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Islamic Finance and FinTech: What Synergy for Improving Financial Inclusion in Algeria? Case of Al Baraka Bank Algeria

المالية الإسلامية والتكنولوجيا المالية أي تكامل لتعزيز الشمول المالي في الجزائر؟ دراسة حالة بنك البركة الجزائر

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Article abstract:
This study explores the role of FinTech in enhancing financial inclusion within Islamic finance in Algeria, focusing on Banque Al Baraka. It aims to address the research problem:How and to what extent does the integration of FinTech solutions into Islamic finance enhance financial inclusion in Algeria? seeks to highlight how the integration of FinTech supports the development of Sharia compliant financial services while reinforcing inclusive financial practices. A descriptive and analytical methodology is adopted.The results confirm that the relationship between Islamic finance and FinTech is complementary, as it expands the scope of financial services
Key words: *Islamic finance; FinTech; Financial inclusion; Bank Al Baraka Algeria.*

ملخص المقال:
تبين هذه الدراسة دور التكنولوجيا المالية في تعزيز الشمول المالي ضمن إطار المالية الإسلامية في الجزائر، مع التركيز على بنك البركة. تهدف إلى معالجة الإشكالية التالية: كيف وإلى أي مدى يساهم دمج حلول التكنولوجيا المالية في المالية الإسلامية في تعزيز الشمول المالي في الجزائر؟ كما يسعى البحث إلى إبراز كيف يدعم هذا الدمج تطوير الخدمات المالية المتوافقة مع الشريعة الإسلامية، مع تعزيز الممارسات المالية الشاملة. وتعتمد الدراسة على منهج وصفي تحليلي. وتؤكد النتائج أن العلاقة بين المالية الإسلامية والتكنولوجيا المالية هي علاقة تكاملية، حيث تساهم في توسيع نطاق الخدمات المالية.
كلمات مفتاحية: المالية الإسلامية؛التكنولوجيا المالية؛الشمول المالي؛ بنك البركة الجزائر

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Introduction

Over the past two decades, the global financial system has undergone major structural transformations driven by digital transformation and the rapid expansion of financial technologies (FinTech). This dynamic goes beyond mere technological modernization; it reflects a profound reconfiguration of banking business models, intermediation mechanisms, and the modes of delivering financial servicesthe FinTech revolution represents a process of disruptive innovation that reshapes the traditional boundaries of the financial sector by introducing new actors, digital platforms, and more agile organizational models. (Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W, 2018).

The emergence of a digital financial ecosystem reflects the growing integration of information technologies, artificial intelligence, and digital platforms into core financial services, including banking, payments, crowdfunding, and asset management. Such developments contribute to greater operational efficiency, lower transaction costs, and enhanced financial accessibility (Lee, I., & Shin, Y. J., 2018)

In developing countries, these developments carry particular strategic importance. Digital financial innovations are increasingly considered essential tools for promoting financial inclusion for traditionally underserved populations.

Therefore, financial digitalization should not be understood merely as a technological phenomenon, but rather as a major economic and social issue capable of influencing economic growth and structural transformation.

The digitalization of payment systems and the rapid diffusion of mobile financial accounts have played a significant role in broadening financial inclusion, especially in emerging and developing economies (World Bank, 2022).Therefore, financial digitalization should not be understood merely as a technological phenomenon, but rather as a major economic and social issue capable of influencing economic growth, financial stability, and structural transformation. At the same time, it raises significant challenges related to regulation, cybersecurity, data protection, and the governance of digital financial systems.

Research problem: How and to what extent does the integration of FinTech solutions into Islamic finance enhance financial inclusion in Algeria? To address this issue, a case study approach is adopted, focusing on Al Baraka Bank Algeria. It empirically examines the main FinTech tools deployed and evaluates their impact on both access to and usage of Islamic financial services within the Algerian context. This approach allows for a deeper understanding of the role of digital transformation in promoting inclusive Islamic finance.

Research Objective

This research aims to assess the role of FinTech integration in enhancing financial inclusion within Islamic finance in Algeria, through a case study of Al Baraka Bank Algeria. It examines how digital financial solutions contribute to expanding access, improving usage, and supporting Sharia-compliant financial services.

Research Questions

Q1: What are the main FinTech solutions adopted by Al Baraka Bank Algeria?

Q2: What is the impact of these solutions on financial access and usage?

Q3: What is their effect on customer satisfaction and service quality?

