



# Digital Transformation of Banking Services as a vision to enhance Financial Inclusion in Algeria: a reading of reality and challenges

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## Abstract

In recent years, Digital transformation has contributed to various financial and economic sectors, and has been instrumental in increasing profits and customer satisfaction by providing sustainable financial services that meet individuals' needs and enhance their financial inclusion, In the same context, the world banking market has witnessed rapid developments as a result of the growing phenomenon of financial globalization, and thus put banks in the face of the challenges they must gain, this has prompted them to develop coping strategies, the most important of which is the transition to inclusive banks that provide all financial services, in the midst of all this, Algeria's banking sector suffers from considerable fragility in service delivery, and its institutions do not keep pace with the latest technological developments and innovations, one of the most important outputs in this research: Algerian banks continue to offer old banking products, which face a number of challenges: the challenge of customers who always order new products, challenge of increasing competition, challenge of loan risk, and challenge of technology and informatics, which requires intensifying efforts and harnessing the potential to modernize the Algerian banking sector and improve the quality and delivery of banking services in order to increase financial inclusion.

**Keywords:** Digital Transformation, Financial Inclusion, Banking Services, Algeria

التحول الرقمي للخدمات المصرفية كروية لتعزيز الشمول المالي في الجزائر: قراءة للواقع والتحديات  
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## المستخلص

في السنوات الأخيرة، ساهم التحول الرقمي في مختلف القطاعات المالية والاقتصادية، وكان له دور فعال في زيادة الأرباح ورضا العملاء من خلال توفير خدمات مالية مستدامة تلبي احتياجاتهم وتعزز من شمولهم المالي، في نفس السياق شهدت السوق المصرفية العالمية تطورات سريعة نتيجة لتنامي ظاهرة العولمة المالية، هذا ما وضع البنوك في مواجهة التحديات التي يجب أن تكسبها، وقد دفعها ذلك إلى رسم استراتيجيات مواجهة، أهمها الانتقال إلى مصارف شاملة تقدم جميع الخدمات المالية، في خضم كل ذلك يعاني القطاع المصرفي الجزائري من هشاشة كبيرة في تقديم الخدمات، ومؤسساته لا تواكب آخر التطورات والابتكارات التكنولوجية، ومن أبرز نتائج هذه الدراسة هي أن البنوك الجزائرية لا تزال تقدم منتجات مصرفية قديمة، كما أنها تواجه جملة من التحديات: تحدي العملاء الذين يطلبون دائماً منتجات جديدة، زيادة المنافسة، مخاطر القروض، التكنولوجيا والمعلوماتية، وتوصي الورقة البحثية بضرورة تكثيف الجهود وتسخير الإمكانيات لتحديث القطاع المصرفي الجزائري وتحسين جودة الخدمات المصرفية وتقديمها من أجل زيادة الشمول المالي.

**الكلمات المفتاحية:** التحول الرقمي، الشمول المالي، الخدمات المصرفية، الجزائر

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## Introduction

The swift progressions in digital technologies have profoundly altered financial sectors globally,

augmenting the provision of services, profitability, and client contentment. These advancements have

introduced a period of increased financial interconnectedness around the globe, forcing banks to implement more comprehensive approaches to address the growing demands of their customers. Notwithstanding these worldwide patterns, the Algerian banking industry continues to be weak, characterized by a noticeable delay in embracing modern technical advancements and digital changes. The sector's slowness has hindered its capacity to provide sustainable financial services that meet the varied demands of the Algerian population, therefore obstructing progress towards attaining greater financial inclusion.

#### **The research question:**

Algeria's adoption and implementation of digital transformation in the banking sector are still lagging behind the worldwide trend. Consequently, the banking industry has become delicate, facing difficulties in satisfying its consumers' demands and impeding initiatives to promote financial inclusion.

The problematic of research paper was formulated as follow:

**"How can the digital transformation of banking services in Algeria serve as a strategic vision to enhance financial inclusion, and what are the banking sector's prevailing realities and challenges in this transformative journey?"**

#### **Hypotheses:**

- The digital transformation of banking services can significantly enhance financial inclusion.
- The Algerian banking sector faces numerous challenges in implementing digital transformation strategies.

