Digitalization of banking services in Algeria: empirical analysis of uses and obstacles to adoption

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Abstract:

Like all countries, Algeria began digitizing its banking services in the 1990s. The goal is to facilitate and make them accessible while ensuring their security, and to align with international economic transformations.

This study focuses on digital banking services in Algeria. It aims to identify their emergence, assess the extent to which they are used by customers, and analyze the barriers and obstacles to their widespread adoption. To this end, we conducted a field survey by distributing a questionnaire to bank customers. Initial results demonstrate a certain transition toward digitization, as digital banking services are increasingly used, particularly in payment transactions. However, several barriers and obstacles hinder their widespread adoption (customer reluctance, unstable connection, etc.).

Keywords: Digitization, digital banking service, Algerian bank, e-payment, field survey

Jel Classification Codes : G21, O31, C8

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1. Introduction :

In the era of digital transformation, the banking sector is undergoing a profound transformation marked by the integration of new information and communication technologies into banking services.

Digital banking services have attracted increasing interest in the academic literature. This attention is explained by their significant impact on customer relations, banking development, and the dynamics of financial innovation.

It is important to understand these terms carefully. While the term "digital" refers more to the technological aspects and underlying infrastructure (computer hardware, networks, platform), digital banking services emphasize the usage and practices associated with this hardware. Thus, by examining this same literature, we conclude that "digital" refers to the tool, while "digital banking services" encompasses its integration into banking operations.

Digital banking services are a component of the digital transformation of banks aimed at offering fast, secure and accessible services via information and communication technologies (Pulakkazhy & Balan, 2013, p6).

The digitalization of banking services provides seamless and permanent (24/7) access to banking operations via mobile platforms, AI chatbots, blockchain, etc., accompanying challenges such as cybersecurity, regulatory compliance, and the digital divide (Harris & Sahija, 2025,P2).

Broadly defined, digital banking refers to the use of technology to seamlessly conduct banking transactions. It therefore includes online banking, electronic banking, and mobile banking. Unlike traditional banking, digital banks aim to develop adaptable digital products and services to meet the needs of their digital customers (Sardana & Singhania, 2018, P10). Thus, it offers a convenient and efficient way to conduct financial transactions, often without physically visiting a branch (Barquin & Hv, 2015, P12).

Today, economies worldwide are increasingly moving towards digital banking services. Their rapid evolution facilitates the transition to a cashless society, improving financial inclusion, operational efficiency, and user experience, while also posing challenges such as cybersecurity, compliance, and privacy (Sariqulova & Kuchkarov, 2024). These technological developments will change our daily relationship with money, and, beyond that, they could make our economies healthier and more resilient. Because they allow us to consider a break with the current monetary system, which is centralized and rigid, and therefore fragile (Herlin, 2015,P8).

In this wake, Algeria became aware, in the mid-1990s, of the strategic challenges associated with the digitalization of banking services, which was seen as an essential lever for modernizing the Algerian financial sector.

This work focuses on the evolution of digital banking services in the Algerian economy. It aims to analyze the conditions of their emergence, assess their role and importance in the development of the banking sector, while providing a critical assessment after three decades of digital transition.

Our objective is to identify the main stages in the digitalization of the Algerian banking sector, assess the extent to which customers use digital banking services, and analyze the barriers and obstacles to the widespread adoption of these services.

Therefore, our central question can be formulated as follows: **what is the current state of use and diffusion of digital banking services in Algeria, nearly 30 years after their introduction?**

Based on this central question, we formulated the following hypotheses:

Hypothesis 1: The adoption of digital banking services has experienced strong recent growth but remains concentrated in urban areas.

Hypothesis 2: The digitalization of banking services creates user difficulties for some customers, particularly the elderly and those unfamiliar with technology.

To attempt to answer this question, we opted for an approach based on a questionnaire survey conducted among a randomly selected sample of banking customers. The questionnaire was designed to collect data on several aspects related to the use of digital banking services, including: the extent of use, customer motivations and expectations, and problems encountered.

Nevertheless, it is essential to first examine digital banking services in Algeria, from their emergence to the present day.

2. The emergence of digital banking services in Algeria:

The emergence of digital banking services in Algeria is part of a national dynamic to transform the Algerian banking system. Since the early 2000s, Algerian monetary authorities have gradually realized the importance of modernizing banking services through the integration of new information and communication technologies. The objective is to strengthen the efficiency of banking services and meet new customer demands.

However, the relationship between financial technologies and banks in Algeria is still being evaluated and evolving. On the one hand, FinTechs are considered a threat to traditional banks. Due to their ability to offer new and innovative financial solutions, financial technologies offer alternative ways to deliver innovative financial services. On the other hand, banks also see FinTechs as an opportunity for collaboration and innovation (MELAKHSSOU, 2024, P7).

