

Financial Technology and Its Impact on Financial Inclusion in Algeria: An Applied Analytical Study

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Abstract:

This study aims to shed light on the concept of financial technology and its importance in developing the operations of Algerian banks, as well as its impact on financial inclusion. The use of financial technology has become one of the important mechanisms that can support the development of the financial sector in Algeria and contribute to expanding financial inclusion.

The findings of the study indicate that the adoption of this technology within the banks under study was at a moderate level. This means that the digital transformation process is already underway, but it still requires further activation and expansion. At the same time, the impact of financial technology on financial inclusion was evident through its contribution to facilitating access to financial services, encouraging their use, and improving the quality of the services provided. The results also revealed a statistically significant relationship between the adoption of financial technology and the improvement of financial inclusion, confirming that the expansion of digital solutions can positively affect bank performance and enhance customers' access to and benefit from banking services.

Keywords: Financial technology, financial technology applications, financial inclusion.

JEL Classification: G21, G23, O33, D14

Introduction:

The digital revolution is undoubtedly one of the most significant developments of the twenty-first century, affecting virtually every sector, although to varying degrees. Its importance became particularly evident at the beginning of 2020 with the outbreak of the COVID-19 pandemic, which brought human mobility across the globe to an unprecedented halt. While many aspects of globalization slowed during this period, advances in digital technology and communication continued to accelerate, enabling people to maintain access to essential services during lockdowns. This

transformation was especially visible in sectors such as commerce, financial services, distance education, and remote work.

Within this context, although information and communication technologies were introduced relatively late into the financial sector, their impact has been more profound than in many other sectors, including commerce. The increasing integration of digital technologies into financial services has given rise to what is now known as Financial Technology (FinTech). FinTech has significantly reshaped the financial services industry by making services faster, more affordable, secure, transparent, and accessible. It has also improved the management of payments, savings, and financial accounts while expanding access to financial services, particularly for underserved populations that have traditionally remained outside the formal banking and financial system.

Furthermore, financial technology has played a key role in promoting digital financial services, increasing participation in the formal financial system, facilitating the integration of the informal economy, strengthening financial markets, and supporting the achievement of sustainable development goals. Its influence extends beyond the structure of financial services, as it has also transformed traditional concepts of finance. Rather than focusing solely on financing provided by conventional financial institutions, FinTech has broadened access to financial resources for vulnerable and financially excluded groups, thereby contributing to greater financial and banking sector stability.

The rapid growth of financial technology has been driven by several factors, including advances in big data analytics, artificial intelligence, blockchain technology, secure encryption techniques, the widespread adoption of mobile banking and internet services, the emergence of digital platforms and crowdfunding, and evolving consumer expectations for faster, simpler, and more cost-effective financial solutions. Despite these advantages, however, financial technology innovations remain highly dynamic and disruptive, presenting regulatory authorities and policymakers with a range of emerging risks and challenges.

Research Problem

Based on the foregoing discussion, the main research question can be formulated as follows:

To what extent does financial technology contribute to achieving financial inclusion in Algeria?

To address this main research question, the following sub-questions were developed:

- What is the current state of the adoption and use of financial technology solutions within the Algerian financial sector?
- To what extent does financial technology contribute to enhancing financial inclusion in Algeria through its key dimensions, namely access to financial services, usage of financial services, and the availability of financial services?

Study Hypotheses

This study is based on two main hypotheses:

- First hypothesis: There is a statistically significant relationship between the level of financial technology adoption in Algerian financial institutions and financial inclusion in Algeria.
- Second hypothesis: There are statistically significant differences in the impact of financial technology on financial inclusion according to the different dimensions of financial inclusion.

Study Objectives

This study aims to examine the current state of financial technology in Algeria by highlighting the map of FinTech adoption, as well as the main actors and stakeholders involved. It also seeks to assess the extent to which the Algerian banking sector relies on innovative financial technology solutions in the provision of financial services.

Significance of the Study

The significance of this study lies in the following:

- Introducing the concepts of financial technology and financial inclusion.
- Presenting the main developments in financial technology innovation and examining their relevance to the Algerian banking sector.
- Identifying the map of financial technology adoption within the Algerian banking sector and the main stakeholders involved.
- Providing an applied analytical assessment of the use of financial technology in the Algerian banking sector through a field study conducted across a group of public banks.

Research Methodology

To examine and analyze the research topic from its various dimensions, this study adopts the descriptive-analytical approach. The study explores the current state of financial technology in the Algerian banking sector and analyzes Algeria's strategy for adopting financial technology and digital innovations as mechanisms for regulating and developing the banking sector. This transition is examined from the perspective of conventional banking toward digital banking based on digitalization, electronic payment systems, and modern technologies.

Scope of the Study

- Subject Scope: Financial Technology and Its Impact on Financial Inclusion in Algeria: An Applied Analytical Study.
- Geographical Scope: Public and private banks operating in Algiers Province, Algeria.
- Time Scope: 2025.
- Population Scope: Customers and managerial staff of public and private banks in Algiers Province.

Structure of the Study

- Section I: The Conceptual Framework of Financial Technology and Financial Inclusion.
- Section II: The Current State of Financial Technology in Algeria.

Previous Studies

First Study:

A study by **Amin Ouaisi**, entitled *Fundamentals of Modern Financial Technology*, published by Al-Badr Al-Sati' for Studies and Publishing, First Edition, Algeria, 2023. This work focuses on the theoretical foundations of modern financial technologies, with particular emphasis on major FinTech models and their contemporary applications. It examines blockchain technology as a core

innovation and discusses its underlying principles, as well as related technologies such as cryptocurrencies, smart contracts, and other blockchain-based applications.

Second Study:

A study by **Wafaa Hamdouche, Lamia Amani, and Soumia Ben Ali**, entitled *The Role of Financial Technology in Enhancing the Performance of the Algerian Banking Sector: Drivers and Challenges*, published in the *Journal of New Economy*, Vol. 12, No. 4, Algeria, 2021. The study investigates how financial technology can improve the performance of the Algerian banking sector by highlighting its role in enhancing financial practices. The authors identify the main drivers and challenges associated with the adoption of FinTech in Algeria. Their findings indicate that the Algerian banking sector, particularly in terms of financial inclusion, continues to face performance limitations, emphasizing the need for greater adoption of financial technology to improve its efficiency and competitiveness.

