Mapping the Algerian FinTech Landscape: Empirical Evidence from GIE Monetique on Payment Digitization and Challenges (2016-2025)

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Abstract :

This study aims to analyze the current state of the FinTech sector in Algeria and its role in the country's digital financial transformation. Adopting an analytical approach, the research relies on an empirical study of electronic payment data from the GIE Monetique (2016–2025). The findings indicate that, despite the emergence of electronic payment solutions, the sector remains at an early stage of development. This situation is mainly constrained by low financial inclusion, cybersecurity challenges, and limited public adoption of digital tools. However, recent reforms, including the Startup Act and updates to monetary regulations, have initiated a gradual strategic shift. Increasing collaboration between banks and telecommunications operators further supports this transition. The study concludes that strengthening digital trust, cybersecurity resilience, and financial literacy is essential to achieve sustainable and inclusive financial integration.

Keywords: *Fintech, Financial Inclusion, Digital Transformation, Financial Innovation, Banking Reform.*

JEL Classification Codes: *G21, G28, O33, E42, L86.*

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مشهد التكنولوجيا المالية (FinTech) في الجزائر: تحليل تجريبي لرقمنة المدفوعات وتحديات الاعتماد من خلال بيانات " GIE Monétique " فترة (2016–2025)

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ملخص :

هدفت هذه الدراسة إلى تحليل الوضع الحالي لقطاع التكنولوجيا المالية (FinTech) في الجزائر ودوره في التحول الرقمي للقطاع المالي الوطني. وتعتمد الدراسة على منهج تحليلي مستند إلى دراسة تجريبية لبيانات الدفع الإلكتروني الصادرة عن GIE Monetique للفترة 2016–2025. وتشير النتائج إلى أنه، رغم ظهور حلول الدفع الإلكتروني، لا يزال القطاع في مرحلة مبكرة من التطور. وتُعزى هذه الوضعية أساسًا إلى انخفاض مستوى الشمول المالي، وتحديات الأمن السيبراني، وضعف اعتماد المستخدمين على الأدوات الرقمية. ومع ذلك، فقد أدت الإصلاحات الأخيرة، بما في ذلك قانون الشركات الناشئة وتحديث الأنظمة النقدية، إلى بدء تحول استراتيجي تدريجي. كما تدعم التعاون المتزايد بين البنوك ومشغلي الاتصالات هذا الانتقال. وتخلص الدراسة إلى أن تعزيز الثقة الرقمية، والمرونة في مجال الأمن السيبراني، والثقافة المالية أمر أساسي لتحقيق الشمول المالي المستدام.

الكلمات المفتاحية: التكنولوجيا المالية، الشمول المالي، التحول الرقمي، الابتكار المالي، إصلاح القطاع المصرفي.

التصنيف JEL: *G21*، G28، *E42* *033* ، *L86* ،

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Introduction:

The global financial landscape is undergoing a paradigm shift driven by the digital revolution and the rise of Financial Technology (FinTech). This movement, characterized by innovations such as blockchain, peer-to-peer (P2P) lending, and mobile payment ecosystems, has become a primary catalyst for financial inclusion and economic efficiency (Arner, 2015); (Gomber, 2018). In Algeria, the modernization of the financial sector is a strategic imperative. The domestic market has long been defined by low banking penetration and a high reliance on cash (informal economy). While recent initiatives—such as the EDAHABIA card and the BARIDIMOB platform—signal a shift toward digital finance, a "technological paradox" persists. Despite high mobile penetration rates, the actual adoption of digital payment services remains suboptimal (Bousba&Ghidouche, 2021). This study explores how current electronic payment data, provided by the GIE Monétique, clarifies the barriers to and opportunities for FinTech integration in Algeria.

This study is designed around three interrelated objectives that together seek to provide a comprehensive understanding of the evolution and current state of FinTech in Algeria. First, it aims to establish a solid theoretical grounding by clarifying the conceptual foundations of FinTech and tracing its historical development from FinTech 1.0 to FinTech 4.0. This analytical mapping highlights the progressive integration of digital technologies into financial services, from early back-office digitization to contemporary data-driven, platform-based, and mobile financial ecosystems. Within this framework, Algeria's position is examined in relation to global and regional trajectories of digital financial innovation.