2.1 Phase 1995-2010: First steps towards digital banking:

This first phase, which began in 1995, marked the beginning of digital banking services in Algeria.

- Creation of the Interbank Transactions Automation and Electronic Payments Company

Under the impetus of the Bank of Algeria and the public authorities, the digitalization of banking services in Algeria began to take shape with the creation in 1995 of the Interbank Transactions Automation and Electronic Payments Company (in french we say la SATIM)

Today, it brings together 19 members in its interbank electronic banking network, consisting of 18 banks, including 7 public banks and 11 private banks, as well as Algeria Post.

The « *SATIM* » is considered the technical and logistical pillar of the digital banking system in Algeria. Its main mission is to ensure the automation of interbank transactions as well as the development and management of the Algerian electronic banking infrastructure. Thus, it is seen as the technical and organizational core of the national electronic banking system. It can also be a key lever for financial inclusion, facilitating citizens' access to digital banking services, particularly in remote or underbanked areas.

- Launch of the first bank cards

The first attempts to launch bank cards in Algeria date back to the 1970s, with two automated teller machines (ATMs) installed in 1975. This initiative, although innovative for the time, did not achieve lasting success. The ATMs were only operational for a short time due to various constraints, including technical and logistical ones, and a lack of maturity in the Algerian banking system to support such a technological change.

It was not until 1996 that the interbank electronic payment project in Algeria truly took off. SATIM launched the cash withdrawal service via ATMs by establishing an interbank electronic payment network capable of ensuring interoperability between different banks. This network provided the basic infrastructure for the development and gradual widespread use of the CIB card.

The real launch of the interbank card (CIB) in Algeria took place between 2005 and 2006, when Algeria reached decisive milestones in the adoption of electronic payment cards:

- Banks, through SATIM, deployed the first interbank CIB cards, with a ramp-up in 2006 despite limited usage.
- Algérie Poste, with Edahabia, expanded access to banking services to a wider population, while simultaneously introducing technological reliability (EMV chip) and a range of e-payment services from the outset.

2.2 Second phase 2010-2020: gradual development

Between 2010 and 2020, Algeria began to develop its digital services in a more organized manner, with the aim of modernizing the administration, economy, and public services.

- The Beginning of E-Banking

E-banking began to gradually develop in Algeria in the early 2010s, amid the modernization of the banking sector.

The first features offered by banks allowed customers to access:

- Their account balance in real time,
- Transaction history,
- Debit/credit transactions.

These transactions are available via secure web interfaces (customer portals) or mobile banking applications for some banks.

Shortly after, some banks such as BEA, CPA, and BNP Paribas el Djazair adopted intra-bank transfers, which facilitate money transfers between accounts at the same bank. The widespread adoption of mobile banking applications in 2014 expanded the use of these intra-bank transfers, giving customers more independent and digital management of their bank accounts.

- The Creation of the Electronic Payments Economic Interest Group

The Electronic Payments Economic Interest Group (EIG) was created in June 2014 at the initiative of the Association of Banks and Financial Institutions (ABEF). Comprised of 19 members, including 18 banks and Algérie Poste, its primary mission is to regulate the electronic payment sector in Algeria by defining standards, ensuring the security of electronic transactions, and managing the technical platform for routing interbank payments.

- Launch of online payment on e-commerce sites (bills, utilities)

The EIG Monétique launched online payment in Algeria in October 2016. This system allows bank customers to make electronic transactions using CIB and Edahabia payment cards. Since then, online payment has been extended to a range of essential services, including water, electricity, and gas distribution companies,

telephone operators, insurance companies, and certain public administrations, marking a major milestone in the digitalization of services in Algeria.

2. 3. From 2020 to the present: Digital acceleration

The COVID-19 pandemic has played a decisive role in accelerating the digitalization of banking services in Algeria.

Faced with health restrictions and the need to limit travel, several banks have stepped up their efforts to modernize their services. For example, the National Bank of Algeria (BNA) launched its e-banking platform and a mobile application to facilitate remote account management. Other banks, such as CPA and Société Générale Algérie, have also introduced or improved their online payment portals, in addition to promoting contactless payments. At the same time, the Bank of Algeria has relaxed certain regulations to encourage these initiatives. These measures have contributed to a significant increase in electronic payments and wider adoption of digital tools by the population, marking an important step towards modernizing the national banking system. At the same time, Algeria Post has expanded the use of the Edahabia card through the BaridiMob application, allowing citizens to pay their bills and make transfers remotely.

3. Overview of Digital Banking in Algeria

Digital banking services in Algeria are numerous and diverse. In the table below, Digital banking services in Algeria are numerous and diverse. In the table below, based on bank activity reports, we have attempted to summarize these main services, specifying their functions and the institutions that offer them. We have attempted to summarize these main services, specifying their functions and the institutions that offer them.