Hypotheses

H1: The adoption of FinTech solutions by Al Baraka Bank Algeria significantly improves access to Islamic financial services and contributes to reducing financial exclusion.

H2: The adoption of FinTech solutions significantly enhances the usage of Islamic financial services by increasing the frequency and efficiency of financial transactions among customers.

H3: The digitalization of Islamic financial services through FinTech solutions positively

Research Methodology

This study adopts a descriptive and analytical research design to examine the contribution of FinTech integration to financial inclusion within Islamic finance in Algeria. It employs a case study approach focusing on Al Baraka Bank Algeria, selected as a representative Islamic banking institution actively engaged in digital transformation. Data collection is based on the analysis of institutional documents, official reports, and sectoral publications related to Islamic finance and digital transformation in Algeria. The analysis is carried out using a combination of descriptive statistical tools, graphical illustrations, and qualitative interpretation. It aims to assess the contribution of FinTech solutions to improving access, usage, and efficiency of Islamic financial services.

1. Theoretical Foundations and Principles

1.1Theoretical Foundations and Principles of FinTech:

Contemporary FinTech reflects a transition toward a data-driven financial ecosystem that extends far beyond basic electronic banking or mobile interfaces. It is increasingly characterized by the integration of advanced technologies such as Artificial Intelligence (AI) and Machine Learning, which significantly transform risk assessment, credit scoring, and customer relationship management. Furthermore, the emergence of Blockchain and Distributed Ledger Technology (DLT) enhances transparency, traceability, and immutability, features that strongly align with the ethical and governance principles of Islamic finance. These developments illustrate that FinTech does not merely digitize existing processes; rather, it enables the creation of new, agile organizational models and innovative financial architectures that support the democratization of financial services.

FinTech (Financial Technology) refers to the set of technological innovations applied to financial services with the aim of improving the efficiency, accessibility, and quality of financial products. It is based on the use of digital technologies such as online platforms, mobile applications, electronic payment systems, big data, and artificial intelligence, thereby transforming traditional models of financial service delivery (Schueffel, 2016)

Recent systematic literature reviews highlight that FinTech is no longer limited to technological efficiency improvements but increasingly represents a driver of financial democratization and inclusion. In particular, digital finance, mobile banking solutions, and platform based financial services are identified as key mechanisms facilitating access to formal financial systems, especially in emerging and developing economies (Ha, D., Le, P., & Nguyen, D. K, 2025)

Moreover, contemporary research underscores the role of emerging technologies such as artificial intelligence, blockchain, machine learning, and data analytics in reshaping risk assessment, credit allocation, and customer relationship management (Gang Kou &Yang Lu, 2025) These technologies contribute not only to enhancing operational performance but also to the personalization of financial services, thereby improving user experience and fostering greater financial participation.

Building on this technological foundation, FinTech should be understood as a comprehensive innovation ecosystem that transcends the simple digitization of financial services. (Nicoletti, B, 2017) It embodies a structural transformation of financial intermediation, characterized by the emergence of platform-based models, data-driven decision-making processes, and new forms of financial interaction. In this broader perspective, FinTech reshapes not only how financial services are delivered but also how value is created, distributed, and accessed within the financial system. It reduces information asymmetries, enhances market efficiency, and fosters more inclusive and decentralized financial structures. Furthermore, it redefines the boundaries of the financial sector by enabling the entry of non-traditional actors, such as fintech startups and big tech firms, thereby intensifying competition and innovation.

Electronic payment systems and digital wallets have become among the most prominent applications of Financial Technology (FinTech), playing a central role in expanding financial services and enhancing financial inclusion. These digital tools enable individuals to perform payment and transfer transactions quickly and securely, without the need to visit traditional bank branches. They also facilitate storing funds, paying bills, and conducting online transactions, thereby significantly improving access to financial services for a broader segment of the population, particularly those who remain unbanked. (Groupe Speciale Mobile Association)GSMA, 2023)

Within the context of Islamic finance, these digital solutions offer additional value by supporting the principles of transparency, ethical financial conduct, and accessibility. By enabling traceable and secure transactions, FinTech applications contribute to reinforcing trust and compliance with Sharia principles. Furthermore, they facilitate the delivery of Sharia-compliant financial services in a more efficient and inclusive manner, particularly in environments where access to traditional Islamic banking remains limited.