Second, the study pursues an empirical objective by examining the dynamics of electronic payment systems in Algeria over the period 2016–2024. Drawing on official data from GIE Monétique, the analysis focuses on patterns of organizational adoption rather than solely on individual usage. Particular attention is paid to the diffusion of electronic payment instruments across economic sectors and institutions, enabling an assessment of how banks, public administrations, telecommunications operators, and commercial enterprises have integrated digital payment solutions into their operational processes.

Third, the research adopts a forward-looking strategic perspective aimed at identifying the structural and institutional constraints that continue to limit the expansion of FinTech and electronic payments in Algeria. These constraints include regulatory rigidity, infrastructural gaps, interoperability challenges, and socio-cultural resistance to cashless transactions. Based on these findings, the study proposes actionable and context-specific recommendations intended to support policymakers, financial regulators, and market actors in fostering a more inclusive, efficient, and innovative digital financial ecosystem.

From a methodological standpoint, the research is anchored in a post-positivist epistemological framework and employs a mixed-methods approach. While it recognizes the existence of objectively measurable indicators—such as transaction volumes, payment values, and growth rates—it also acknowledges that technology adoption is shaped by subjective perceptions, institutional trust, and cultural norms. These behavioral and organizational dimensions are interpreted through established theoretical models, notably the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), which help explain variations in acceptance, usage, and resistance to digital financial technologies.

To operationalize this approach, several complementary analytical tools are employed. A longitudinal analysis covering the 2016–2024 period is used to track growth trajectories and

identify structural breaks or external shocks, most notably the COVID-19 pandemic, which acted as a catalyst for accelerated digital adoption and shifts in payment behavior (Fu & Mishra, 2022). This temporal perspective makes it possible to distinguish between short-term fluctuations and long-term structural transformations.

In parallel, a sectoral mapping exercise is conducted to assess the uneven diffusion of electronic payments across key sectors, including telecommunications, public administration, and retail commerce. This analysis highlights sector-specific drivers and barriers, revealing how organizational readiness, regulatory incentives, and technological infrastructure shape adoption patterns. Additionally, a benchmarking analysis situates the Algerian experience within a broader comparative context by examining regional and African reference cases such as Kenya's M-Pesa model, Nigeria's FinTech ecosystem, and the digital payment strategies of Morocco and Tunisia. Drawing on World Bank (2022) insights, this comparison helps identify best practices that could be adapted to the Algerian institutional and socio-economic environment.

I. The Morphogenesis of FinTech from Infrastructure to Intelligence

The evolution of Financial Technology (FinTech) represents a profound transformation in the architecture, functions, and governance of financial systems. What began as a series of incremental infrastructural improvements has evolved into a complex, intelligent ecosystem that integrates digital platforms, data analytics, and algorithmic decision-making into the very fabric of finance. This morphogenesis—from simple infrastructure to sophisticated intelligence—reflects both technological progress and socio-economic adaptation, reshaping the relationships among financial institutions, regulators, businesses, and end users.

Historically, financial innovation followed a linear trajectory: first establishing the plumbing of payments and banking operations, then progressively layering digital interfaces, analytics, and automated processes. In early FinTech stages, innovation was primarily bank-led, aimed at enhancing operational efficiency, reliability, and reach. The advent of FinTech startups, however, introduced a disruptive element that decoupled services from legacy institutions, democratizing access to finance and creating new pathways for capital allocation, wealth management, and risk governance.

1. Definition of fin tech :

FinTech, a contraction of "financial" and "technology," denotes a structural transformation of the financial services value chain rather than a mere trend label. While technology has long been employed in finance—ranging from ATMs to electronic interbank settlement systems—the contemporary FinTech era is characterized by the decentralization and disintermediation of financial services, allowing non-bank actors to deliver functions historically monopolized by traditional institutions via digital platforms, mobile applications, and data-driven infrastructures (Schueffel, 2016).