**Importance of the Research:** This research is crucial as it investigates the potential of digital transformation to improve financial inclusion in

Algeria. It provides valuable insights for policymakers, regulators, and financial institutions seeking to modernize the banking sector and promote greater access to financial services for all citizens.

#### **Objectives:** This study aims to:

- ✓ Analyze the current state of digital transformation in the Algerian banking sector.
- ✓ Identify the challenges hindering the adoption and implementation of digital banking solutions.
- ✓ Evaluate the potential impact of digital transformation on financial inclusion in Algeria.

**Methodology:** This research will employ a mixed-methods approach, combining quantitative and qualitative data collection and analysis techniques.

This includes:

- Reviewing existing literature on digital transformation, financial inclusion, and the Algerian banking sector.
- Collecting and analyzing statistical data official websites on financial technology adoption, digital innovation, and financial inclusion rates in Algeria.

The research will utilize various tools for data analysis, including:

- Descriptive statistics to summarize and present quantitative data.
- Qualitative analysis techniques include thematic analysis to identify key themes.
- Comparative analysis to benchmark Algeria's progress in digital transformation against global level.

#### **1- Digital Transformation:**

Digital transformation is the general trend of the 4.0 era, but there is no specific definition digital

transformation, it defined by Thomas M. Siebel as “The confluence of four technologies elastic Cloud Computing, Big Data, Artificial Intelligence, and the Internet of Things, which is fundamentally changing how business and government will operate in the 21st century, also digital transformation is the ability of an organization to adapt, respond, and position itself for success in the face of rapid technology evolution” which is changing the way businesses operate around the world [1].

According the study of **Gregory Vial** digital transformation is: [2]

- ✓ The use of modern technological innovations (mobile media, Social media channels, etc.) for the purpose of improving transactions with customers or the activity of new business models.
- ✓ A blueprint that supports companies in governing the transformations that arise owing to the integration of digital technologies, as well as in their operations after a transformation.
- ✓ Not a software upgrade or a supply chain improvement project, it’s a planned digital shock to what may be a reasonably functioning system.
- ✓ The impact of IT on organizational structure, routines, information flow, and organizational capabilities to accommodate and adapt to IT, In this sense, digital transformation emphasizes more the technological root of IT and the alignment between IT and businesses.

Finally, digital transformation has been defined as “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” [3], it include changes related to customers as end-

users of the products/services; As a result, digital transformation strategies surpass the concepts of process optimization or process automation, it is important to understand that digital transformation strategy is a designed plan which is implemented to manage transformations, caused by the integration of digital technologies, in a sustainable way [4].

## 2- Financial Inclusion:

Financial inclusion has become a new economic and social phenomenon. The Experts have addressed this issue as one of today's most recent problems. Financial inclusion has the specific characteristics of access to financial services, use of financial services, quality of services and products, and achievement of social welfare, It covers all poor countries and low income groups [5].

Financial Inclusion tends to make the availability of formal financial services (such as deposit and saving accounts, payment services, loans, and insurance) for the use of customers so that they can fulfill their demand actively and effective, Financial inclusion is typically measured via the number of people who own and use formal financial products [6].

Financial inclusion requires the registration process of scissors that do not fit the concerns of banks, especially financially and means easy access to financial services for poor and low-income people away from formal financial institutions, Previous studies have shown that financial inclusion has a positive impact on economic and social development by improving economic growth, employment opportunities, welfare-satisfaction and other benefits [7].

Inclusion (AFI) identifies four dimensions of FI, which are: **access**, **usage**, **quality**, and **welfare**

Access means that financial services are available to all categories at an affordable cost, Usage means that all financial services are commensurate with customers' needs, Quality also relates to the level of effectiveness of the service or product provided finally, welfare indicates the efficiency of customers' lives through the consumption of financial services, generally FI defined “the process of ensuring individual and business access to various financial products and services (payment, savings, credit, transfers and insurance) in a reliable and sustainable manner” [8].

### 3- Digital Banking Services:

The meaning of Digital Banking Services is the digitization of the services provided and the processes related to them, so all traditional services such as withdrawals, money transfers, term deposits, demand deposits, savings and financing account management all are transformed into digital services embedded in a consolidated bank file, and by connecting to the Internet transactions can be managed and applied securely [9].