Third Study:

A study by **Rafine Jalal and Bakhti Zoulikha**, entitled *The State of Financial Technology (FinTech) in the Algerian Banking Sector: An Analytical Study for the Period 2016–2023*, published in the *Journal of Finance, Investment and Sustainable Development*, Vol. 9, No. 2, December 2024, Algeria. The study analyzes the current state of financial technology in the Algerian banking sector by identifying the key actors within the FinTech ecosystem, highlighting its principal applications, and examining its development indicators over the period from 2016 to 2023. The findings reveal that the Algerian banking sector primarily relies on electronic payment systems as its main entry point into financial technology. Although the sector remains at an early stage of development, it shows considerable potential for adopting more advanced FinTech tools and technologies.

2. Conceptual Framework of Financial Technology and Financial Inclusion

The rapid advancement of digital transformation technologies, including the internet, smartphones, and financial applications, has significantly expanded the use of financial technology and accelerated the adoption of digital financial services. Digital transformation and financial technology are closely interconnected, working together to reshape the financial services industry and make it more efficient, accessible, and responsive in the digital era.

2.1 Definition of Financial Technology

Financial Technology, commonly referred to as FinTech, combines financial expertise with technological innovation to deliver financial services and improve the operational efficiency of financial institutions. Over the past decade, the concept of FinTech has gained widespread recognition across both academic research and the financial industry.

Financial technology has been defined as a financial innovation that may result in new business models, applications, processes, products, or services with a significant impact on financial markets, financial institutions, and the provision of financial services (Ouainat, 2023, p. 6).

This concept encompasses a broad range of applications, including electronic payments, crowdfunding, digital banking, cryptocurrencies, online insurance, and digital trading. These innovations aim to reduce costs, expand financial inclusion, and improve the speed, quality, and efficiency of financial transactions.

Although the concept of FinTech began to emerge at the beginning of the twenty-first century, its rapid development accelerated following the global financial crisis of 2008, which exposed structural weaknesses in traditional banking systems. This crisis encouraged financial institutions to accelerate the adoption of digital solutions and smart technologies to improve operational resilience and respond more effectively to changing market conditions.

Within this context, a new generation of specialized startups—commonly known as FinTech companies—emerged as major competitors to traditional banks by offering innovative financial services based on artificial intelligence, blockchain technology, and cloud computing (Sabrina, 2025, p. 24).

The general concept of financial technology is illustrated in Figure 1.

Figure 1: General Framework of Financial Technology



Source: (DinarStandard, 2018, p. 9)

From Figure 1, the following observations can be made:

The FinTech ecosystem primarily serves end customers, who represent the ultimate drivers of financial technology solutions. These solutions are enabled by a range of advanced technologies, including blockchain, big data, cloud computing, peer-to-peer (P2P) lending, and other digital innovations. FinTech solutions are designed to meet the financial needs of different customer segments while improving the efficiency of financial service operations.

a. Customers

The main customer categories include:

- Consumers: Retail customers representing various income groups, including low-, middle-, and high-income individuals, affluent clients, and young people.

- Businesses: Corporate customers, including large enterprises, small and medium-sized enterprises (SMEs), and social organizations.
- Financial Institutions: Asset management companies, pension funds, insurance companies, and hedge funds.

b. Financial Services

Financial technology encompasses a wide range of financial services, including:

- Deposits: Bank deposits and investment accounts.
- Business and Consumer Finance: This includes both secured and unsecured lending, as well as equity-based financing.
- Trade Finance: This covers working capital financing, supply chain finance, letters of credit, and other trade-related financial services.
- Treasury: Treasury management activities within banking institutions.
- Wealth Management: The management of private wealth and institutional investment funds.
- Insurance: Insurance and reinsurance services.

c. Operations

Financial technology also enhances operational processes across financial institutions, including:

- Front Office: Customer acquisition and relationship management, supported by service delivery solutions and advisory services that improve customer experience.
- Middle Office: Risk management and payment processing.
- Back Office: Data storage, cybersecurity, portfolio management, and risk management.

2.2 FinTech Sectors

Financial technology encompasses several major sectors (Harraq, 2020, p. 95), including:

- Payments and Money Transfers: Solutions that replace or improve traditional payment systems and money transfer services.
- Lending: Platforms that connect lenders with borrowers, including peer-to-peer lending and crowdfunding.
- Personal and Corporate Finance: Digital platforms that integrate banking services with personal and business financial management.
- Investment Banking and Capital Markets: Services traditionally provided by investment banks, now increasingly supported by digital technologies.
- Insurance Technology (InsurTech): Solutions that deliver insurance products and enhance insurers' ability to assess and manage risks more efficiently.
- Wealth Management: Technology-driven wealth management solutions supported by machine learning and advanced analytics.
- Regulatory Technology (RegTech): Technologies that help financial institutions comply with regulatory requirements more effectively.

The following section presents the main applications and solutions of financial technology that support the delivery of financial services.

Table 1: FinTech Solutions Across Different Financial Service Sectors

Financial Services	FinTech Solutions
Payments	- Mobile payment solutions. - o Peer-to-peer (P2P) payments and QR (Quick Response) code-based payments. - Tokenization and cryptocurrencies.
Saving and Investment	- Personal finance and online savings applications. - Online investment platforms. - Robo-advisory services powered by artificial intelligence. - Self-directed wealth and asset management.
Lending	- Credit scoring and credit modeling. - Financing solutions for small and medium-sized enterprises (SMEs). - Internet-based lending services. - Peer-to-peer (P2P) lending without financial intermediaries. - Lending and crowdfunding platforms.
Insurance	- Automation of insurance processes and smart contracts. - Digital distribution, group insurance, and advanced digital analytics. - Autonomous vehicles and Internet of Things (IoT)-based insurance solutions. - High-precision sensor technologies for risk assessment.
Capital Markets	- Peer-to-peer (P2P) and decentralized transactions. - Digital brokerage services and high-speed market access. - Fundraising platforms. - Cross-border financing solutions.

Source:Guelmam, S., & Meziane, M. T. (2023). The Role of Financial Technology in Achieving Financial Inclusion and Attracting Customers: A Review of Global Financial Inclusion Indicators. *Journal of Economic and Financial Research*, 10(2), pp. 359–360.

2.3Reasons for Adopting Financial Technology

Countries have increasingly adopted financial technology for several key reasons (Karboua, 2018, p. 40):

- **Facilitating access to the financial system:** Technology enables new service delivery channels, particularly through mobile devices, while supporting the development of innovative financial products that promote the inclusion of underserved populations who previously had limited access to banking services, such as the ability to open bank accounts.
- **Reducing costs:** Digital platforms, often referred to as smart platforms, allow businesses to conduct operations more efficiently and with greater flexibility. They also enable financial institutions to offer services at lower costs than traditional delivery channels. In addition, these platforms enhance data-processing capabilities, allowing financial products to be better tailored to the needs of end users.
- **Improving risk management and risk diversification:** The use of financial big data, together with consumer data, enables both public and private institutions, as well as financial regulators, to identify risk concentrations more accurately. It also strengthens early warning systems through tools such as legal entity identifiers, which improve transparency in counterparties and financial transactions. Technology-driven innovation further supports a more efficient distribution of risks across the financial system, thereby reducing the likelihood of financial contagion.
- **Enhancing competition:** Financial technology reshapes competition within the financial industry by increasing the number of market participants and encouraging the emergence of alternative products and innovative business models. These developments provide consumers with a wider range of choices while improving the overall liquidity and efficiency of the financial system.
- **Promoting collaboration:** Technology enhances transparency, facilitates information sharing, and reduces information asymmetry, thereby creating opportunities for stronger cooperation between the public and private sectors in ways that benefit both consumers and the financial system as a whole.