Technologically, FinTech relies on "frontier technologies" such as Artificial Intelligence (AI), Blockchain/Distributed Ledger Technologies (DLT), Cloud Computing, and Big Data analytics—the so-called "ABCD" of FinTech. These innovations enable real-time data processing, algorithmic decision-making, enhanced cybersecurity, scalable infrastructure, operational efficiency, cost reduction, and improved risk management. In emerging economies, they also provide opportunities to bypass traditional banking infrastructures and promote financial inclusion (Gomber, 2018; Arner, Barberis, & Buckley, 2017).

Institutionally, FinTech manifests as hybrid ecosystems where traditional financial institutions coexist, compete, and collaborate with startups, telecom operators, and platform-based providers. These ecosystems are shaped by regulatory frameworks, digital infrastructure, and user adoption dynamics, highlighting the rise of multi-actor networks that challenge conventional bank-centric models. In Algeria, actors such as Algérie Poste and mobile network operators play pivotal roles in extending payment services to populations underserved by conventional banks (Lee & Shin, 2018).

Functionally, FinTech is defined by the Financial Stability Board (FSB, 2017) as "technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets, financial institutions, and the provision of financial services." This definition emphasizes both technological novelty and transformative impacts on market structures, regulatory practices, and consumer behavior, encompassing payments, credit allocation, savings, and risk transfer mechanisms.

The COVID-19 pandemic acted as a critical accelerator, driving an unprecedented shift from cash-based to digital and contactless transactions. Lockdowns and social distancing measures forced households, firms, and governments to adopt digital payments, remote banking, and electronic identification solutions rapidly, even in jurisdictions with traditionally conservative regulatory practices (Fu & Mishra, 2022).

In Algeria, this period marked a decisive turning point in the adoption of digital payment instruments, particularly the *EDAHABIA* card and the *BARIDIMOB* mobile application operated by Algérie Poste. As access to physical bank branches and post offices became constrained, these solutions emerged as essential tools for salary payments, social transfers, bill payments, and peer-to-peer transactions. The pandemic thus acted as both a stress test and a catalyst, revealing the structural weaknesses of the cash-based system while simultaneously accelerating the normalization of digital financial behaviors among users and institutions alike.

Table 1 : Synthesis of FinTech Definitions from Literature

Source	CoreDefinition / Focus
Zavolokina et al. (2016)	FinTech is a "boundary-spanning" phenomenon that merges the financial and IT industries.
Arner et al. (2015)	A transformative process where technology is used to deliver financial services, evolving through phases (1.0 to 4.0).
World Bank (2020)	Focuses on "Digital Financial Services" (DFS) as a tool for financial inclusion in emerging economies.
Alt, Beck, &Smits (2018)	Emphasizes the shift from "Bank-centric" models to "Customer-centric" digital platforms.

Source : Prepared by the authors

2. The evolutionary development of FinTech :

The evolution of Financial Technology (FinTech) reflects a fundamental transformation of the global financial system, characterized by a progressive shift from bank-centered intermediation toward decentralized, technology-driven ecosystems. Drawing on the seminal framework of Arner (2015) and subsequent contributions by Gomber et al. (2018) and Thakor (2020), FinTech evolution can be understood as a process of *creative destruction*, in which digital innovation systematically disrupts traditional banking structures while redefining financial sovereignty.