Digital banking refers to services provided to the customer using mobile or Internet technology channels; **Internet banking** is defined on a channel offering online services using a computer, PC or laptop anytime, anywhere. **Mobile banking** is the channel used by individuals to manage the bank using a mobile device such as a mobile phone, Smartphone or tablet, by downloading the relevant app [10].

Digitization has appeared in banking services for years, and the Internet and mobile phone have been used, It has changed the way banks provide their products and services and carry out their operations and has increased the speed, the accuracy and integrity of the process between the

bank and the customer, and the banks' fear of losing the trust of customers who want digital innovations make them offer new products, services to reach the largest possible segment of customers and meet their different needs, expand the market and compete with other banks in the sector [11].

Digital transformation is likely to encourage banks to use more modern banking business models and enhance their ability to collect a large volume of data in order to manage their decisions efficiently, without forgetting to reduce operating costs and maximize profits through unique products and services [12].

### 4- Reality of Digital Banking for Financial Inclusion:

Given the rapid developments in the world today and the emergence of the so-called digital transformation, especially since the banking and financial sphere has been affected by the developments affecting its various financial services, and has become characterized by digitization such as mobile banking, electronic money..., the latter being characterized by contributing to the acceleration and facilitation of banking services, Financial inclusion has become a critical element to improve conditions for the poor, the failure of traditional banking channels has excluded many customers from the banking system, paving the way for digital banking to improve products access to this category and eliminate the phenomenon of financial exclusion.

- Faced with the challenges that the pandemic has left over the past two years, several digital solutions have been launched as businesses and businesses turn to digitization, and implementing initiatives that foster innovation to facilitate digital services and improve the customer experience to

provide businesses with flexibility and speed, according to recent statistics, countries' efforts to increase spending on digital transformation in 2022 have been notable reaching \$1.85 trillion, and this value is expected to double to \$3.9 trillion

in 2027; As technical managers they will focus on upgrading utilities and ensuring flexibility, capacity and customer response [13], as shown in Figure (1).

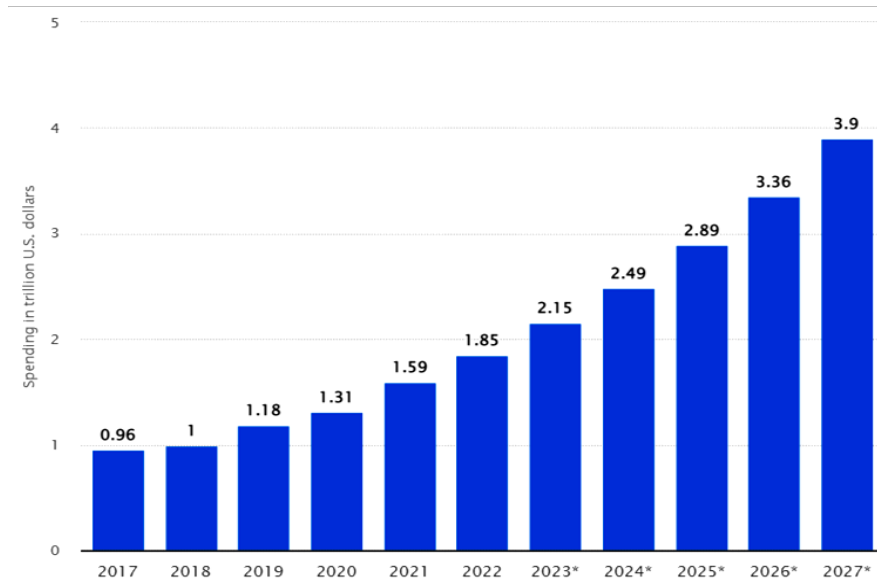


Figure (1): Spending on digital transformation technologies and services worldwide [14]

After the Coronavirus crisis 2020, many governments and financial institutions intended to invest in modern technology to meet the growing need for digital transformation, such as artificial intelligence (AI), cloud computing, big data products and tools...IoT technology holds the largest share of the digital transformation market, and smart city initiatives are expected to drive IoT

growth in the coming years, IoT devices and systems will also increase in transport, facilities and infrastructure, and Government initiatives expected to increase adoption rates [15], Asia and the Pacific and Latin America are growing markets for digital transformation, with a total volume of \$695.5 billion in 2023 and an expected increase of 24.1% in 2030, as shown in Figure (2).