In addition, financial technology:

- Expands access to financial services for broader segments of the population.
- Provides innovative solutions for the development of financial products and instruments.
- Supports the continued growth of e-commerce and responds to increasing customer demand for digital financial services.

2.4 Business Environment of the Financial Technology Industry

The financial technology industry operates within a dynamic business ecosystem composed of several key stakeholders in the financial services sector. This ecosystem is characterized by the interaction between traditional financial institutions, FinTech startups, regulators, technology providers, and investors. Particular attention is given to acquisition strategies often led by banks, the growing role of FinTech startups in driving innovation, and the contribution of venture capital in supporting the growth and sustainability of the financial technology industry.

2.4.1 Government Entities

Government entities include regulatory authorities, central banks, sovereign wealth funds, and all agencies responsible for licensing, supervising, monitoring, and regulating financial transactions. These institutions play a central role in shaping the financial sector and its regulatory framework. To keep pace with rapid technological innovation, they increasingly rely on Regulatory Technology (RegTech) to develop regulatory systems that are both effective and adaptable to the evolving FinTech landscape.

2.4.2 Traditional Financial Service Providers

Banks and other financial institutions represent the core participants in this category. They engage in the FinTech ecosystem in several capacities: as investors by acquiring digital technologies, as potential strategic buyers through mergers and acquisitions, and as innovation promoters by establishing innovation laboratories within their organizations. At the same time, traditional financial institutions compete with emerging FinTech firms while adopting strategies that enable both parties to coexist within the financial services market.

2.4.3 Technology Companies

Technology companies are firms that offer financial services alongside their core business activities. Many of these companies establish dedicated teams of engineers and technology specialists to strengthen their presence in the financial services industry. Prominent examples include Amazon and Uber.

2.4.4 Financial Technology Solution Providers

This category includes companies that develop software, digital applications, and technological solutions for financial transactions. These technology providers constitute an integral part of the FinTech ecosystem by continuously supporting innovation, adapting to developments in the financial sector, and competing to deliver advanced technological solutions.

2.4.5 Professional Investors

Professional investors can be classified according to several criteria, including the size of their investment funds (small or large), the investment stage in which they operate (seed financing, venture capital, or private equity), or the source of their funding, such as pension funds, strategic investors, and family offices.

2.4.6 Disruptive Startups

Also known as disruptive firms, these companies challenge traditional business models by introducing innovative alternatives that significantly reduce costs while improving efficiency. They operate across various sectors and typically emerge by unbundling specific financial services that were previously offered by traditional financial service providers, thereby creating more specialized and customer-oriented business models.

3. Financial Inclusion

Financial inclusion has become a key priority in the financial policies of governments and international organizations because of its significant economic and social implications.

3.1 Definition of Financial Inclusion

Financial inclusion refers to a situation in which individuals and businesses have access to useful and affordable financial products and services that meet their needs—including transactions, payment

services, savings products, credit facilities, loans, and insurance—and these services are delivered in a responsible and sustainable manner (World Bank, 2022).

Similarly, the International Monetary Fund (IMF) and the Consultative Group to Assist the Poor (CGAP) define financial inclusion as enabling individuals and small businesses to access and effectively use a comprehensive range of high-quality financial services, including payments, money transfers, savings, credit, and insurance. These services should be provided by a diverse range of financial service providers in an accessible, sustainable, and efficient manner within an appropriate legal and regulatory framework (Anouar, 2021, p. 6).

3.2 Importance and Objectives of Financial Inclusion

Financial inclusion is of considerable importance for both economic and social development. Its main benefits include the following (Al-Haidari, 2021, p. 105):

Promoting financial stability by improving the living standards of disadvantaged and low-income groups and enabling them to access affordable financial services.

Encouraging financial institutions to diversify their products and improve service quality, thereby attracting and retaining more customers.

Enhancing financial intermediation between savings and investment, which strengthens the formal financial sector and reduces the size of the informal economy.

Contributing to the achievement of the Sustainable Development Goals (SDGs) by expanding access to financial services, improving living standards, empowering disadvantaged groups and women, reducing poverty, promoting equality, and creating employment opportunities through support for small, medium-sized, and family-owned enterprises. These efforts also contribute to reducing the informal economy.

3.3 Dimensions of Financial Inclusion

Financial inclusion comprises several dimensions that are used to assess its level of development. Each dimension is measured through a set of specific indicators (Othman, 2021, pp. 5–6).

3.3.1 Access to Financial Services (Access Dimension)

Data for this dimension are primarily obtained from reports and statistics issued by official financial institutions. Access to financial services is commonly measured using the following indicators:

- Number of financial service access points per 10,000 inhabitants.
- Number of automated teller machines (ATMs), payment terminals, and financial institution branches per 1,000 square kilometers.
- Geographic proximity and connectivity of financial service access points.
- Ratio of the population to the number of financial service access points.
- Number of electronic money accounts.

3.3.2 Use of Financial Services (Usage Dimension)

Access to financial services does not necessarily imply their effective use. Individuals may refrain from using financial services because of religious, cultural, administrative, or cost-related factors. This dimension is therefore assessed through several indicators, including:

- Percentage of adults who own bank accounts, such as savings or current accounts.
- Number of financial transactions conducted through mobile applications or the internet.

- Account retention rates and the continuity of account usage.
- Volume of domestic and international financial transfers received or initiated by individuals.
- Percentage of micro, small, and medium-sized enterprises (MSMEs) that hold bank or deposit accounts or have outstanding bank loans.

These indicators are measured over a specific period determined by the objectives of the study, while the corresponding data are collected from financial institutions' reports or through field surveys.

3.3.3 Quality of Financial Services (Quality Dimension)

While access to and use of financial services are essential components of financial inclusion, the quality of these services is a critical factor in ensuring their sustained use. High-quality financial services encourage customers to continue using them, even when access may be challenging. Achieving service quality requires careful consideration of users' needs, the affordability of financial services, and the value they provide.