Table No. 1: Digital banking services offered in Algeria

Digital Service	Main Functions	Banks / Institutions Involved
Payment Cards (CIB, Edahabia)	ATM withdrawals, payments at merchants (POS), online purchases	All banks (CIB), Algeria Post (Edahabia)
Online Payment (Web)	Bill payments, e-commerce purchases, telecom top-ups	All banks via GIE Monétique, 582 web merchants
Mobile Payment	P2P money transfers, QR code payments, online merchant payments	BaridiMob, Wimpay, BNA, Al Salam Bank, Algeria Post
Online Account Opening	Card requests, account access, initial banking procedures	Société Générale (Banxy), BNA, Al Baraka, BNP Paribas
Mobile Applications	Balance inquiry, transfers, bill payments, mobile top-	Algeria Post (BaridiMob)

	ups	
Digital Islamic Finance	Islamic account opening, Sharia-compliant savings products	BNA, Al Salam Bank, El Baraka Bank

Source: various bank activity reports

As part of the digitalization of banking services in Algeria, more and more banks are offering online services, such as remote account opening. Indeed, the Algerian banking sector should benefit from the new mindset of Algerians who are becoming increasingly tech-savvy (ABOURA & CHAHIDI, 2017, P17).

At the same time, digital services related to Islamic finance have particularly grown in the 2020s, with the digitalization of Islamic accounts and Sharia-compliant savings products, made accessible via mobile applications and online banking platforms.

In its 2024 report (P4), the EIG reveals exponential growth in digital payments in Algeria. Thus, the total amount of electronic transactions (combining EFT, online, and mobile) reached 643.8 billion DA, an increase of more than 48% compared to 2023 (EIG, 2024, P4).

4. Field Survey:

In an attempt to answer our previously posed central question, we conducted a field survey among banking customers by distributing a questionnaire on the use of digital banking services.

The questionnaire was distributed online, targeting banking customers, during the months of May and June 2025.

This survey collected 103 responses. The main objective is to analyze the usage patterns of these services, identify their benefits, and highlight the obstacles and barriers to their development.

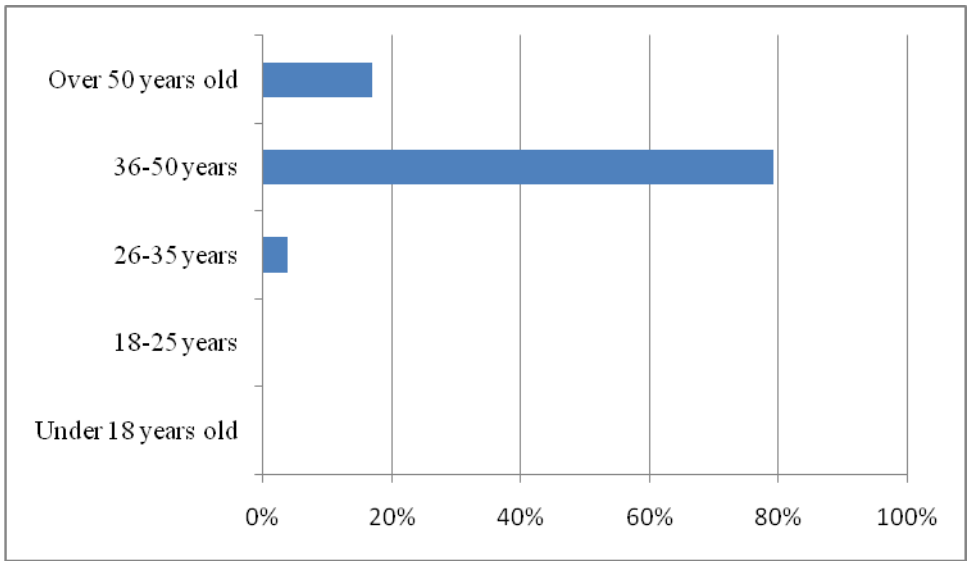
The results of this survey can be summarized as follows:

4.1. Demographic information:

To better understand users of digital banking services, we began our questionnaire with demographic questions, including questions related to age and residential area. The objective is to identify the age groups of respondents in order to analyze the use of digital services by generation and assess differences in access or usage between urban and rural areas.