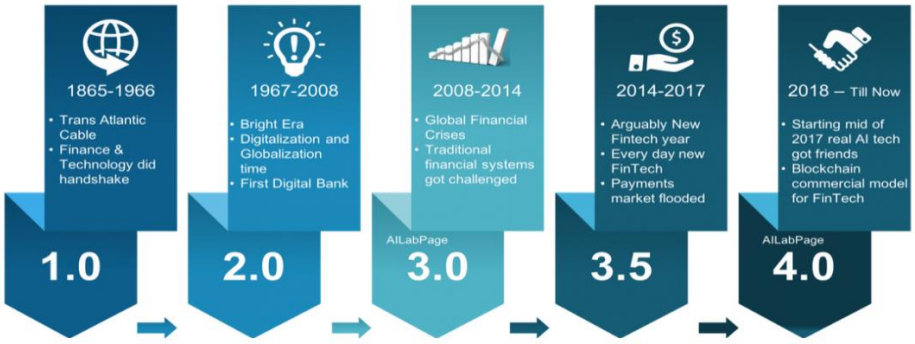
-FinTech 1.0 and FinTech 2.0: Bank-Led Infrastructure:FinTech 1.0 (analogue) and FinTech 2.0 (digital banking) were dominated by incumbent financial institutions, where technology primarily served as a tool for operational efficiency and infrastructure development. Key milestones, such as the transatlantic cable (1866) and the establishment of SWIFT (1973), enabled faster and more standardized financial transactions. However, innovation during these phases remained institution-centric, with banks retaining full control over financial service provision and limited emphasis on customer-centricity (Arner, 2015).

-FinTech 3.0: The Startup Era and Open Banking:The Global Financial Crisis of 2008 marked a turning point, triggering FinTech 3.0 and the rise of technology-driven startups. The erosion of trust in traditional banks created opportunities for non-bank actors to deliver financial services through digital platforms. This phase witnessed the emergence of Open Banking and Banking-as-a-Service (BaaS), enabling third-party providers to leverage banking infrastructure and deliver personalized, transparent, and inclusive financial solutions (Alt et al., 2018; Varga, 2018).

FinTech 3.5: Leapfrogging in Emerging Economies**:** FinTech 3.5 represents a leapfrogging stage, particularly relevant for emerging economies such as Algeria. Unlike developed markets, which expanded through costly physical banking networks, emerging economies increasingly rely on mobile-first financial architectures. Smartphones function as virtual bank branches, extending financial services to underserved populations, SMEs, and informal economic actors. This stage highlights how financial inclusion can precede institutional consolidation (Arner, 2015).

-FinTech 4.0: The Intelligence Era:FinTech 4.0, often referred to as the *Internet of Finance*, is defined by the convergence of Artificial Intelligence (AI), blockchain, and the Internet of Things (IoT). Financial intermediation becomes increasingly automated, predictive, and data-driven, with algorithms managing credit allocation, investment decisions, and risk in real time. The blurring of boundaries between financial institutions and technology firms necessitates the development of robust RegTech frameworks to ensure stability and trust within highly interconnected ecosystems (Thakor, 2020).

Figure 1: Fintech Evolution



Source:www.fintica.com

3. **Integration of Global Digital Payment Systems and the Emergence of Full Interoperability :**

The evolution of payment systems worldwide reflects a broader trend toward the convergence of previously siloed financial infrastructures, moving from segregated banking networks, postal systems, and retail payment channels toward open, interoperable architectures (Parker, Van Alstyne, &Choudary, 2016; World Bank, 2022). Historically, these networks operated

independently, resulting in inefficiencies, higher transaction costs, and limited access for individuals and small businesses. Modernization efforts, including the creation of centralized clearinghouses and real-time settlement mechanisms, have enabled near-instantaneous transfers, improved interoperability across financial institutions, and unified financial flows, thereby enhancing operational efficiency (ISO, 2019; BIS, 2020).

International standards, particularly ISO 20022, have played a crucial role in this transformation by providing a structured framework for financial messaging. Standardization enhances traceability, regulatory compliance, and integration with cross-border payment networks, improving the scalability, security, and reliability of global transactions. Within this modernized framework, mobile payments have emerged as a key driver of financial inclusion, turning smartphones into universal payment terminals. Digital wallets and contactless payment solutions offered by banks, FinTech startups, and telecom operators enable QR code or NFC-based transactions, blending traditional proximity services with banking functionalities (Gomber, 2017; Thakor, 2020). These innovations reduce operational costs, accelerate transaction times, and extend access to financial services for previously underserved populations, while fostering digital literacy and trust in formal financial systems.