In this perspective, digital financial tools represent not only a technological advancement but also a strategic mechanism for strengthening the inclusive and ethical foundations of Islamic finance.

the integration of FinTech into Islamic finance is particularly relevant. Given its ethical and risk-sharing principles, digital technologies can expand access, improve transparency, and strengthen financial inclusion in contexts such as Algeria

1.2 Fundamental Principles of Islamic Finance:

Islamic finance constitutes a financial system rooted in the principles of Shariah, primarily based on the prohibition of interest *(*riba*)*, excessive uncertainty or speculation *(*gharar*)*, and involvement in unlawful activities (Chapra, 2009) At its core, Islamic finance privileges profit-and-loss sharing mechanisms and transactions backed by real economic assets, thereby promoting a more ethical and socially responsible financial framework. This ethical orientation is designed not only to prevent exploitative practices but also to foster stability and equitable resource allocation within the financial system (Meero., 2025)

The traditional instruments of Islamic finance such as murabaha, mudaraba, musharaka, ijara, and salam are structured to address the financing needs of households and enterprises while fully complying with Shariah principles. These instruments encourage risk sharing and avoid speculative practices, contributing to the resilience and inclusiveness of financial intermediation (Muhammad Farras Hanif & Muhammad Faiz Andeaz Fawwaz, 2025). By promoting asset-backed financing, Islamic financial institutions aim to align financial activities with real economic outcomes, which can reinforce systemic stability compared to purely debt-based systems.

Beyond its religious foundations, Islamic finance plays an important economic and social role by enhancing financial inclusion for individuals and communities that are often excluded from mainstream banking due to ethical or cultural reasons. Empirical evidence indicates that the inclusive nature of Islamic financial services contributes to broader participation in the formal financial sector, especially in Muslim-majority countries (Redzuan, Zakaria Hassan Mohamed & Nur Harena, 2025)

The emphasis on equity-based and participatory financing can help reduce income disparities and support sustainable economic development, making Islamic finance a potential catalyst for social transformation (Sakhri, M., & Bouchenine, L, 2025)

The rapid evolution of digital financial technologies has opened new strategic opportunities for modernizing Islamic finance and amplifying its socio-economic impact. FinTech solutions such as blockchain, mobile banking, artificial intelligence, and open banking platforms are enhancing accessibility, efficiency, and transparency in financial services while respecting Shariah compliance (Muhammad M & Imran S, 2025).

1.3 Conceptual Framework of Financial Inclusion: Definitions, Dimensions, and Measurement Indicators

Financial inclusion has become a central objective of economic development policies, particularly in emerging countries where a significant share of the population remains excluded from the formal financial system. In general terms, it refers to the ability of individuals and businesses to access a range of financial services tailored to their needs, at affordable costs and under secure conditions (Aslı Demirgüç-Kunt & al, 2018) . According to international institutions, notably the World Bank, financial inclusion is defined as the effective access of populations to essential financial services, such as bank accounts, payment instruments, savings, credit, and insurance (World Bank, 2022) This definition highlights not only the availability of services but also their actual usage and their adequacy to users' needs.

From an analytical perspective, financial inclusion is based on three fundamental dimensions: access, usage, and quality , these dimensions are particularly relevant in the Algerian context, where structural and institutional constraints continue to limit the expansion of financial services (A . Habi & N . Lemerini, 2022).

The assessment of financial inclusion relies on a set of quantitative and qualitative indicators, including the banking penetration rate, the number of accounts per capita, the density of bank branches and Automated Teller Machines (ATMs)

and access to digital financial services (Demirgüç-Kunt et al, 2022) .

In Algeria, empirical studies highlight relatively low levels of these indicators compared to international standards, reflecting insufficient banking infrastructure and limited financial literacy (C. Ouarti & A. Belaachi, 2024) .

Recent studies emphasize that financial technologies (FinTech) represent a key driver for improving financial inclusion in Algeria (Ozili, 2018) .Digital financial solutions, including mobile banking and electronic payment systems, have shown a significant capacity to enhance access, usage, and quality of financial services. However, despite recent progress, financial inclusion remains limited, highlighting the need for further digital transformation and institutional reforms. In this context, the synergy between FinTech and Islamic finance appears as a strategic lever capable of accelerating financial inclusion in Algeria.