In addition, consumer support and protection, together with transparency in the presentation of financial products and services, play a fundamental role in determining service quality. These factors help build customer trust, improve financial literacy, and enhance customer satisfaction and loyalty. The Alliance for Financial Inclusion (AFI) has identified several indicators for assessing the quality of financial services, including:

- The affordability of financial services, measured by transaction fees and the costs associated with maintaining bank accounts.
- Transparency and credibility, reflected in the availability, reliability, and clarity of information related to financial products and services.
- The ease of accessing and using financial services, the availability of consumer protection mechanisms against fraud and misconduct, and the level of customers' financial awareness and literacy.
- Indicators of customers' financial behavior, including their ability to meet financial obligations and repay debts within the agreed repayment periods.

3.4The Role of Financial Technology in Promoting Financial Inclusion

To examine the contribution of financial technology to financial inclusion, this study reviews key financial inclusion indicators related to access and usage of financial services. The analysis draws on data from the Bank of Algeria, the World Bank, and GIE Monétique, Algeria's interbank electronic payment network, which currently includes 19 member institutions, comprising 18 banks and Algeria Post.

3.4.1World Bank Report

According to the World Bank's The Little Data Book on Financial Inclusion, the main financial inclusion indicators for Algeria in 2024 are presented below.

Table 2. World Bank Financial Inclusion Indicators for Algeria, 2024

Indicator	Percentage
Adults with an account at a formal financial institution	45.6%
New accounts opened to receive government payments	35.9%

Women who own financial accounts	34.0%
Unemployed adults with financial accounts	27.0%
Young people aged 15–24 with financial accounts	27.4%
Individuals who received digital payments	29.9%
Individuals who sent money electronically	13.4%
Individuals who received government payments	25.3%
Individuals who received payments from the private sector	5.3%
Individuals who made digital interest payments	2.7%
Adults with savings accounts	22.6%
Adults who borrowed money during 2024	38.1%
Individuals who borrowed from formal financial institutions or through credit cards	3.8%

Source: World Bank Group. (2024). The Little Data Book on Financial Inclusion. World Bank.

The indicators presented above remain relatively low compared with global averages, suggesting that Algeria still has significant progress to make in achieving acceptable levels of financial inclusion. This highlights the need for continued efforts to expand access to financial services, encourage their use, and accelerate the adoption of digital financial solutions.

3.4.2 Bank of Algeria Report

The Bank of Algeria provides a set of financial inclusion indicators for the year 2024, offering further insight into the progress achieved in expanding financial services across the country.

Table 3. Bank of Algeria Financial Inclusion Indicators, 2024

Indicator	Number
Number of depositors with Algeria Post	2.5721.564
Number of depositors with the Treasury	90,653
Number of bank depositors	12,365,649
Number of bank borrowers across all sectors, including individuals	1,998,653
Number of active foreign-currency bank accounts	3,784,635
Number of active bank accounts denominated in Algerian dinars	11,958,465
Number of bank branches	1,578
Number of bank branches in urban areas	1,472
Number of bank branches in rural areas	107
Number of post offices providing financial services	4,325
Number of ATMs operated by bank branches	1,493
Number of ATMs operated by postal institutions	1,932

.Source: Bank of Algeria. (December 8, 2025)

The data reveal a clear disparity between rural and urban areas despite the efforts made to expand access to financial services across the country. This gap highlights the uneven geographical distribution of financial infrastructure, with urban areas benefiting from significantly greater coverage

than rural regions. In this context, automated teller machines (ATMs) remain one of the most important channels through which financial services are delivered and accessed, playing a key role in promoting financial inclusion and improving access to formal banking services.

The Current State of Financial Technology in Algeria

The adoption of financial technology in Algeria has been one of the main challenges facing the country in its efforts to modernize and develop its financial and banking system in line with international standards in this field.

4.1 Roadmap for FinTech Adoption in Algeria

The Algerian financial and banking system seeks to implement a comprehensive roadmap aimed at supporting digital transformation in the financial sector, promoting innovation, and contributing to economic development through the adoption of financial technology and the provision of innovative and sustainable financial solutions.

In this context, a financial laboratory affiliated with the Bank of Algeria was established under the supervision of the Commission for the Organization and Supervision of Stock Exchange Operations (COSOB). The laboratory aims to foster innovation and support the development of financial technology within the Algerian financial sector. One of its main outcomes was the roadmap proposed in 2020, which included the following key components (COSOB, 2020):

Governance framework for the FinTech ecosystem: This framework consists of two main committees and thematic working groups:

a. Strategic Policy Committee:

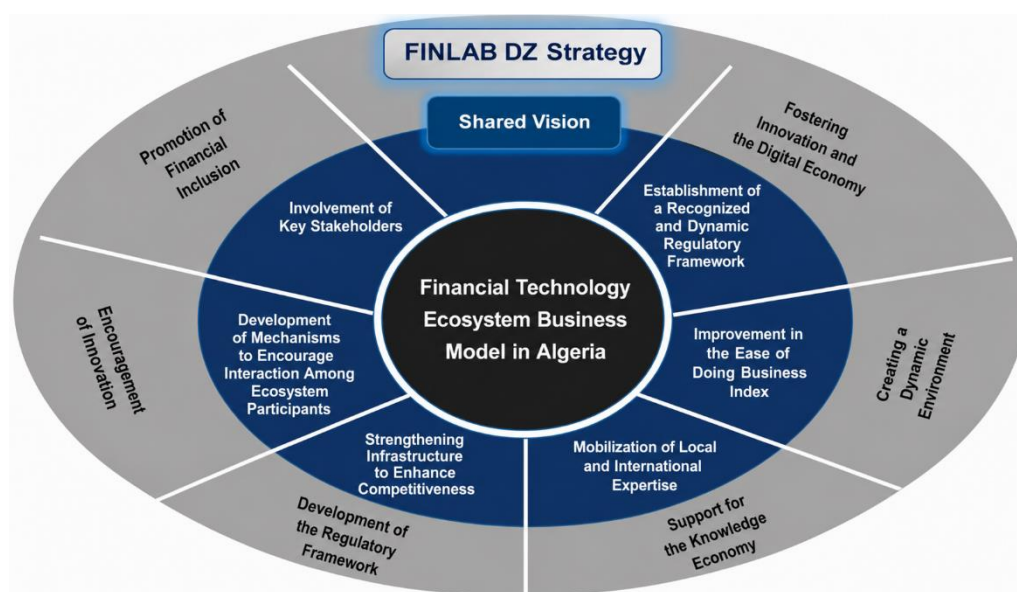
This committee is responsible for formulating the policies and strategic plans of the ecosystem.

b. Executive Committee:

This body is responsible for making strategic decisions and overseeing the overall activities of the ecosystem.