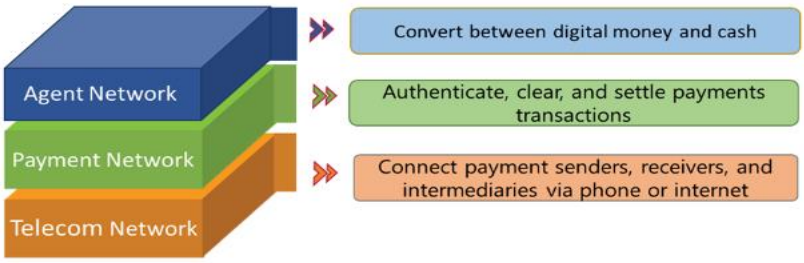
The development of Open Banking and the API economy represents a further qualitative leap. Through Banking-as-a-Service (BaaS) models, FinTech firms, e-commerce platforms, and third-party providers can embed financial services directly into applications, enabling seamless or "invisible" payments while automating back-office processes such as clearing, settlement, and reconciliation (Zetzsche et al., 2017; Arner, 2017). This integration not only enhances the customer experience but also supports innovative business models in which financial services are delivered contextually and in real time rather than as separate, standalone products.

Emerging innovations such as real-time, 24/7 payment rails and Central Bank Digital Currencies (CBDCs) further transform the ecosystem by allowing peer-to-peer transfers without intermediaries, reducing counterparty risk, enhancing transparency, and strengthening system resilience (BIS, 2021; Catalini&Gans, 2020).

At the operational level, digital payment systems rely on three interconnected networks that collectively ensure efficiency and inclusion. The agent network consists of physical or digital touchpoints, including banking agents, retail merchants, and local kiosks, which extend financial services to underserved or remote populations, providing cash-in/cash-out, account onboarding, and basic transaction support (Jack & Suri, 2014). The payment network forms the backbone for processing and routing transactions, linking banks, mobile wallets, and clearinghouses to ensure authorization, settlement, and reconciliation while maintaining interoperability across financial institutions (BIS, 2020). Complementing these, the telecom network provides the communication infrastructure necessary for mobile payments, enabling secure data transfer, connectivity, and digital wallet operations (Donovan, 2012). Together, these three networks create a layered, integrated, and interoperable system, where agent networks facilitate physical access, payment networks handle financial clearing, and telecom networks ensure real-time communication. The synergy between these networks is critical for operational efficiency, scalability, and financial inclusion. By combining mobile payments, banking APIs, real-time settlement systems, and digital currencies, modern payment infrastructures form a cohesive and data-rich ecosystem that supports innovation, reduces costs, and fosters sustainable economic growth globally (Arner, Barberis, & Buckley, 2015).

The following figure shows the three

Figure 1 : layers of infrastructure for digital payment transactions



Source:www.afi-global.org

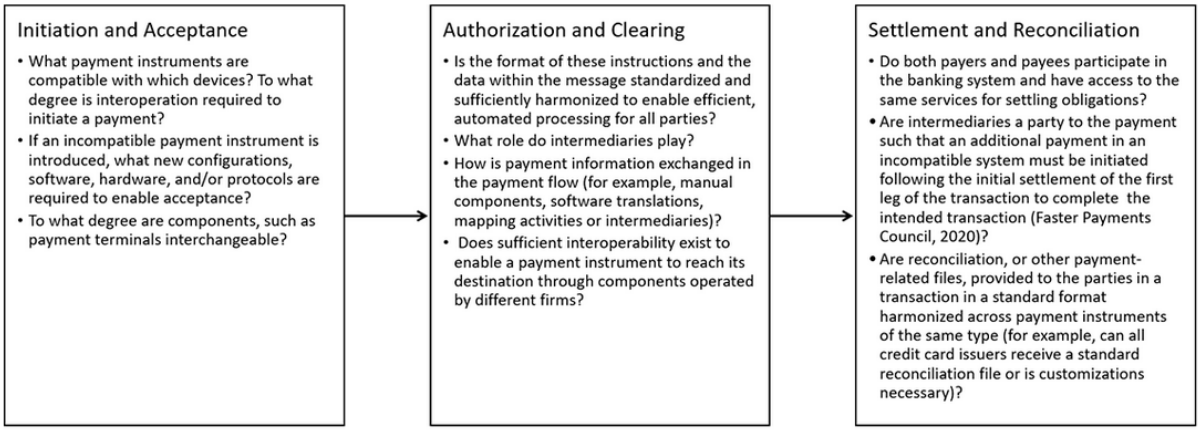
Understanding interoperation in payment systems requires analyzing how different institutions and platforms interact across the full lifecycle of a transaction. One effective approach is to map interoperation across the three key stages: initiation and acceptance, authorization and clearing, and settlement and reconciliation.