The results related to demographic information are as follows:

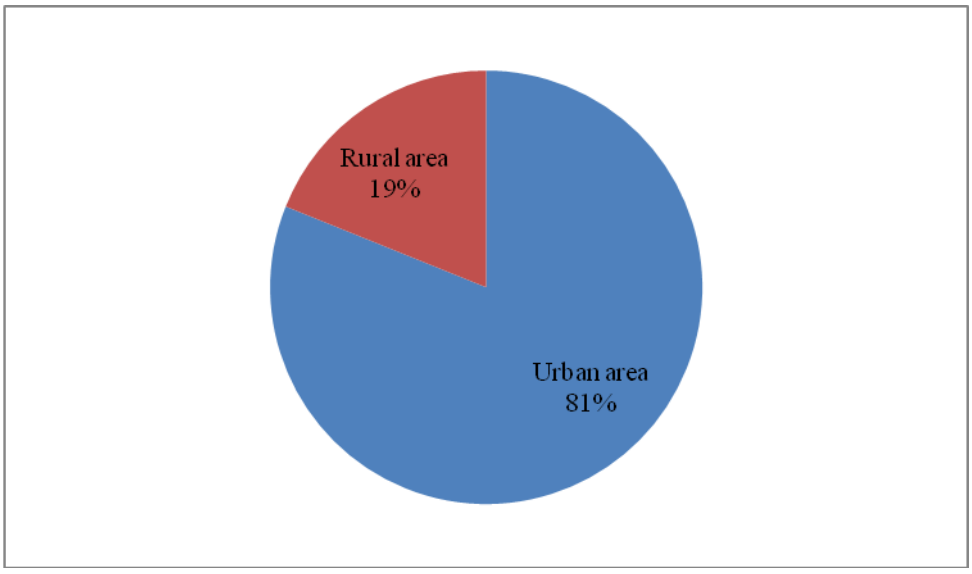
Figure No. 1: Age of users



Source: created by us based on survey results

Regarding the residential area, the results are as follows:

Figure No. 2: Residential area of users



Source: created by us based on survey results

We note that nearly 80% of users surveyed are between 36 and 50 years old. This age group generally enjoys professional and financial stability, allowing them easy access to banking services in their entirety.

Furthermore, this generation adapts easily to the digital transition, which facilitates their use of new technologies in their daily lives, particularly since the Covid-19 health crisis.

We also note that 80% of these same users live in urban rather than rural areas.

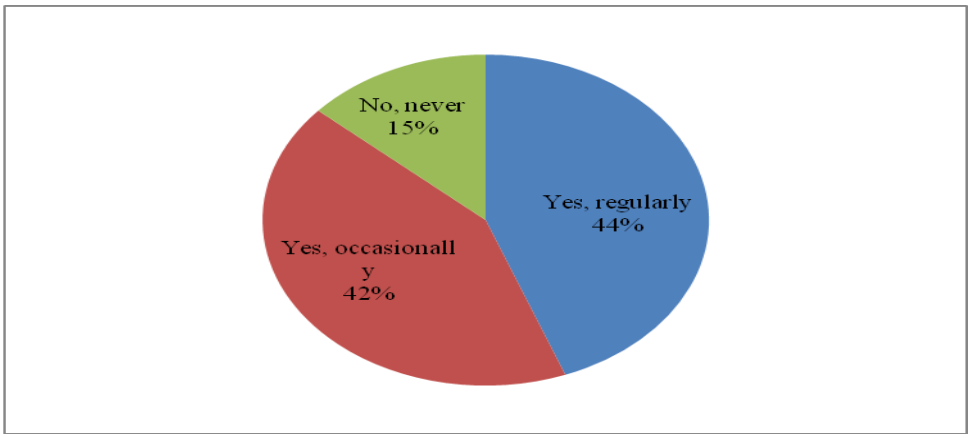
Indeed, urban areas offer the necessary conditions for using digital banking services, such as high-speed internet and more reliable network coverage.

4.2. Use of Digital Banking Services

After examining the demographic information, we moved on to questions related to the use of digital banking services. The objective was to measure the penetration rate of digital banking services, identify the most used features (balance, transfer, invoice, etc.) to target the main uses, and finally analyze the intensity of use (daily, weekly, monthly).

The results obtained allowed us to construct the following figures:

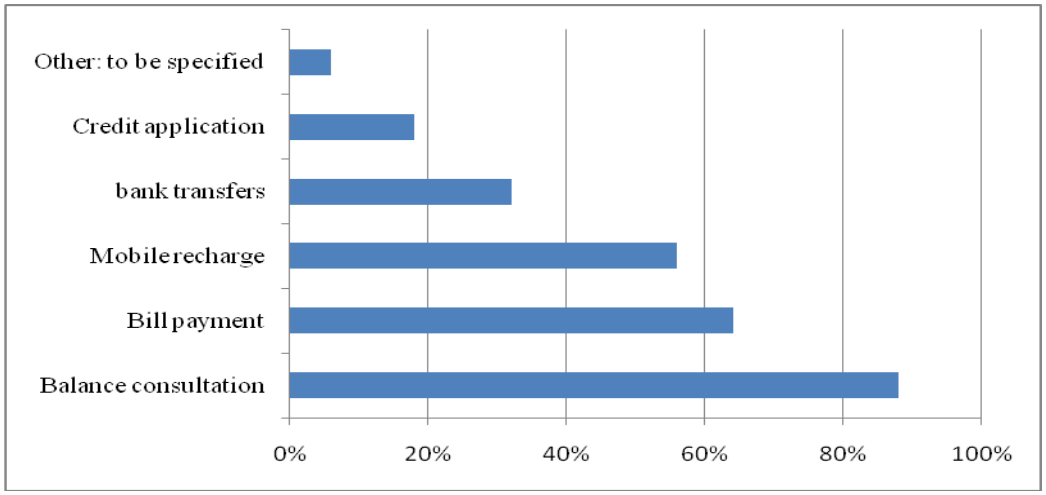
Figure No. 3: Use of digital banking services



