	44.6

Source: Financial Stability Report of the Central Bank of Egypt, 2022, page 68.

The table above, which reflects the development of the financial inclusion rate of the Central Bank of Egypt for the period extending from 2018 to 2023, can be represented in the following figure:

Figure 4: Development of the financial inclusion rate of the Central Bank of Egypt during the period 2018-2023



Source: Prepared by the researchers based on table data.

Analysis: The increase in the financial inclusion rate is due to the banks' efforts to target different customer segments, as the number of prepaid cards increased over the past year by about 1.7 million cards with a growth rate estimated at 38%, the number of mobile phone wallets also increased by about 4 million wallets with a growth rate estimated at 74%, adding to the increase in the number of financial availability points by about 214 thousand points during the same period with a growth rate estimated at 162%. These points represent some dimensions of measuring the Central Bank's financial inclusion indicators. Thus, the volume of financial services provided by the bank under study reached 3.4 million financial services, represented in the following table:

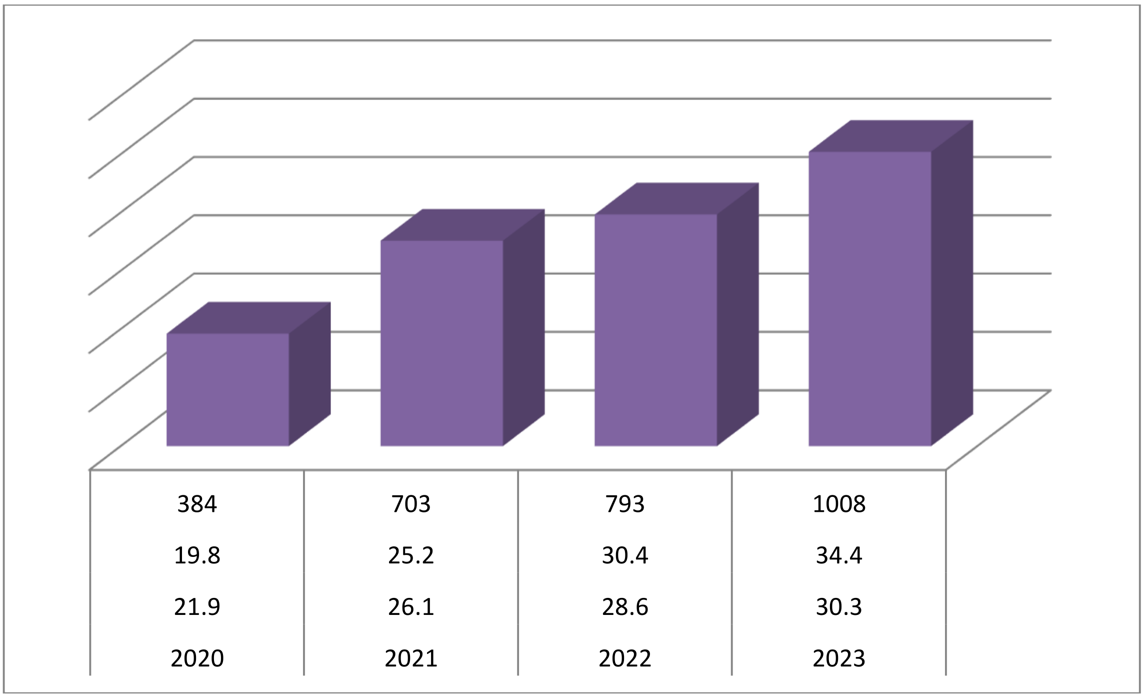
Table 5: Dimensions of measuring the financial inclusion indicator during the period 2020-2023

Year / Dimension	2020	2021	2022	2023
Prepaid Cards	**21.9**	**26.1**	**28.6**	**30.3**
Mobile Phone Wallets	**19.8**	**25.2**	**30.4**	**34.4**
Number of Financial availability points	**384**	**703**	**793**	**1008**

Source: Financial Stability Report of the Central Bank of Egypt, 2020-2023.

The table above, which reflects some dimensions of measuring the financial inclusion indicator for the period extending from 2020 to 2023, can be represented in the following figure:

Figure 5: Dimensions of measuring the financial inclusion indicator during the period 2020-2023



Source: Prepared by the researchers based on table data.

Analysis: the figure represents some dimensions of measuring the financial inclusion index of the Central Bank of Egypt for the period 2020-2023, and there is a continuous development over the four years, which reflects the positive financial and service performance of the bank and the increasing demand of individuals for financial technology services.

5.5. Position of Egypt:

Table 6: Regional position of Egypt

African Fintech ecosystem	• Among only 2 disrupted Fintech markets in Africa; • 12% growth expected in Fintech services per annum till 2025; • Among top 5 African countries having 50% of software developers.
African Fintech investment ecosystem	• 2nd in Fintech VC investment ; • Among top 4 African countries viewed as Hotspots for African VC investment; • Among top 2 African countries with most balanced sector diversification.
Mena Fintech ecosystem	• It ranked 3rd in Fintech VC investment 18%; • It ranked 3rd in Fintech talent & experience.

Source: Egypt Fintech Landscape Report, 2023, p13.

Table 7: Global position of Egypt:

Global Innovation Indicator	• It ranked 89th according to the Global Innovation Index; • It ranked 34th in terms of venture capital received per GDP (gross national product); • It ranked 14th among 36 lower-middle-income countries (above the group average in infrastructure, knowledge and technology outputs).
Global Fintech startup ecosystem	• From top 100 emerging Fintech startup ecosystems • scored 10 in the global emerging Fintech ecosystem in funding

Source: Egypt Fintech Landscape Report, 2023, p13.

6. Conclusion

Conclusion: In general, and from the above, it can be said that financial technology plays an important role in achieving financial inclusion through the various services and innovations it provides, and also by reducing transaction costs, expanding access, and improving efficiency, and from this we realised that "Financial technology can contribute to achieving financial inclusion in banks through the various services and innovations it provides that count on the digitalization mechanism".

Findings of study: Based on the above, the following results can be formulated:

- Financial technology has an effective role in developing the financial system and thus effectively contributing to the entire economy;
- Financial technology plays an important role in enhancing competition between banks of all types, and provides them opportunities and challenges at the same time;
- The contribution of financial technology to enhancing trust between customers and financial institutions, especially banks, due to the diversity of financial services it provides.
- Financial technology is considered an effective means of enhancing financial inclusion, as it plays an important role in accessing various segments of society to various basic financial services by achieving financial inclusion.

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