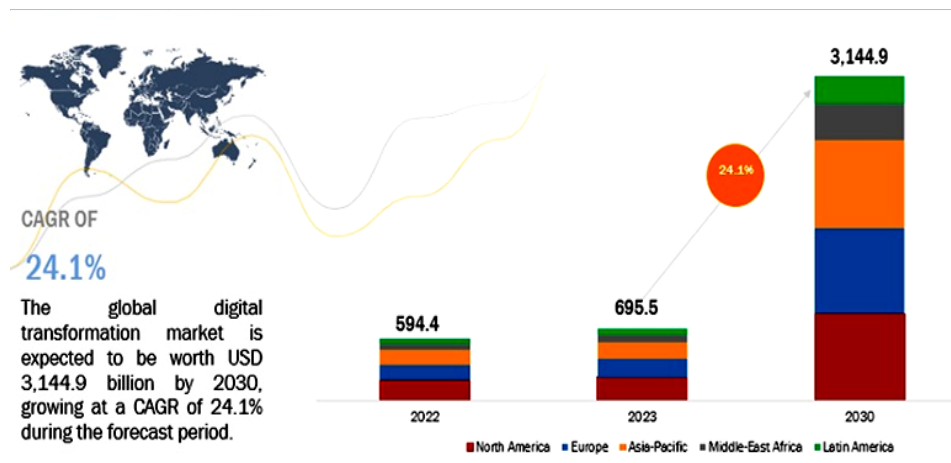


Figure (2): Digital Transformation Market to 2030 (U.S. billion) [16]

- Digital transformation and its various innovations have a positive impact on banking sector activity including financial services, and **Citi study (2019)** estimated that digitization can reduce the operating cost of banks by 30 per cent to 50 per cent due mainly to a reduction in branches and employees [17], According to World Bank data, there are many indicators for the level of bank digitization; Credit card ownership index was valued at 24.5, in contrast the digital payments sending and

receiving index was at 64.1, this in 2021, Used a Mobile phone or the internet to access a financial institution account (with a F.I account), This indicator focuses on digital banking, As the best indicator available to compare countries for bank digitization, controlling the number of adults with financial institution accounts is not influenced by access to finance. However, data for this indicator is only available for 2017, reaching 33.7 percent, as shown in table (1).

**Table (1): Digital Banking Services Indicators (age +15) [18]**

Indicators (%)	2021
Owns a credit card	24.5
Made or received a digital payments	64.1
Store money using a financial institution or a mobile money account	48.0
Store money using a financial institution or a mobile money account (with a account)	62.9
Used a Mobile phone or the internet to make payments, buy things, or to send/receive money using a financial institution account	38.6
Used a Mobile phone or the internet to make payments, buy things, or to send/receive money using a financial institution account (with a F.I account)	52.1
Used a Mobile phone or the internet to check account balance	40.5
Used a Mobile phone or the internet to check account balance (with a F.I account)	54.8
Used a Mobile phone or the internet to access a financial institution account	<b>22.6 (1)</b>
Used a Mobile phone or the internet to access a financial institution account (with a F.I account)	<b>33.7 (2)</b>
Used a Mobile phone or the internet to pay bills	34.5

**(1), (2): Statistics 2017/F.I: financial institution.**

- Statistics indicate that in addition to the categories excluded from the banking system; There are more than 200 million micro, small and medium-sized businesses without access to banking services, so digital transformation can facilitates access to credit and financial services in banking sector institutions, helping to lift people out of extreme poverty, this will positively reflect financial inclusion by offering more people the opportunity to start their own businesses and earn

a stable income [19], **Jan Bisme** (Global Director of Finance in the Global Finance, Competitiveness and Innovation Practices Sector) says that “The Global Financial Inclusion Index shows us that the digitization of banking is a game changer, which is very inspiring for those covered by financial services - and for bank employees working on these issues... Much remains to be done, we must focus on those countries that have made the least progress and redouble our efforts to reach the most

vulnerable, especially women. This is essential to increase inclusiveness and resilience” [20].

we note the increase in financial inclusion indicators precisely after the Coronavirus pandemic, the tendency to get an account with financial and banking institutions has become

available, allowing the poor to access financial services. This will allow bankers to do their utmost to include digitization in their financial services to keep as many customers as possible, as shown in table (2).