Source: created by us based on survey results

Users identified the most frequently used banking transactions, as illustrated in the following figure.

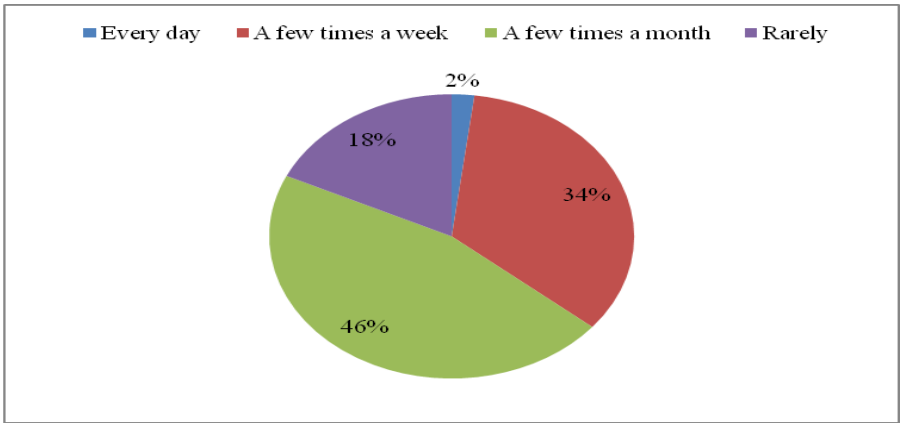
Figure 4: Digital banking transactions performed



Source: created by us based on survey results

After identifying the most commonly used operations, it is essential to analyze their frequency of use, as shown in the following figure.

Figure No. 5: Frequency of use of digital banking services



Source: created by us based on survey results

Respondents to our survey use digital banking services anywhere from a few times a week to a few times a month. These services are primarily used for simple transactions such as checking balances, paying bills (electricity, water, etc.), and topping up mobile phones. These uses contribute to more efficient management of personal finances while saving considerable time.

4.3. User Experience and Satisfaction

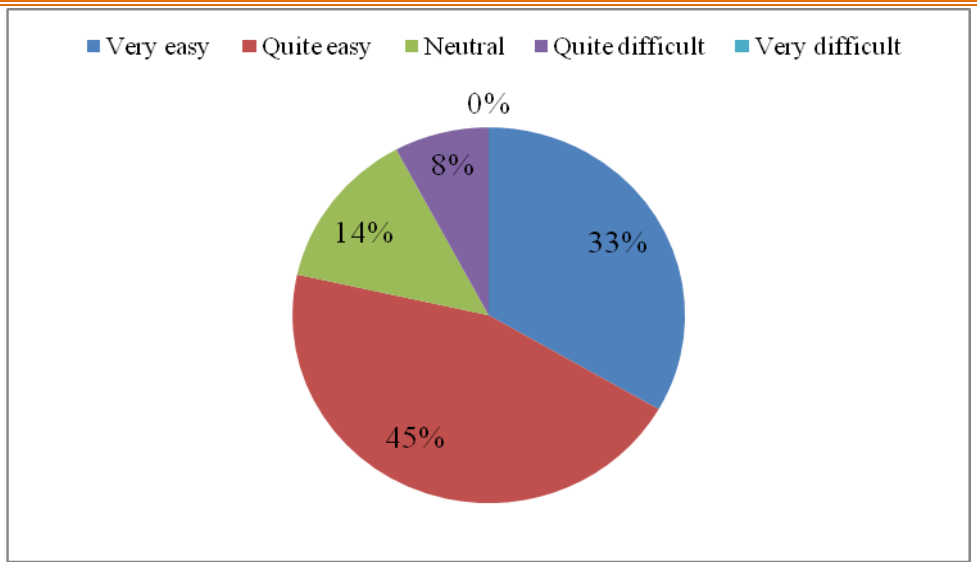
To better understand user experience and satisfaction, we developed three questions regarding the ease of use of digital banking services, the challenges encountered, and customer preferences between in-branch and online services.