1. Initiation and Acceptance : This first stage involves the point at which a payment is created and accepted by a system, whether through a merchant, digital wallet, or mobile device. Interoperation at this level reflects the ability of various interfaces, devices, and agent networks to process transactions from multiple sources. For instance, interoperability requires that a payment initiated from one digital wallet or card network is recognizable and acceptable across different banks, payment service providers, or point-of-sale terminals (Gomber et al., 2017). Metrics to map interoperation here include the variety of accepted payment instruments, cross-platform acceptance rates, and compatibility with different network standards (e.g., QR, NFC, card networks).

2. Authorization and Clearing : The second stage encompasses transaction validation, authentication, and routing to the relevant financial institutions. Mapping interoperation here focuses on how well different systems communicate to verify transaction legitimacy, check account balances, and prevent fraud, often in real time. Interoperability depends on standardized messaging protocols, such as ISO 20022, and the integration of APIs across banks and payment platforms (ISO, 2019; BIS, 2020). Analytical methods can assess the speed and reliability of cross-institution authorization, the consistency of fraud detection mechanisms, and the coverage of clearing networks across multiple actors.

3. Settlement and Reconciliation : The final stage ensures that funds are transferred from the payer to the payee, and that accounting records across institutions are accurately updated. High interoperation at this stage means that settlement systems, central banks, and clearinghouses can process transactions efficiently, whether in real time or through batch processing, and can reconcile discrepancies automatically. Mapping interoperation involves evaluating integration of settlement rails, compatibility of ledger systems, automation of reconciliation processes, and the ability to handle cross-border or multi-currency transactions (Catalini&Gans, 2020).

Table 2. An approach for mapping the extent and degree of interoperation within payment systems.



Source: www.federalreserve.gov

II. Mapping Algeria's FinTechEcosystem : Institutional Dynamics, Evolutionary Leapfrogging, and Structural Constraints

The FinTech sector in Algeria has undergone a gradual yet significant transformation over the past decade, shaped by technological innovation, regulatory initiatives, and evolving consumer behaviors. Mapping this landscape requires a systematic examination of both quantitative metrics—such as transaction volumes, digital payment adoption, and interbank activity—and qualitative insights into the structural, institutional, and behavioral factors that influence FinTech deployment. Between 2016 and 2025, Algeria has witnessed a shift from early-stage digital payment solutions toward more complex financial services, including mobile money, digital lending, and algorithm-driven financial management tools. However, this evolution has been uneven, with certain sectors—such as telecommunications and administrative services—dominating usage, while e-commerce and investment services remain nascent. Understanding these dynamics is crucial for identifying bottlenecks, evaluating the effectiveness of regulatory and infrastructural interventions, and anticipating opportunities for leapfrogging in financial inclusion and innovation. This section aims to provide a comprehensive mapping of Algeria's FinTech ecosystem, highlighting the interaction between infrastructure, adoption, regulation, and market behavior, and offering an empirical perspective grounded in recent data from GIE Monétique and other relevant sources.

a) The Multidimensional Evolution of FinTech in Algéria

To achieve a deeper understanding of the Algerian FinTech landscape, it is necessary to move beyond descriptive accounts and articulate a synthetic analytical framework that combines the institutional specificities of Algérie Poste with the evolutionary FinTech models proposed by (Arner, 2015)and Thakor (2019). This evolution should not be interpreted as a linear or purely technological sequence; rather, it reflects a profound reconfiguration of information asymmetries, trust production, and the locus of financial agency within the economy. In the Algerian case, FinTech development is inseparable from the state's historical role as both a financial intermediary and a guarantor of social legitimacy.