**Table (2): Impact of Digital Transformation in Financial Inclusion Indicators (age +15) [21]**

Indicators (%)	2021
Financial Institution Account	74.0
Borrowed any money from a formal financial institution or using a mobile account	29.2
Borrowed from a formal financial institution	28.4
Saved any money from a formal financial institution or using a mobile account	30.8
Saved at financial institution	29.4
Mobile Money Account	10.2

**5- Demonstrations of the digital transformation of the Algerian banking sector:**

▪ **An Overview of the Current State of Fintech in Algeria:**

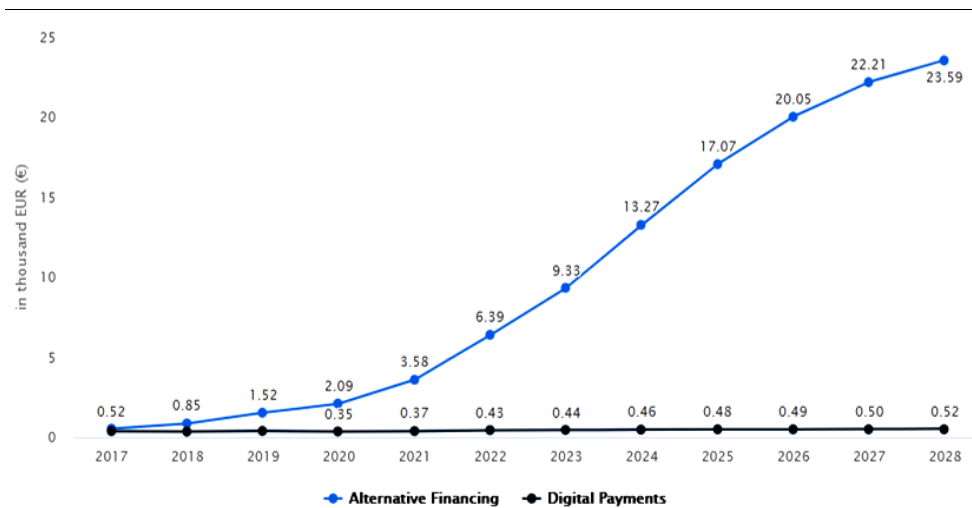
The Fintech sector in Algeria is still in its early stages of development, with limited access to funding and a small number of startups. However, the industry is proliferating, driven by increasing demand for digital financial services and government efforts to support innovation and entrepreneurship, and due to the country's high mobile phone penetration rate and large unbanked population. Mobile payment systems have been introduced in Algeria, such as "Edahabia" and "moussanada" allowing users to transfer money and pay bills via mobile phones. However, the adoption rate of these systems has been slow due to concerns over security and trust [22]. Regarding the regulatory environment, Algeria has recently enacted a new law called "Loi de Finances Complémentaire 2020" to promote the development of digital payment systems in the

country. The law incentivizes companies that invest in fintech and establishes a regulatory framework for digital payment services. This is expected to attract more fintech startups and increase competition in the market [23], there are signs of growth in the Fintech sector in Algeria. For example, in 2020, Algeria launched its first Fintech accelerator, **The Fintech Factory**. The Ministry of Post and Telecommunications supports the accelerator and aims to provide training, mentorship, and funding to Fintech startups in Algeria.

In addition, the Algerian government has introduced a range of initiatives to support Fintech innovation, including regulatory frameworks, funding programs, and partnerships with international organizations. These initiatives aim to promote the growth of digital financial services and increase financial inclusion in the country. One key factor driving Fintech's growth in Algeria is the increasing use of mobile phones and digital technologies [24].

Algeria and other countries have experienced the emergence of digital finance platforms such as crowdfunding platforms, where the Chairman of the Regulatory and Monitoring Committee for Exchange Operations has confirmed (COSOB): The crowdfunding body that makes it possible to raise funds for startups Companies via Internet platforms should become operational from the last

trio of 2020 and be granted the status of participatory investment consultant established under **Article 45** of the Supplementary Financing Act 2020 Business companies created and dedicated exceptionally to this activity and so on to brokers in the operations of the exchange and institutions running investment funds [25] , as shown in figure (3).