- **Ease of Use of Digital Banking Services**

Ease of use of digital banking services refers to the set of characteristics that make these services simple, fast, and enjoyable for users.

The results are presented in the following figure.

Figure No. 6: Ease of use of digital banking services



Source: created by us based on survey results

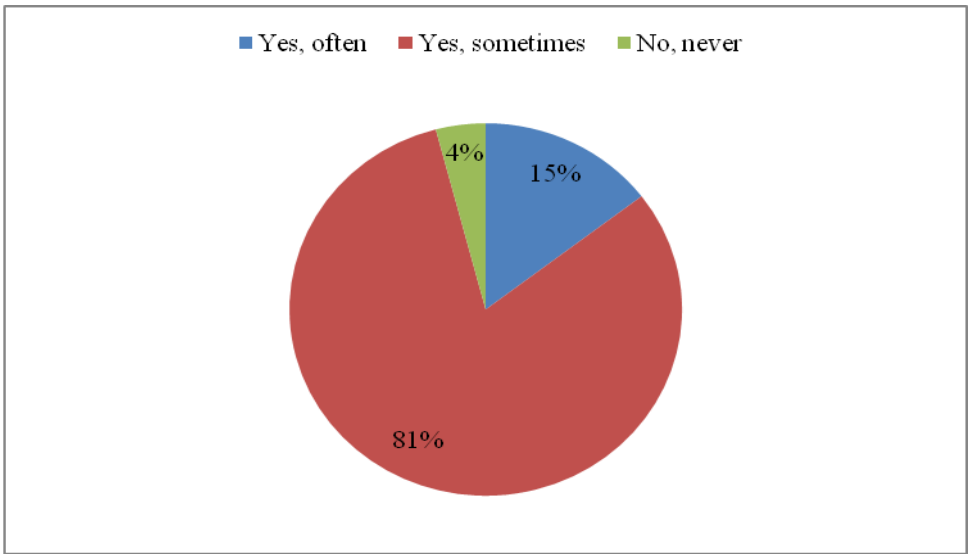
Our survey reveals that 45% of users consider using digital banking services to be relatively easy in Algeria.

This is explained by several factors. Indeed, the most commonly performed transactions (mentioned above) are simple and well-adapted to everyday needs, which limits complexity for the user. Furthermore, some banking applications offer a simple and easy-to-use interface, accessible even for those with little experience. Furthermore, the availability of interfaces in Arabic and French allows for better language accessibility. Finally, some banks offer support materials such as tutorials or a help desk, which reinforces the feeling of ease among users.

- **Technical issues encountered**

More than 80% of respondents reported occasionally encountering problems using digital banking services. This is shown in the following figure.

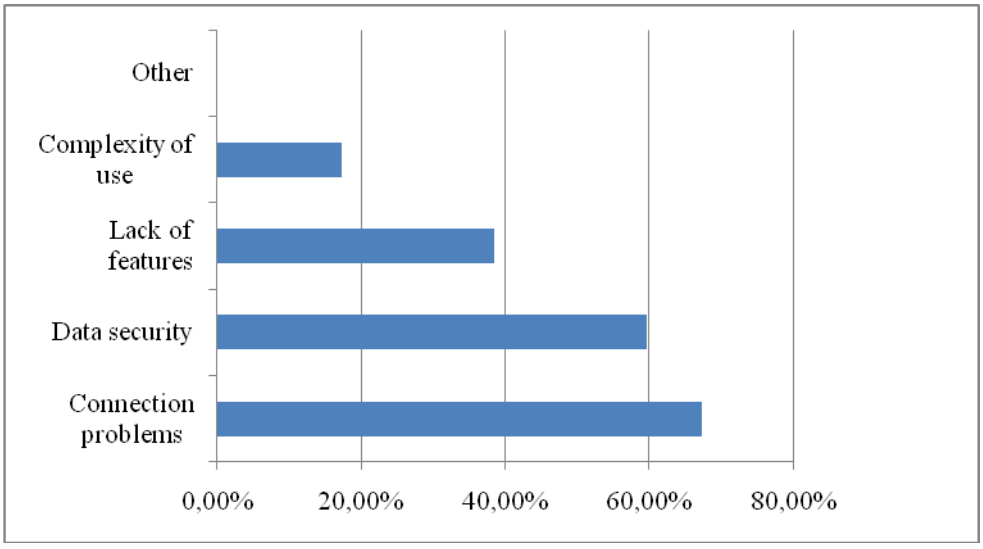
Figure 7: Percentage of users who encountered difficulties using digital banking services



Source: created by us based on survey results

We felt it was necessary to identify the types of problems most frequently encountered by users. The results are summarized in the following figure.