Table1 Financial Inclusion Indicators by Dimension

Dimension	Indicator	Definition	Unit of Measurement	Source
Access	Bank branches per 100.000 adults	Number of commercial bank branches relative to adult population	Number per 100.000 adults	International Monetary Fund (FAS)
	ATMs per 100.000 adults	Availability of automated teller machines	Number per 100.000 adults	International Monetary Fund
	Account ownership	Percentage of adults owning an account at a financial institution or mobile money provider	% of adults (15+)	World Bank (Global Findex)
Usage	Number of deposits per capita	Frequency of deposit transactions	Number per capita	International Monetary Fund
	Number of loans per capita	Use of credit services	Number per capita	International Monetary Fund
	Digital payments usage	Percentage of adults making or receiving digital payments	% of adults	World Bank
Quality	Cost of financial services	Fees associated with maintaining accounts or transactions	% of income / cost index	Central Banks / Surveys
	Financial consumer protection index	Level of regulatory protection and transparency	Composite index	World Bank
Financial Literacy	Financial literacy rate	Percentage of adults with basic financial knowledge	% of adults	Organisation for Economic Co-operation and Development
	Ability to use digital financial services	Skills in using mobile banking or e-payments	Survey-based indicator	World Bank

Source: Author's elaboration based on World Bank (Global Findex Database, 2021), International Monetary Fund (Financial Access Survey), and Organisation for Economic Co-operation and Development (2020).

Table 2 Extended Financial Inclusion Indicators Integrating Islamic Finance and FinTech

Dimension	Indicator	Type	Relevance to the Study
Access	Access to Islamic banking services	Islamic Finance	Availability of Sharia-compliant financial institutions
	Mobile banking availability	FinTech	Expands financial access beyond physical infrastructure
Usage	Use of Islamic financial products (Murabaha, Salam, Ijara)	Islamic Finance	Measures adoption of Sharia-compliant financing
	Digital payments usage	FinTech	Reflects technological financial inclusion
	Mobile banking usage	FinTech	Indicates active use of digital services
Quality	Trust in Islamic banking	Islamic Finance	Reflects religious and ethical acceptance
	Cost of digital financial services	FinTech	Determines affordability of FinTech solutions
Financial Literacy	Awareness of Islamic finance principles	Islamic Finance	Key factor for adoption
	Digital financial literacy	FinTech	Ability to use financial technologies

Source: Author's elaboration based on World Bank, International Monetary Fund, and recent literature on Islamic finance and FinTech.

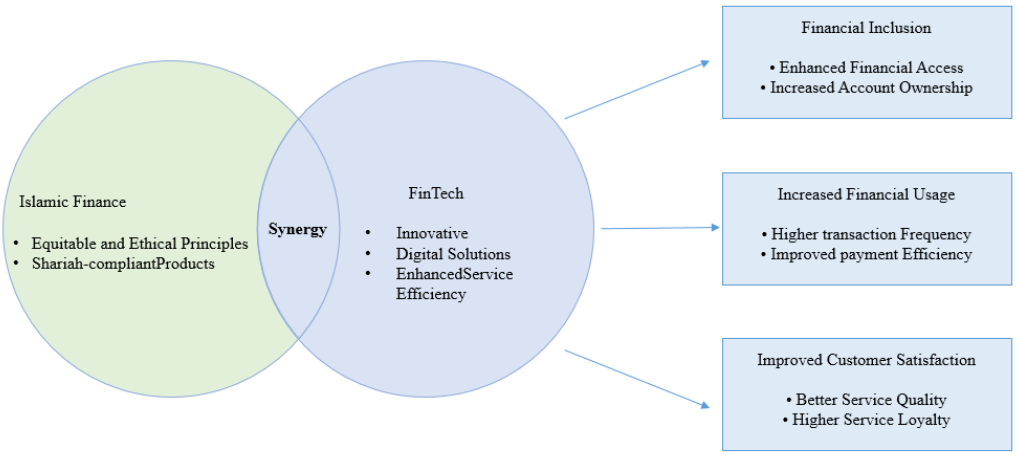
2. The Synergy between Islamic Finance and FinTech in Promoting Financial Inclusion

The growing convergence between Islamic finance and Financial technology has emerged as a promising pathway for enhancing financial inclusion, particularly in emerging economies. While Islamic finance aims to provide ethical and interest-free financial services in compliance with Sharia principles, FinTech introduces innovative digital solutions that improve accessibility, efficiency, and affordability of financial services. This synergy is particularly significant in addressing the structural barriers that limit financial inclusion. On the one hand, Islamic finance attracts populations that are traditionally excluded from the formal financial system due to religious considerations. On the other hand, FinTech facilitates access to financial services by reducing geographical constraints and operational costs through digital platforms such as mobile banking, electronic payments, and online financing solutions (World Bank, 2022) .