1. Institutional synthesis : stability as a gateway to digital trust

In Algeria, "boundary-spanning" partnerships between AlgériePoste and telecommunications operators form a cornerstone of the country's FinTech development (Zavolokina et al., 2016). These collaborations integrate financial infrastructure, digital connectivity, and institutional

trust, addressing socio-economic contexts characterized by a large informal sector and a strong preference for cash-based transactions. In such an environment, trust in digital finance is less technological than institutional and symbolic. Algérie Poste, as a long-standing public institution with extensive territorial coverage, functions as a cognitive and emotional anchor, providing users reassurance amid intangible, dematerialized financial services.

This institutional stability mitigates the "ontological insecurity" linked to digital finance—the perceived loss of control over money no longer physically visible. Payment instruments such as the EDAHABIA card act as tangible proxies for digital accounts, translating abstract financial flows into familiar and controllable objects. Through this mechanism, the state mediates the transition from a paper-based financial culture to a platform-oriented digital ecosystem.

However, this state-driven stability carries inherent risks. If digital infrastructures remain closed, centralized, and monopolized, Algeria risks "digital bureaucratization," where legacy administrative procedures are merely digitized without improvements in efficiency, usability, or innovation. To prevent this path dependency, state-built financial "rails" must allow controlled participation by private actors, particularly FinTech startups. Such openness is essential for evolving from a state-led digital utility into a dynamic innovation ecosystem capable of delivering value beyond basic payment services.

2. Segments and Dynamics of the FinTech Industry in Algeria

The FinTech sector in Algeria represents a multifaceted ecosystem that leverages digital technologies to transform traditional financial intermediation (Dorfleitner et al., 2017). Its structure can be understood through functional segments, each contributing uniquely to financial inclusion, efficiency, and innovation.

1. Payments and Money Transfers: The Digital Nervous System,The payments segment is the most mature and dynamic component of the FinTech ecosystem, functioning as a digital nervous system that enables rapid value transfer. It encompasses mobile wallets, POS terminals, online transfers, and peer-to-peer (P2P) payments. Initiatives such as the EDAHABIA card and BARIDIMOB mobile application illustrate state-facilitated adoption in Algeria, bridging traditional cash habits with digital behaviors. Local infrastructure, including GIE Monétique, provides the foundational rails to scale these services, while international systems increasingly explore blockchain for real-time, cross-border payments (Dorfleitner et al., 2017).

2. Financing and Alternative Credit: Capital Democratization,Financing solutions challenge traditional banking monopolies over credit allocation, offering platforms such as crowdfunding, P2P lending, and digital factoring. These mechanisms leverage Alternative Credit Scoring (ACS) and Big Data analytics to provide near-instant liquidity, bypassing conventional collateral requirements. In Algeria, such solutions are particularly beneficial for SMEs and informal entrepreneurs, who face barriers in accessing traditional banking services (Berg, 2020; Lee, 2017).

3. Wealth Management and WealthTech: Algorithmic Inclusion,TheWealthTech segment automates and democratizes investment services, traditionally reserved for high-net-worth individuals. Robo-advisors and Personal Financial Management (PFM) tools transform transactional data into actionable insights, supporting financial literacy and informed decision-making. In Algeria, applications like BARIDIMOB enable real-time financial monitoring, gradually fostering formal financial engagement (Gomber, 2018).

4. InsurTech and RegTech: The Invisible Backbone,InsurTech and RegTech provide the technical and regulatory scaffolding for ecosystem resilience. Leveraging AI, IoT, and real-time analytics, these technologies automate compliance (KYC/AML), enhance fraud detection, and enable dynamic risk pricing. The rise of the API economy facilitates

interoperability across institutions and seamless integration of financial services into non-financial platforms (Arner, 2017; Zachariadis&Ozcan, 2017).