Figure 8: Types of problems encountered when using digital banking services



Source: created by us based on survey results

These problems fall into several categories:

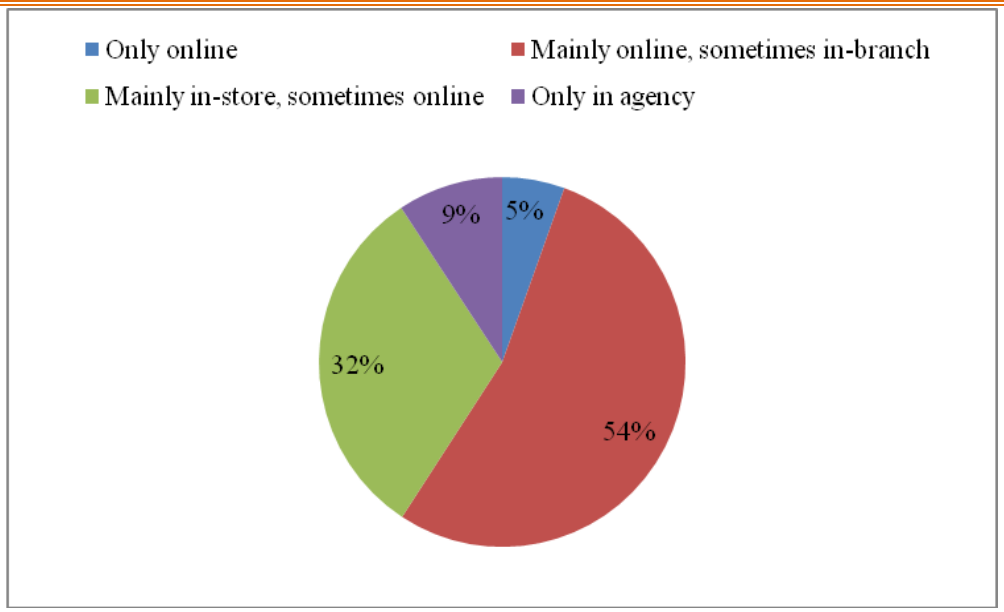
- Technical issues: temporary application or website outages, slow loading times or frequent bugs, and problems connecting to bank servers.
- Security issues: distrust of personal data security, fear of hacking or online fraud.
- Internet access issues: unstable or slow connection in certain regions.

➢ **Preference for online services or physical branches**

Analyzing preferences between online services and physical branches helps us better understand user expectations, guide banks' strategic choices, and facilitate the digital transition.

The results obtained in our survey are summarized in the following figure.

Figure 9: Preference for online services or physical branches



Source: created by us based on survey results

Nearly 54% of users report preferring to primarily use online banking services, while occasionally visiting a branch.

This preference for online banking services is driven by the desire for simplicity, time savings, and autonomy. Common transactions such as checking balances, making transfers, or paying bills can be completed quickly and at any time, without geographical constraints or waiting in branches.

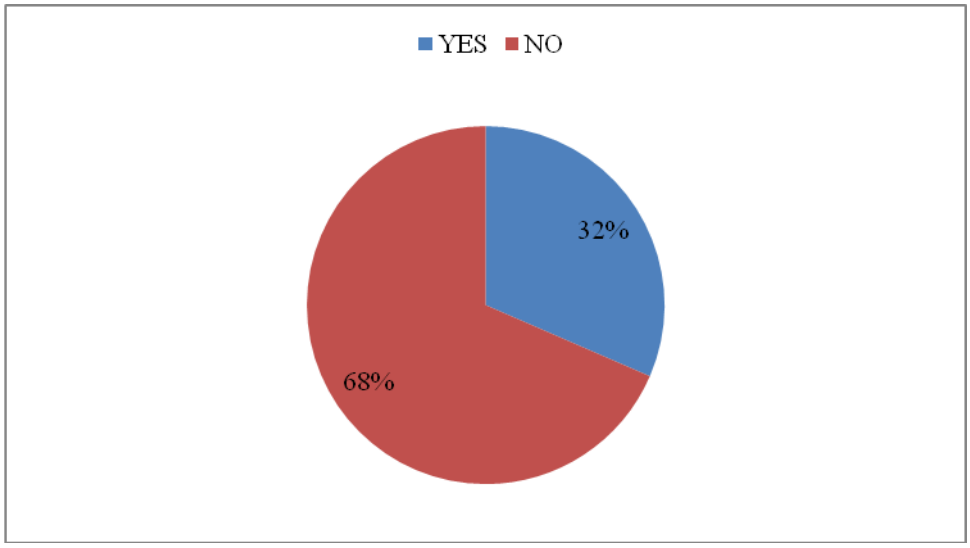
However, some users continue to visit physical branches, particularly for procedures requiring direct contact, such as opening an account, signing documents, or resolving complex issues. This demonstrates that the digital transition is still incomplete.