Moreover, the integration of FinTech within Islamic finance enhances the scalability and outreach of Sharia-compliant financial products. Digital platforms enable Islamic banks to offer services such as Murabaha financing, savings accounts, and payment services more efficiently, thereby expanding their customer base and improving service delivery (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2021). This technological transformation contributes to increasing both access to and usage of financial services, which are key dimensions of financial inclusion.

In addition, FinTech solutions promote transparency, traceability, and operational efficiency, which are consistent with the ethical foundations of Islamic finance. These features strengthen customer trust and support the development of inclusive financial ecosystems. As highlighted by the World Bank (2022), digital financial services play a crucial role in bridging the gap between financial institutions and underserved populations.

Figure 1 Synergy between Islamic Finance and FinTech for Enhancing Financial Inclusion



Source: by author based on the study framework

In light of these developments, the integration of Islamic finance and FinTech appears as a promising pathway for strengthening financial inclusion while promoting sustainable and ethical financial practices. This convergence not only modernizes financial intermediation but also extends the ethical foundations of Islamic finance into the digital sphere Building on this theoretical framework

3. Case of Al Baraka Bank Algeria

3.1 Presentation of Al Baraka Bank Algeria

Al Baraka Bank Algeria, the first Islamic bank in Algeria with mixed capital (public and private), was established on May 20, 1991, with an initial capital of 500, 000,000 DA which increased to 20, 000, 000,000 DA in 2020. As a pioneering institution in the field of Islamic finance, the bank is authorized to conduct all banking, financing, and investment operations in strict compliance with Sharia principles. It provides a diversified range of Islamic financial products and services to individuals, professionals, and corporate clients, all approved by its Fatwa and Sharia Supervisory Board. Through its distinctive positioning, Al Baraka Bank Algeria plays a key role in promoting Islamic finance and contributing to the diversification of the Algerian banking sector. In recent years, the bank has also adopted a modernization strategy focused on the digitalization of its services, aiming to improve customer experience, enhance competitiveness, and support the expansion of financial inclusion. The mission of Al Baraka Bank Algeria is grounded in strong core values that guide all of its actions. Through partnership, agility, innovation, trust, and development, the bank strives to build lasting relationships with its clients and partners, in support of shared and responsible growth.

These values form the foundation of its identity and drive its ambition to promote a financial future that is both ethical and high-performing. Al Baraka Bank Algeria ensures that its clients feel reassured and confident, as it manages their financial needs in accordance with the highest ethical standards of participatory (Islamic) finance. From 1991 to 2024, Al Baraka Bank Algeria has progressively strengthened its position within the Islamic banking sector, supported by over three decades of experience characterized by innovation, operational stability, and sustained relationships with its partners and clients. (Banque Al Baraka d'Algérie, 2024)

3.2 Corporate Values and Governance

In addition to its financial activities, Al Baraka Bank Algeria is guided by a set of core values that shape its strategic orientation and governance framework. The bank places strong emphasis on development,

agility, and trust, continuously aligning its operations with the requirements of the digital era and the evolving expectations of its clients, while ensuring full compliance with the ethical principles of Islamic finance.

Furthermore, customer engagement across the Al Baraka Group's subsidiaries contributes to broader socio-economic development, reflecting a commitment to shared value creation, responsible governance, and the preservation of collective interests.

3.3 Financial Performance Indicators of Al Baraka Bank Algeria

The table below outlines the main financial performance indicators of Al Baraka Bank Algeria over the period 2021–2024, highlighting the evolution of its financial position, operational performance, and profitability.

Table 3 Evolution of Financial Performance Indicators of Al Baraka Bank Algeria (2021–2024)

Indicators	2021	2022	2023	2024
Total Assets	287.68	277	309.45	319.2
Customer Resources	239.22	226.14	255.44	267.4
Net Financing	139.5	131.51	137.66	126.64
Operating Income	8.46	8.3	9.07	9.14
Net Income	4.26	4.02	3.95	3.04
ROE (%)	19.44	12.64	12.00	9.05
ROA (%)	1.53	1.42	1.34	0.97
Number of Branches	31	31	34	34

Source: Author's elaboration based on annual reports of Al Baraka Bank Algeria (2021–2024)

Note: Financial data are expressed in billion Algerian dinars (DZD), ratios (%).