The following figure illustrates the main pillars of the ecosystem's operational strategy.

Figure 2: FINLAB.DZ Roadmap for the FinTech Ecosystem in Algeria



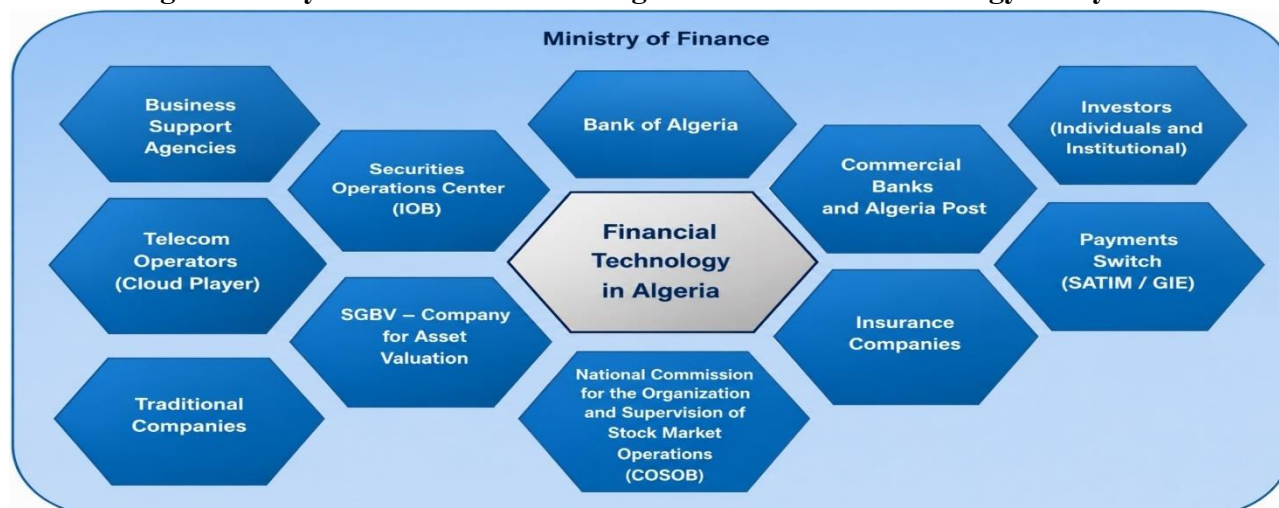
Source: Prepared by the authors based on the official website of the Commission for the Organization and Supervision of Stock Exchange Operations (COSOB), accessed on February 22, 2026, at 10:25 a.m.

4.2 Key Stakeholders in the Algerian FinTech Ecosystem

The development of the financial technology ecosystem in Algeria is influenced by a number of key stakeholders operating across different sectors of the economy. These actors play complementary roles in supporting innovation, strengthening the regulatory environment, facilitating investment, and promoting the adoption of digital financial services. Their interactions collectively shape the growth and sustainability of the Algerian FinTech ecosystem.

The following figure illustrates the main stakeholders within the financial technology ecosystem in Algeria.

Figure 3: Key Stakeholders in the Algerian Financial Technology Ecosystem



Source: Prepared by the authors based on the official website of the Commission for the Organization and Supervision of Stock Exchange Operations (COSOB), accessed on **February 28, 2026, at 1:00 p.m.

- **Bank of Algeria:** The Bank of Algeria is responsible for ensuring that electronic payment systems and payment instruments comply with the standards and regulations applicable to the financial sector.
- **Commercial Banks and Algeria Post:** These institutions contribute to the development of financial technology by providing online banking services, developing mobile banking applications, facilitating electronic payments, and expanding digital payment solutions. The Algerian banking network currently comprises 18 banks in addition to Algeria Post (SATIM, 2025).
- **Insurance Sector:** The insurance sector supports the advancement of financial technology through the adoption of innovative technologies, digital insurance solutions, online services, and mobile applications offered by insurance companies.

- **Commission for the Organization and Supervision of Stock Exchange Operations (COSOB):** COSOB is responsible for regulating and supervising financial technology activities in Algeria by developing and implementing the legal and regulatory framework governing the sector. It also serves as the supervisory authority of FINLAB.DZ, Algeria's Financial Innovation Lab (COSOB, 2025).
- **SGBV (Société de Gestion de la Bourse des Valeurs):** SGBV contributes to the development and operation of the technological infrastructure supporting electronic trading, clearing and settlement systems, securities registration, and ownership management through digital platforms that enable investors and brokers to trade securities electronically.
- **Stock Exchange Intermediaries (IOBs):** The Commission for the Organization and Supervision of Stock Exchange Operations (COSOB) has authorized ten stock exchange intermediaries, namely: Banque de l'Agriculture et du Développement Rural (BADR), Banque de Développement Local (BDL), Banque Extérieure d'Algérie (BEA), Banque Nationale d'Algérie (BNA), Crédit Populaire d'Algérie (CPA), Caisse Nationale d'Épargne et de Prévoyance (CNEP Banque), Société Générale Algérie, Tell Markets, Al Baraka Bank Algeria, and Al Salam Bank Algeria.
- **Startups:** Startups play a vital role in strengthening the FinTech ecosystem by introducing innovative solutions and business models that enhance the efficiency and effectiveness of the financial system while making financial services more accessible to customers. Among the leading Algerian startups operating in the fields of financial technology and insurance technology are:
 - **UbexPay**, a startup specializing in electronic payments and e-commerce solutions.
 - **Amentech**, a multidisciplinary startup specializing in insurance technology (InsurTech).
 - **SATIM (Société d'Automatisation des Transactions Interbancaires et de Monétique):** SATIM serves as one of the main technological platforms supporting the modernization and digital transformation of the Algerian banking sector, particularly through the promotion of card-based payment systems. It was established in 1995 through the initiative of the Algerian banking community, including BNA, BEA, CPA, BADR, BDL, CNEP Banque, Al Baraka Bank, and CNMA Insurance. According to SATIM (2025), its infrastructure currently supports more than 1,351 automated teller machines (ATMs), over 40,000 electronic point-of-sale (POS) terminals connected to its servers, and more than 274 commercial websites integrated into its payment network.
 - **GIE Monétique (Interbank Electronic Payment Group):** Established in June 2014, GIE Monétique was created to support the digital transformation of the Algerian banking system and to define the roles and responsibilities of the various stakeholders within the national electronic payment ecosystem. It is responsible for ensuring interoperability and coordination among member institutions. The organization consists of 19 members (18 banks and Algeria Post), while the Bank of Algeria participates as a non-member supervisory authority to ensure that payment systems and electronic payment instruments comply with the technical standards and regulatory requirements applicable to the sector (GIE Monétique, 2025).