4.4. International Perspectives

In our survey, international perspectives refer to our users' international experiences and how the digitalization of banking services is evolving or perceived in other countries, and what can be learned from this to enrich local analysis.

The responses obtained are presented in the following figure.

Figure 10: Use of digital banking services internationally



Source: created by us based on survey results

Only 31% of users have already used digital banking services abroad, particularly in France, Turkey, and Canada.

They explain that abroad, online banking services are both diverse and easily accessible via mobile apps. In case of problems, telephone support is available 24/7, whether for quick card renewals or for any transaction carried out via the bank's app or website.

5. Summary of Survey Results

This survey on the use of digital banking services in Algeria sheds light on the current dynamics of user adoption of digital technologies, while identifying the enabling factors and persistent obstacles to widespread and equitable adoption.

The results highlight a certain shift toward digitalization, particularly among users aged 36 to 50, who mostly live in urban areas. This segment of the population, often professionally active and better equipped in terms of connectivity, seems more inclined to integrate digital banking services into their daily financial management. However, this adoption remains unevenly distributed, particularly due to residential area.

The analysis highlighted several structural and technical barriers hindering the smooth operation of these services: unstable internet connections, frequent technical malfunctions (outages, slowness), and concerns related to the security of personal data and transactions. These factors contribute to a certain reluctance or mistrust, particularly among users less familiar with digital tools.

Furthermore, the experiences of users who have used digital banking services abroad highlight significant gaps in terms of service quality, accessibility, and innovation, particularly with regard to continuous support, the functional diversity of applications, and the integration of modern payment tools.

Thus, this survey highlighted a gradual but still incomplete digitalization of the Algerian banking sector. While basic uses (balance checks, bill payments, transfers)

are well integrated, higher value-added services remain underdeveloped.
Users express a clear desire to see the widespread use of digital banking and online payments, while highlighting several areas for improvement essential to their widespread adoption:

- **Ease of Use and Accessibility**
- Improve applications to make them more intuitive and easy to use.
- Reduce the number of steps required to complete routine transactions.
- Make contactless (wireless) payment cards available to facilitate payments.
- Integrate practical features such as downloading account statements, payment slips, and international usage mechanisms.
- **Connectivity and Technical Performance**
- Improve the quality of internet connections, particularly in underserved areas.
- Find technical solutions to ensure stable access to online banking services.
- Offer instant transfer services, including:
- Account-to-account transfers
- Postal code-to-bank transfers and vice versa
- National and international transfers
- **Security and Trust**
  - Strengthen cybersecurity and personal data protection mechanisms.
  - Ensure secure transactions at lower costs. • Strengthen user trust through greater transparency, particularly regarding fees.
- **Customer Service and Support**
- Offer more responsive customer service, particularly via effective instant messaging.
- Provide 24/7 telephone support for all types of requests (card renewals, blocking, etc.).
- Provide more detailed explanations of the services offered and the steps to follow.
- **Communication and Awareness**
- Launch awareness campaigns to explain the benefits of digital banking.
- Encourage consumers and merchants to use electronic payment methods.
- Foster a climate of trust through targeted educational initiatives.

Conclusion

In this work, we focused on the digital transition that the Algerian banking system has

undergone over the past thirty years. Indeed, the Algerian monetary authorities initiated a series of measures in the 1990s to introduce digitalization in Algerian banks.

Thus, the Interbank Transactions Automation and Electronic Payments Company was created and is now considered the cornerstone of digital banking services. These efforts were reinforced by the launch of the first interbank cards in the mid-2000s, and then intensified more recently to meet the new challenges posed by the health crisis linked to the Covid-19 pandemic.

In an attempt to address our question regarding the use of digital banking services in Algeria, we conducted a field survey of bank customers.

The results revealed an ongoing digital transition, but one that is still weak and unevenly distributed. A large proportion of users, especially those in urban areas and in the working-age group, are increasingly interested in digital tools, which confirms our first hypothesis. However, technical, infrastructural, and cultural barriers are slowing their widespread adoption. Which also confirms our second hypothesis.

The survey provided a precise overview of the use of digital banking services: the most used services remain the simplest (balance checks, transfers, bill payments), with moderate usage frequency. While the majority find these services fairly easy to use, many report frequent bugs, a lack of platform stability, and concerns about data security.

Furthermore, a comparison with the experience of other countries shows that Algeria has significant room for improvement, but also a solid foundation for evolving its banking model towards greater innovation and inclusion. Therefore, to fully succeed in this transformation, it is necessary for banking sector stakeholders, in consultation with public authorities and technology operators, to adopt an integrated approach, focused on the user, security, reliability and accessibility of services. It is not just a matter of introducing digital tools, but of building a digitalized, secure, efficient and equitable banking ecosystem, serving the entire population.

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