The data presented in Table 3 reveal a generally positive evolution in the financial performance of Al Baraka Bank Algeria over the period 2021–2024. Total assets show a steady increase, rising from 287.68 billion DZD in 2021 to 319.2 billion DZD in 2024, reflecting a continuous expansion of the bank's balance sheet. Similarly, customer resources exhibit sustained growth, increasing from 239.22 to 267.4 billion DZD, which indicates a strengthening level of customer trust and an improved capacity to mobilize deposits.

However, net financing displays a fluctuating trend, declining overall from 139.5 billion DZD in 2021 to 126.64 billion DZD in 2024, despite a temporary recovery in 2023. This evolution may suggest a more cautious financing policy or adjustments in response to changing market conditions.

In terms of operational performance, operating income shows a moderate upward trend, reaching 9.14 billion DZD in 2024, which reflects improved efficiency in banking operations. In contrast, net income declines progressively over the period, decreasing from 4.26 to 3.04 billion DZD, pointing to potential pressures on profitability.

This trend is further confirmed by the decrease in profitability ratios, with return on equity (ROE) falling from 19.44% in 2021 to 9.05% in 2024, and return on assets (ROA) declining from 1.53% to 0.97%. These results indicate a reduction in the bank's ability to generate returns from its resources.

Finally, the number of branches increases from 31 to 34 over the period, reflecting a gradual expansion of the bank's physical network. Overall, while the bank demonstrates strong growth in terms of assets and customer resources, the decline in profitability indicators highlights the need for improved efficiency and strategic optimization.

Justifying the Decline in Profitability : While the data in Table 3 shows a steady increase in total assets to 319.2 billion DZD by 2024, there is a visible decline in profitability ratios, with the Return on Equity **(ROE)** falling from 19.44% to 9.05%. This trend, often referred to as the "productivity paradox" in digital transformation , can be analytically justified by the following factors:

- **High Capital Intensity (Capex):** The transition to an advanced FinTech infrastructure requires massive upfront investments in hardware, specialized software, and robust cybersecurity systems, which weigh heavily on net income in the short term.
- **Operational Transition Costs:** The process of migrating legacy banking systems and training human capital to manage digital Islamic financial products creates temporary operational friction, reflected in the decline of the Return on Assets **(ROA)** to 0.97%.

The observed decline in profitability indicators, particularly ROE and ROA, should not be interpreted as a sign of structural weakness, but rather as a transitional effect associated with the bank's ongoing digital transformation strategy. Indeed, the integration of FinTech solutions typically requires substantial upfront investments in digital infrastructure, including information systems modernization, cybersecurity frameworks, and human capital development. These investments generate short-term financial pressures that may temporarily reduce profitability levels, despite improvements in operational capacity. In the case of Al Baraka Bank Algeria, the simultaneous increase in total assets and customer resources suggests that the bank is strengthening its market position and expanding its client base, even as profitability indicators decline. From a dynamic perspective, this trend reflects a strategic trade-off between short-term financial performance and long-term value creation. Digital transformation enhances operational efficiency, reduces transaction costs, and improves service accessibility, but its financial benefits tend to materialize gradually over the medium and long term. Moreover, the adoption of digital financial services may initially compress margins due to increased competition, pricing adjustments, and the costs associated with innovation. However, these developments are expected to contribute to sustainable performance improvements by expanding financial inclusion and strengthening customer engagement. Therefore, the decline in profitability indicators should be understood as a natural phase within the digital transformation cycle rather than a sign of declining efficiency

3.4 FinTech Solutions Implemented by Al Baraka Bank Algeria

Al Baraka Bank Algeria is rapidly adapting to the digital era and to the evolving behaviors of its clients, who operate in an increasingly dynamic and demanding environment. As part of its digital transformation strategy, the bank has progressively integrated several FinTech solutions aimed at modernizing its Islamic financial services.