5 .Empirical Study

The empirical study constitutes one of the principal methodological approaches employed to collect data and information related to the research problem. This study targeted banks operating in Algiers Province as the study population, considering them an appropriate setting for examining the contribution of financial technology to financial inclusion in Algeria. To comprehensively address the research objectives, a structured questionnaire was used as the primary instrument for collecting field data from the study sample. The collected data were subsequently coded, tabulated, and statistically analyzed to facilitate their interpretation and discussion, thereby enabling the study to draw conclusions that address the research problem and achieve its main objective.

The questionnaire was organized into two main sections:

Section I: Statements measuring the adoption of financial technology within the surveyed banks, focusing on the extent to which FinTech solutions are implemented and utilized in the provision of financial services.

Section II: Statements assessing the impact of financial technology on financial inclusion through its three core dimensions: access to financial services, use of financial services, and the quality of financial services.

5.1Study Population

The study population consisted of 59 employees from banks operating in Algiers Province. These respondents were selected because they are directly involved in banking operations and are therefore well positioned to provide reliable information regarding the contribution of financial technology to financial inclusion in Algeria.

Before testing the research hypotheses, the reliability of the measurement instrument was assessed to ensure its consistency and stability in measuring the study variables. Instrument reliability reflects the extent to which the questionnaire produces consistent and dependable results across its measurement items.

Table 4 : Cronbach's Alpha Reliability Coefficient

Dimension	Number of Items	Cronbach's Alpha
Level of Financial Technology Adoption and Digital Transformation within Financial Institutions	10	0.889
Role of Financial Technology in Enhancing Financial Inclusion and Improving Access to Financial Services	13	0.920
Overall Scale	23	0.922

Source:Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Table 4, the reliability coefficients obtained for both dimensions of the study are high, indicating strong internal consistency among the questionnaire items. The Cronbach's Alpha coefficient for the first dimension, which measures the level of financial technology adoption and digital transformation within financial institutions, reached 0.889. For the second dimension, which

assesses the role of financial technology in enhancing financial inclusion and improving access to financial services, the coefficient was 0.920. Both values indicate very good reliability.

The overall Cronbach's Alpha coefficient for the questionnaire was 0.922, demonstrating an excellent level of internal consistency and reliability. These findings confirm that the measurement instrument is sufficiently reliable for achieving the objectives of the study and testing its hypotheses, providing a high degree of consistency and credibility in measuring the research variables.

5.2 Analysis of the Empirical Findings

5.2.1 Demographic Characteristics of the Respondents

Table 5: Distribution of the Study Sample by Gender

Gender	Frequency
Male	35
Female	24
Total	59

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Table 5, the distribution of respondents by gender among employees of banks in Algiers Province was relatively balanced. The first group accounted for 59.3% of the total sample, while the second group represented 40.7%. Although the first group constituted the majority, the difference between the two groups was relatively small, indicating a reasonably balanced representation of both genders within the study sample.

Table 6: Distribution of the Study Sample by Job Position

Job Position	Frequency	Percentage
Employee	31	52.5%
Executive Staff	20	33.9%
Head of Department	8	13.6%
Total	59	100.0%

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As presented in Table 6, the distribution of respondents according to job position was not evenly balanced across the different occupational categories. Employees represented the largest group, accounting for 52.5% of the total sample, followed by executive staff with 33.9%, while heads of department constituted the smallest group at 13.6%. This distribution indicates that employees formed the majority of the study sample, reflecting a moderate variation in the representation of the different job categories included in the study.

Table 7: Distribution of the Study Sample by Professional Experience

Professional Experience	Frequency	Percentage
Less than 5 years	25	42.4%
5 to 10 years	23	39.0%
More than 10 years	11	18.6%
Total	59	100.0%

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27

As shown in Table 7, the respondents exhibit varying levels of professional experience. The largest proportion of the sample (42.4%) had less than five years of professional experience, indicating that this group constituted the largest segment of the respondents. The second category, comprising employees with 5 to 10 years of experience, represented 39.0% of the sample, reflecting a substantial presence of respondents with moderate professional experience. In contrast, respondents with more than 10 years of experience accounted for 18.6%, making this the smallest group in the sample.

Overall, the distribution demonstrates that the study sample includes participants with diverse levels of professional experience. This diversity enhances the credibility of the findings by incorporating perspectives from employees with different degrees of familiarity with banking operations and the adoption of financial technology, thereby providing a more comprehensive assessment of its contribution to financial inclusion in Algeria.

5.2.2 Questionnaire Dimensions

Table 8: Descriptive Statistics for the First Dimension (Mean and Standard Deviation)

Statement	Mean	Standard Deviation	Rank	Level of Agreement
The banks with which I deal or work actively employ advanced digital solutions in delivering financial services to customers.	3.0678	1.11207	10	Moderate
The institution provides customers with multiple electronic channels, such as mobile applications, websites, and telephone banking services, enabling them to complete financial transactions without visiting a branch.	3.1356	1.05794	6	Moderate
Transactions conducted through the institution's digital channels are noticeably faster than those completed through traditional methods.	3.1186	1.14598	7	Moderate
Banks continuously seek to develop and update their digital financial products and services to meet the evolving needs of their customers.	3.0847	1.07139	8	Moderate
Banks possess adequate technological infrastructure, including networks, information systems, and technical support, to ensure the continuity of digital services with minimal interruptions.	3.0678	1.08062	9	Moderate
Banks provide customers with a wide range of electronic payment methods, including bank cards, electronic transfers, mobile payment solutions, and other digital payment services.	3.1695	1.19124	5	Moderate

The institution's top management demonstrates a clear commitment to supporting digital transformation and encouraging the adoption of financial innovations.	3.1695	1.08521	3	Moderate
Banks make tangible efforts to raise customer awareness and encourage the use of digital financial services instead of traditional banking methods.	3.1695	1.13187	4	Moderate
The regulatory and supervisory framework in Algeria provides a supportive environment for the development and expansion of financial technology services within banks.	3.2034	1.04683	2	Moderate
Financial technology helps reduce the operational costs associated with delivering financial services for both banks and their customers.	3.4407	1.10284	1	Moderat

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Table 8, which examines the level of financial technology adoption and digital transformation within financial institutions in banks located in Algiers Province, the mean scores ranged from 3.0678 to 3.4407. These values indicate a moderate level of agreement across all questionnaire items, suggesting that the adoption of financial technology within the surveyed banks remains at a moderate stage.

The highest-ranked statement was "Financial technology helps reduce the operational costs associated with the provision of financial services for both banks and customers," with a mean score of 3.4407. This finding indicates that respondents recognize the positive economic impact of financial technology in improving operational efficiency and reducing service delivery costs.