**Figure (3): Fintech Development in Algeria [26]**

▪ **ICT Reform in Algeria:**

Algeria has undertaken a series of reforms and government programs to increase openness to globalization, reflect Euro-Mediterranean agreements and untie trade. The first signs of reform of the telecommunications sector were the agreement of the mobile operator (**Djizzy and Ooredoo**), as well as the improvement of the quality of postal services by creating two institutions [27] :

- **"Algeria Telecom" and its branches Mobilis operator; and Djawab Internet services;**
- **"Algeria Post" is a public institution with an industrial and commercial advantage.**

The main activity of Algeria Telecom was adopted on March 01st 2001 by the National Council for State Contributions within the development and improvement of public and private networks, to facilitate access to communications and to increase the supply of telephone services in different regions. This regulation allows the promotion of communications as an essential engine of the economy. The aim of these reforms is to improve services and encourage the telecommunications sector as a key sector in the face of competition [28], as shown in table (4).



**Table (4): Key Data about ICT in Algeria [29]**

Indicators (Value)		2021
Global Mobile Connectivity Index		56.5
World Intellectual Property Organization Index (WIPO)		19.9
▪ ICT Infrastructure	39.1	
▪ Access to ICT	60.2	
▪ Use of ICT	53	
▪ E-Governance	27.6	
▪ E-participation	15.5	
▪ Import of ICT	0.6	
▪ Export of ICT	0.4	
Sustainable Development Goals Index (Rank)		66/165
▪ Population Using Internet %	59.58	
▪ Mobile broadband subscriptions (per 100 population)	95.98	

#### 6- The fragility of Algeria's banking sector under digitization:

International reports indicate that despite the risks involved in Digital Transformation, it provides many benefits and opportunities for banks, customers and the economy as a whole, as the adoption and use of this technology in the banking sector changes the way financial and banking services work and the delivery of products and services to customers, affecting banks' performance in terms of profitability, business operations and customer service.

As part of the modernization and to facilitate the

arrival of a banking service to customers, Algerian banks have moved from traditional banking providers to Digital banking services based on information and communication technology and on modern systems, in order to maintain the quality of the banking service provided, Various banks also offer e-banking and Mobile Banking services that allow customers to access the balance, request an account statement, make bank transfers from one account to another. Most banks also have an **SMS card service** that allows customers to access an unlimited message in their phone once they have withdrawn or paid [30], as shown in table (5).

**Table (5): Digital Banking Services Indicators in Algeria [31]**

Indicators (2021)	(% age +15)	Poorest 40%	Richest 60%
Made a digital in store merchant payment: using a mobile phone	3.8	1.7	5.2
Made or receive a digital payments	33.7	22.2	41.4
Owns a credit card	2.8	0.8	4.1
Used a mobile phone or the internet to send money	4.7	2.2	6.4
Used a mobile phone or the internet to check account balance in	3.6*	2.1*	4.6*

the past year			
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\*: Data for 2017.

Despite repeated promises by the Algerian government to disseminate electronic transactions at the level of various local banks in order to offer better service to customers and fight against banking problems, these promises have remained a dead letter, as demonstrated by digital banking indicators in previous table.

The main challenges and obstacles to digital transformation in the Algerian banking sector are the difficulty of acquiring customers due to the fear of piracy and fraud, as well as the lack of information security legislation for consumer protection in the area of financial services, Also difficulties in licensing companies involved in digitization and fintech, and the vulnerability of start-ups specialized in digital transformation due to the absence of an economic model based on cooperation with Algerian banks [32] . Besides, low level of financial education in Algeria, continued dependence of Algerian society on cash in its financial transactions and lack of confidence in electronic payment, another Challenge related to

the fact that some regulatory requirements place a heavy burden on modern FinTech that by nature does not have sufficient funding sources [33]. The inability of legal and regulatory frameworks to adapt to the digital transformation of the banking sector represents a significant risk for users of these financial services, and the fact that monetary occupation and digital wallets in the event of rapid and widespread deployment will be a threat to the financial intermediation role of traditional players [34].