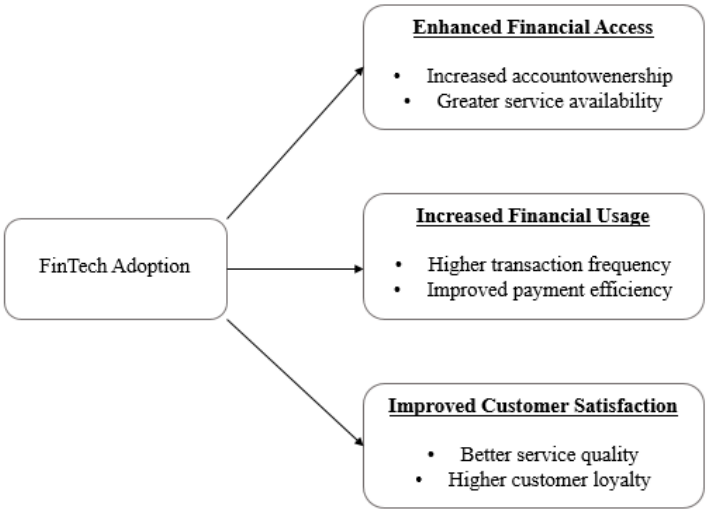
These initiatives include the digitalization of banking operations, enabling customers to access their accounts and perform transactions remotely through web and mobile banking platforms. In this context, the bank has introduced innovative services such as automated transfers, SMS banking, and online payment solutions, thereby enhancing convenience and operational efficiency.

Furthermore, the development of electronic payment instruments, including national CIB cards and international VISA cards, along with the deployment of POS terminals and automated teller machines (ATMs), has significantly improved the accessibility, speed, and security of financial transactions.

In addition, digital tools have been implemented to strengthen the management of Islamic financial products, particularly in terms of transparency and transaction traceability. The expansion of digital communication channels has also improved customer relationship management and service responsiveness.

thus reinforcing the bank's commitment to promoting financial inclusion through digital innovation.

Figure 2 FinTech Adoption



Source: by author based on the study framework

3.5. Analysis of the Impact of FinTech Solutions on Financial Inclusion in Algeria

The analytical approach adopted in this study **underscores** the contribution of FinTech solutions to the advancement of financial inclusion within Al Baraka Bank Algeria. The digitalization of Islamic banking services has generated several structural effects, notably:

- The broadening of access to financial services, achieved through the streamlining of procedures and the reduction of operational delays;
- The intensification of banking service utilization, facilitated by the accessibility and efficiency of electronic platforms;
- The consolidation of customer trust and satisfaction, fostered by enhanced transparency of transactions and reinforced compliance with Sharia principles.

However, despite these transformative outcomes, persistent challenges remain. These include the digital divide, disparities in technological literacy among segments of the clientele, and regulatory as well as organizational constraints. Such factors may attenuate the overall systemic impact of FinTech integration on financial inclusion, thereby revealing the tension between technological innovation and institutional limitations.

Table 4 Indicators of Financial Inclusion and Banking Infrastructure in Algeria

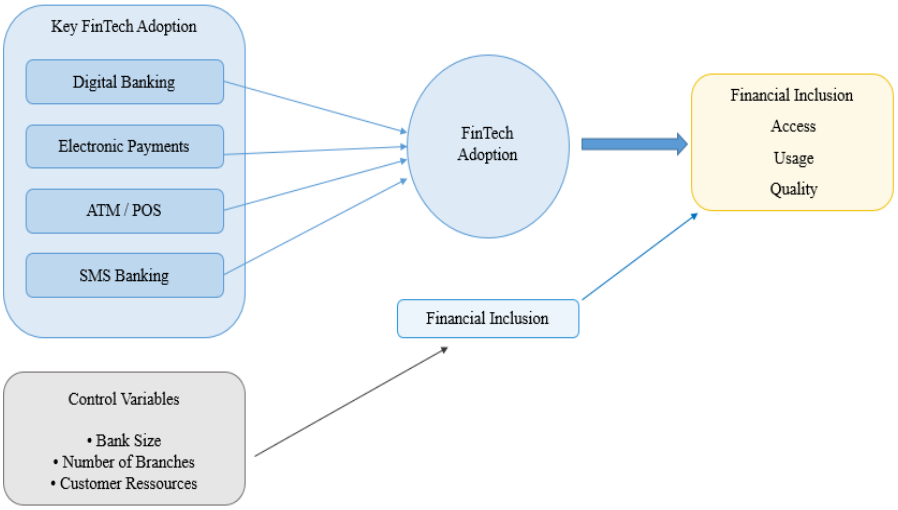
Indicator	Year	Value	Unit
Bank branches per 100.000 adults	2020	5.26	Number
Account ownership (age 15+)	2021	44.1	% of adults
Debit card ownership	2021	22.87	% of adults
Credit card ownership	2021	2.77	% of adults
ATMs per 100.000 adults	2023	11.96	Number

Source: Author's elaboration based on World Bank (Global Findex Database) and International Monetary Fund (Financial Access Survey).