The second-highest mean (3.2034) was recorded for the statement asserting that the regulatory and supervisory framework in Algeria provides a supportive environment for the development and expansion of financial technology services within banks. This suggests that respondents perceive the existing regulatory environment as generally supportive of digital transformation, although its effectiveness remains moderate.

By contrast, the lowest-ranked statement, with a mean score of 3.0678, concerned the extent to which banks actively employ advanced digital solutions in delivering financial services to customers. This finding suggests that the implementation of advanced digital solutions has not yet reached the desired level within the surveyed banks. The statement immediately preceding it, which assessed **the adequacy of banks' technological infrastructure—including networks, information systems, and technical support to ensure uninterrupted digital services—**also recorded a mean of 3.0678, indicating that technological infrastructure still requires further investment and development.

Overall, the findings of this dimension indicate that the surveyed banks are moving toward the adoption of financial technology and digital transformation. However, this transition remains moderate and requires additional efforts to modernize technological infrastructure, expand and

improve digital financial services, and strengthen the institutional and regulatory environment supporting digital transformation.

Table 9: Descriptive Statistics for the Second Dimension: The Role of Financial Technology in Promoting Financial Inclusion (Mean and Standard Deviation)

Statement	Mean	Standard Deviation	Rank	Level of Agreement
Financial technology has contributed to expanding the customer base served by the banks with which I work or conduct business.	3.7458	1.04375	5	High
Digital financial services have enabled access to banking services for groups that previously faced geographical, social, or economic barriers to using traditional banking channels.	3.7288	0.82693	7	High
Digital financial solutions have simplified the procedures for opening bank accounts and accessing basic financial services, making them less complex and more convenient.	3.5763	1.00350	13	High
Financial technology has helped reduce disparities in access to financial services between urban populations and those living in rural and remote areas.	3.8475	0.97933	1	High
Digital financial services have enabled new customer segments, such as young people and low-income individuals, to become part of the formal financial system and engage with banks.	3.7627	0.89710	4	High
Customers increasingly rely on digital channels for payment and money transfer transactions compared with previous years.	3.8136	0.93725	2	High
Financial technology has encouraged more regular use of bank accounts by enabling customers to monitor their balances and transactions more consistently.	3.6441	1.01306	9	High
Digital solutions have significantly expanded the use of savings, money transfer, and electronic payment services compared with earlier periods.	3.7458	1.06014	6	High
Digital financial services have made it easier for small and medium-sized enterprises (SMEs) to access financial services, including payments,	3.5763	0.98617	12	High

transfers, and financing, through simpler procedures.				
Digital channels have improved the quality of financial services by enhancing the clarity of information and the transparency of procedures.	3.6780	0.97274	8	High
Digital channels strengthen customers' confidence in financial transactions by providing robust cybersecurity standards and personal data protection mechanisms.	3.6102	1.00029	10	High
Customers report higher levels of satisfaction with services delivered through digital channels than with traditional banking services.	3.6102	1.09885	11	High

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Table 9, which examines the role of financial technology in promoting financial inclusion and improving access to financial services in banks located in Algiers Province, all statements recorded high mean scores, ranging from 3.5763 to 3.8475. These findings indicate that respondents hold a positive perception of the contribution of financial technology to strengthening financial inclusion.

The highest-ranked statement, with a mean score of 3.8475, was "Financial technology has helped reduce disparities in access to financial services between urban populations and those living in rural and remote areas." This result highlights the significant role of financial technology in expanding access to financial services across different geographical regions.

The second-highest mean score (3.8136) was recorded for the statement indicating that customers have increasingly relied on digital channels to carry out payment and money transfer transactions compared with previous years. This finding underscores the contribution of financial technology to increasing the use of financial services through digital platforms.

The lowest-ranked statement, although still reflecting a high level of agreement, concerned the view that digital solutions have simplified the procedures for opening bank accounts and accessing basic financial services, making these processes less complex and more convenient. This statement obtained a mean score of 3.5763, suggesting that while respondents acknowledge improvements, further progress in simplifying banking procedures remains possible.

Overall, these findings confirm that financial technology plays a significant role in promoting financial inclusion by expanding access to financial services, encouraging their use, and improving the overall delivery of financial services within the banks included in the study.

Normality Distribution Test

Table 10: Results of the Normality Distribution Test for the Study Sample

Variable	Kolmogorov–Smirnov			Shapiro-Wilk			Distribution Type
Test Type	Statistic	df.	Sig	Statistic	df.	Sig	

First Dimension: Level of Financial Technology Adoption and Digital Transformation within Financial Institutions	0.115	59	0.050	0.962	59	0.061	Normally distributed
Second Dimension: Role of Financial Technology in Promoting Financial Inclusion and Improving Access to Financial Services	0.191	59	0.001	0.942	59	0.007	Not normally distributed
Overall Scale	0.098	59	0.204	0.982	59	0.523	Normally Distributed

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

The results of the normality tests indicate that the data for the first dimension are normally distributed. The significance values were 0.050 for the Kolmogorov–Smirnov test and 0.061 for the Shapiro–Wilk test, both of which are equal to or greater than the significance level of 0.05.

In contrast, the results show that the data for the second dimension are not normally distributed. The significance values were 0.001 for the Kolmogorov–Smirnov test and 0.007 for the Shapiro–Wilk test, both of which are below the 0.05 significance threshold.

Overall, these findings indicate that the first dimension follows a normal distribution, whereas the second dimension does not.

5.4 Hypothesis Testing

5.4.1 Testing the First Hypothesis

H1: There is a statistically significant relationship between the level of financial technology adoption in Algerian financial institutions and the improvement of financial inclusion in Algeria.

Table 11: Correlation Coefficient Between the Two Study Dimensions

Variable	First Dimension (X)	Second Dimension (Y)
First Dimension (X)	1.000	0.394**
Significance (2-tailed)	–	0.002
N	59	59
Second Dimension (Y)	0.394**	1.000
Significance (2-tailed)	0.002	–
N	59	59

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Table 11, the results reveal a positive and statistically significant relationship between the two study dimensions. The Spearman correlation coefficient was 0.394, with a significance level of 0.002, indicating a moderate positive correlation between the adoption of financial technology and improvements in financial inclusion. This finding suggests that higher levels of financial technology

adoption are associated with better levels of financial inclusion. Accordingly, the first hypothesis is supported.

5.4.2 Testing the Second Hypothesis

H2: There are statistically significant differences in the impact of financial technology on financial inclusion according to the different dimensions of financial inclusion.