- The main problem to block the digital transformation of banking services in Algerian banks is the low flow of Internet, due to the absolute monopoly of “**Algerie Telecom**”, which recalls the interruptions of the Algerian market of Internet services and, of course, its dependence on the state, The prevalence of financial exclusion of a large number of individuals and businesses due to low levels of banking competition, resulting from high levels of banking positioning, as shown in table (6).

**Table (6): Barriers to dealing with banks and financial institutions (age +15) [35]**

Indicators	(2021)
No account because financial institutions are too far away (%)	5.5
No account because financial services are too expensive (%)	12.6
No account because of a lack a necessary documentation (%)	22.9
No account because of a lack of a trust in financial institutions (%)	10.7
No account because of insufficient funds (%)	38.8
No account because of religious reasons (%)	9.8
No account because of someone in the family has one (%)	19.3

▪ **Evaluation financial inclusion of the banking sector:**

There is no doubt that enhancing financial inclusion plays an important role in supporting the efforts to face the climate change repercussions, by enabling financial sector customers to deal with risks associated with climate changes and enhancing their ability to recover from the climate change effects, which in turn contributes to inclusive and sustainable development, thus leading to soundness and resilience of the banking sector [36], Algeria is part of the Arab States group with intermediate levels of financial and banking coverage, and the weakness of the basic indicators can be attributed to the continuation by Algerian banks of a policy of difference between

excluded and existing customers in terms of financial services, what is good for banks to increase the cost of financial services that are not in favor of poor and marginalized groups [37]. Despite the government's strategies to increase the performance of the banking sector, Algerian banks are not becoming inclusive banks due to the apparent lack of banking governance, the lack of functioning and the lack of human skills specialized in the correct and responsible provision of banking services that allow to contain as many poor and disadvantaged groups as possible, as well as the deterioration in the quality of banking marketing methods [38], table (7) contains Algeria's financial inclusion indicators:

**Table (7): The Reality of Financial Inclusion in Algeria (age +15) [39]**

Indicators	(2021)
Financial Institution Account	44.1
Borrowed from a formal financial institution	3.8
Saved at financial institution	16.1
Automated teller machines (ATMs) (per 100.000 adults)	9.3
Commercial bank branches (per 100.000 adults)	5.3

### Conclusion

This study offers insights into digital transformation's capacity to improve financial inclusion in Algeria. The results are utilized to provide suggestions for policymakers, regulators, and financial institutions to address current obstacles and execute efficient plans for digitization in the banking industry. This initiative enhances the availability of financial services to every Algerian citizen, stimulates economic expansion, and cultivates solid financial stability and inclusivity throughout the nation.

### Key Findings

The research clarifies the crucial significance of digital transformation in improving the provision of banking services and promoting financial inclusion in Algeria. Despite the worldwide progress towards digitization, the Algerian banking industry encounters significant obstacles, such as antiquated banking offerings, escalating competitiveness, loan hazards, and technical obsolescence. These difficulties highlight the sector's pressing requirement for digital transformation and innovative solutions to fulfill

clients' changing demands and remain competitive in the global banking industry.

### Recommendations

- Algerian banks had to prioritize incorporating digital technologies and innovations to update their service delivery platforms and increase the rate of digital adoption. This includes using mobile banking, internet services, and digital payment systems to improve clients' ease of use and convenience.
- Capacity building is essential for investing in human capital by implementing training and development programs. These programs aim to provide bank staff with the appropriate digital skills and knowledge.
- Regulatory reforms are necessary to provide a favorable climate for digital transformation. This involves updating legislative frameworks, promoting digital innovation, and maintaining robust cyber security measures.
- Facilitating collaboration among stakeholders, such as banks, fintech start-ups, and telecommunication providers, can promote financial inclusion using their combined expertise in technology, infrastructure, and market penetration.
- Adopting client-centric approaches, banks should prioritize comprehending and fulfilling their customers' distinct requirements by offering tailored digital banking solutions. This will enhance customer happiness and foster loyalty.
- Adopting digital transformation offers a strategic opportunity for the Algerian banking industry to overcome its existing obstacles and attain financial inclusion. By embracing and adapting to worldwide digital trends and cultivating an environment that encourages

and facilitates innovation, Algeria has the potential to create a banking industry that is more comprehensive, streamlined, and adaptable.

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