The data presented in Table 4 indicate the analysis of financial inclusion indicators reveals a relatively limited level of access to and usage of formal banking services. In 2020, the density of bank branches stood

at 5.26 per 100,000 adults, indicating a modest physical presence of banking institutions and suggesting potential geographical disparities in access, particularly in underserved areas. In terms of usage, only 44.1% of adults owned a bank account in 2021, reflecting a moderate level of financial inclusion and a significant proportion of the population remaining outside the formal financial system. Furthermore, the ownership of payment instruments remains low, with debit card penetration at 22.87% and credit card ownership at only 2.77%, highlighting the limited adoption of electronic payment methods and a continued reliance on cash-based transactions. Although the number of ATMs reached 11.96 per 100.000 adults in 2023 exceeding the number of bank branches and indicating a gradual shift toward more accessible financial infrastructure this level remains insufficient to ensure broad financial access. Overall, these indicators point to structural constraints in the financial system and underscore the need for innovative approaches, particularly through digital financial services and FinTech solutions, to enhance financial inclusion and expand access to formal financial services.

Figure 3 FinTech Adoption and Financial Inclusion at Al Baraka Bank Algeria



Source: by author based on the study framework

3.6. Discussion

Results validate the three hypotheses:

- **H1** confirmed: The adoption of FinTech solutions by Al Baraka Bank Algeria significantly improves access to Islamic financial services and contributes to reducing financial exclusion.Digital channels reduce geographical and procedural barriers.
- **H2** confirmed: The adoption of FinTech solutions significantly enhances the usage of Islamic financial services by increasing the frequency and efficiency of financial transactions among customers.Increased efficiency and convenience encourage more frequent transactions.

- **H3** confirmed: The digitalization of Islamic financial services through FinTech solutions positively. Faster and more accessible services lead to higher satisfaction levels.

3.7. Contribution of the Study

This study contributes to the existing literature by providing a comprehensive analysis of the synergistic relationship between Islamic finance and financial technology (FinTech) in fostering financial inclusion. Islamic finance promotes equitable access to financial services grounded in ethical and Sharia-compliant principles, while FinTech introduces innovative digital solutions that enhance accessibility, efficiency, and service delivery.

4. Conclusion:

This study aimed to examine the role of the synergy between Islamic finance and financial technology (FinTech) in enhancing financial inclusion, with a particular focus on Al Baraka Bank Algeria.

The findings reveal that the integration of FinTech solutions within Islamic banking significantly contributes to improving financial inclusion through three main dimensions: access, usage, and customer satisfaction. The results highlight that digital technologies act as a catalyst, enabling Islamic financial institutions to overcome traditional constraints related to geographic accessibility, transaction costs, and service efficiency.

More specifically, the analysis shows that FinTech adoption enhances access to financial services by facilitating remote banking and reducing dependence on physical branches. It also promotes greater usage of financial services by simplifying transactions and increasing their frequency. Furthermore, the digitalization of services improves customer satisfaction by ensuring faster, more reliable, and more flexible banking experiences.

These findings confirm that the relationship between Islamic finance and FinTech is not merely additive but synergistic. FinTech amplifies the inclusive potential of Islamic finance by extending its reach to underserved populations, thereby reinforcing its socio-economic role.

4.1. Limitations of the Study

Despite its contributions, this study presents several limitations:

- The absence of detailed quantitative data at the micro level restricted the use of econometric modeling.
- The analysis is based primarily on secondary data and qualitative interpretation, which may limit the generalizability of the findings.
- The focus on a single case, Al Baraka Bank Algeria, may not fully capture the diversity of the Islamic banking sector in Algeria.
- The lack of standardized indicators for Islamic FinTech represents an additional methodological constraint.

4.2. Research Perspectives

Future research could extend this work in several directions:

- Conduct empirical studies based on primary data (surveys or customer data) to quantitatively test the proposed relationships.
- Develop composite indices to better measure Islamic finance and FinTech integration.
- Perform comparative analyses between Islamic and conventional banks in Algeria or across countries.

- Explore the role of emerging technologies such as artificial intelligence and blockchain in Islamic finance.

4.3. Recommendations

Based on the findings, several recommendations can be formulated:

- Strengthen digital transformation
- Promote financial inclusion
- Enhance financial literacy.
- Improve regulatory frameworks.
- Encourage partnerships
- Invest in infrastructure

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