Table 12: Friedman Test for Differences Among the Dimensions of Financial Inclusion

Dimension	Mean Rank
Access to Financial Services (Y1)	2.01
Use of Financial Services (Y2)	2.06
Quality of Financial Services (Y3)	1.93

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

Table 13 : Friedman Test Statistics

Statistic	Value
N	59
Chi-Square	0.582
df	2
Asymp. Sig.	0.748

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

As shown in Tables 12 and 13, the impact of financial technology on the three dimensions of financial inclusion was relatively similar across the banks operating in Algiers Province. The dimension Use of Financial Services ranked first, with a mean rank of 2.06, followed by Access to Financial Services with a mean rank of 2.01, while Quality of Financial Services ranked third with a mean rank of 1.93. However, these differences were not statistically significant, as indicated by the Friedman test, which produced an Asymptotic Significance (Asymp. Sig.) value of 0.748, exceeding the significance threshold of 0.05. This result indicates that there are no statistically significant differences in the impact of financial technology across the three dimensions of financial inclusion.

From an economic perspective, these findings suggest that financial technology has not exerted a disproportionately greater effect on any single dimension of financial inclusion. Rather, its impact has been relatively balanced across all dimensions. In other words, the adoption of digital financial

solutions within the surveyed banks has contributed simultaneously to improving access to financial services, encouraging their use, and enhancing their quality. Nevertheless, these improvements were not sufficiently differentiated to make one dimension significantly outperform the others.

Accordingly, the findings indicate that the impact of financial technology is broad and comprehensive rather than selective. Therefore, the second hypothesis is rejected.

5.4.3 Summary of the Study Findings

Table 14. Summary of the Hypothesis Testing Results

No	Hypothesis	Statistical Test	Result	Decision
01	There is a statistically significant relationship between the level of financial technology adoption in Algerian financial institutions and the improvement of financial inclusion in Algeria.	Spearman's Rank Correlation	A positive and statistically significant relationship was found between the two variables, with a Spearman's correlation coefficient of 0.394 and a p-value of 0.002.	Hypothesis 1 Accepted
02	There are statistically significant differences in the impact of financial technology on financial inclusion across the different dimensions of financial inclusion.	Friedman Test	No statistically significant differences were found among the three dimensions, as the Asymptotic Significance (Asymp. Sig.) value was 0.748.	Hypothesis 2 Rejected

Source: Prepared by the authors based on the output generated using IBM SPSS Statistics 27.

5.5 Summary of the Empirical Study

The empirical findings indicate that the adoption of financial technology within the banks operating in Algiers Province remains at a moderate level, whereas its contribution to financial inclusion was perceived to be high. The results also revealed a positive and statistically significant relationship between financial technology adoption and improvements in financial inclusion, suggesting that the expansion of digital financial solutions contributes to facilitating access to financial services, reducing operational costs, and improving the efficiency of financial transactions.

Furthermore, no statistically significant differences were found among the three dimensions of financial inclusion. This indicates that the impact of financial technology was broad and balanced, contributing simultaneously to improving access to financial services, their use, and their quality, without exerting a significantly greater influence on any single dimension.

6 .Conclusion

This study concludes that financial technology (FinTech) has become an important driver for the modernization of Algeria's financial sector and a key enabler of greater financial inclusion. The findings indicate that the adoption of financial technology among the surveyed banks remains at a

moderate level, suggesting that although the digital transformation process is underway, it still requires further expansion and implementation.

At the same time, the results demonstrate that financial technology has a significant positive impact on financial inclusion by facilitating access to financial services, encouraging their use, and improving the quality of services delivered. Moreover, a statistically significant positive relationship was identified between financial technology adoption and improvements in financial inclusion, confirming that greater adoption of digital financial solutions can enhance banks' performance while increasing customers' access to and use of financial services.

Furthermore, the findings reveal that the impact of financial technology was relatively similar across the different dimensions of financial inclusion, with no statistically significant differences among them. This suggests that financial technology contributes broadly and consistently to improving access, usage, and service quality, rather than benefiting one dimension more than the others.

Overall, financial technology represents a promising pathway for the modernization of the Algerian banking sector. However, maximizing its potential will require continued investment in digital infrastructure, further improvements to the regulatory framework, and broader promotion of digital financial literacy among both individuals and institutions.

7. Recommendations

- Strengthen investment in digital infrastructure within Algerian banks to ensure the continuity, efficiency, and reliability of digital financial services while minimizing service disruptions.
- Expand the adoption of financial technology solutions and develop innovative digital products and services that address the needs of different customer segments, particularly those underserved by traditional financial services.
- Promote financial and digital literacy through awareness campaigns and training programs targeting both customers and banking staff, with the aim of increasing trust in digital financial services and encouraging their wider adoption.
- Enhance the regulatory and supervisory framework to keep pace with advances in financial technology, foster financial innovation, and further promote financial inclusion in Algeria.

References

- Anwar, I. A. (2021). The role of financial inclusion in promoting savings. *Journal of Legal and Economic Studies*, Algeria.
- Harraq, D. L. (2020). The reality of financial technology in Arab countries and its importance in enhancing financial inclusion in small and medium-sized enterprises. *Advanced Economic Research Journal*, 5(2), Algeria.
- Othman, T. (2021). Financial technology as a tool for promoting financial inclusion and digital banking transformation: International experiences and lessons for Arab countries. In *Proceedings of the International Scientific Conference: Digital Transformation and Its Impact on Development*. Misr University for Science and Technology, Egypt.

- Ouinat, A. A. (2023). The role of digital transformation and financial technology in developing the financial sector: A review of the Kingdom of Saudi Arabia's experience. *Al-Mayadeen Economic Journal*, 6(1), 20–27.
- Qarbou, H. B. (2018). Information technology: A new economic revolution—A case study of the Middle East and North Africa region. *Al-Ijtihad Journal for Legal and Economic Studies*, 4(3), Algeria.
- Sabrina, A. A. (2025). The use of financial technology as a mechanism for modernization. *Journal of Economic Geography*, 2(2), Algeria.
- World Bank. (2022). Financial Inclusion. Retrieved November 25, 2025, from <https://www.albankaldawli.org/ar/topic/financialinclusion/overview>
- Al-Haidari, S. A. (2021). The role of digital finance in enhancing financial inclusion. *Journal of Accounting and Financial Studies*, 16(5), Algeria.
- COSOB. (2020). FINLAB.DZ: Financial Innovation Laboratory. Algiers, Algeria.
- COSOB. (2025). Commission for the Organization and Supervision of Stock Exchange Operations (COSOB). Retrieved from <https://www.cosob.org/ar>
- GIE Monétique. (2025). Groupement d'Intérêt Économique Monétique (GIE Monétique). Retrieved from <https://www.giemonetique.dz>