5. Ecosystemic Interdependencies and Collective Dynamics,FinTech innovation emerges from interactions among startups, traditional institutions, regulators, and end-users. Startups drive experimentation and customer-centric innovation, while banks provide trust and infrastructure support. Regulatory bodies, such as the Bank of Algeria and GIE Monétique, ensure stability through mechanisms including sandboxes. Adoption by consumers and SMEs, influenced by trust, usability, and perceived value, completes a feedback loop essential for a sustainable and robust FinTech ecosystem (Zetzsche et al., 2017). Finally, the demand from consumers and SMEsis decisive: the adoption of FinTech solutions depends on trust, usability, and perceived value. Together, these actors form a synergistic feedback loopthat is essential for establishing a sustainable and robust FinTech ecosystem.

1. **The Mechanics of Evolutionary Leapfrogging and Structural Compression**

The Algerian experience can be interpreted through the lens of evolutionary leapfrogging, as conceptualized by (Arner, 2015). While advanced economies followed a gradual trajectory from FinTech 1.0 (analog finance) to FinTech 2.0 (bank-centric digitization through branch networks, ATMs, and core banking systems), emerging economies are not bound by the same infrastructural legacy. Instead, they can compress multiple stages of development by adopting mobile-first, platform-based architectures.

Algeria's attempt to move directly from a predominantly cash-based system toward FinTech 3.5 or even 4.0 reflects such a systemic jump. This compression is facilitated by high mobile penetration, widespread use of smartphones, and the integration of postal and telecom infrastructures. Yet, leapfrogging is not automatic; it requires institutional coherence, regulatory adaptability, and user-centric design.

Thakor's (2019) three-phase model provides a complementary analytical lens that aligns closely with Algeria's current position:

- **Phase 1: Intermediation Enhancement**, where technology is deployed to improve the efficiency of traditional financial functions without altering the underlying business model. In Algeria, this phase corresponds to the expansion of ATMs, card-based withdrawals, and basic electronic payment systems.
- **Phase 2: Competitive Disruption**, characterized by the unbundling of banking services and the emergence of alternative providers offering targeted functionalities. Applications such as BARIDIMOB, which enable peer-to-peer transfers and bill payments, illustrate this phase by reducing reliance on physical branches and introducing elements of user autonomy.
- **Phase 3: Systemic Integration**, where financial services become embedded within broader digital ecosystems, often driven by BigTech actors and Open Banking frameworks. This phase transforms finance into an invisible layer of everyday life, exemplified by QR-code payments, embedded credit, and data-driven personalization.

Algeria currently oscillates between Phases 2 and 3, possessing the technical prerequisites for integration but lacking the regulatory and organizational conditions necessary for full ecosystem convergence.

3. Deconstructing the "Algerian Paradox" : Infrastructure without Experience

At the heart of what may be termed the "Algerian Paradox" lies a disjunction between infrastructural availability and effective disintermediation. Despite significant investments in payment systems and digital platforms, user adoption remains constrained by friction, limited interoperability, and insufficient customer-centric design. As (Alt, 2018)argue, FinTech

innovation cannot be reduced to technological deployment; it must fundamentally reorient financial services around user experience, speed, and contextual relevance.

In practical terms, if a digital transaction requires multiple authentication steps, suffers from network instability, or takes longer to execute than a cash payment, users will rationally revert to informal practices. In such cases, technology is perceived not as an enabler of convenience, but as an additional cognitive and temporal burden. This explains why technical capacity alone has not translated into behavioral transformation.

Thakor (2019) emphasizes that the ultimate success of FinTech hinges on its ability to reduce friction and information asymmetry simultaneously. For Algeria, achieving this objective necessitates a decisive regulatory shift toward Open Banking and standardized API integration. By allowing licensed third-party developers to securely access payment infrastructures and customer-permissioned data, the system can evolve beyond a closed-loop utility model focused on bill payments and transfers.

Such openness would enable the emergence of value-added services, including real-time credit scoring, micro-lending, digital savings, and embedded insurance products. More importantly, it would reconceptualize trust as functional infrastructure—no longer rooted solely in institutional authority, but operationalized through reliability, transparency, and user control. In this sense, FinTech becomes not merely a collection of digital tools, but a socio-technological catalyst capable of fostering genuine financial inclusion and formal economic participation. In the Algerian context, the FinTech ecosystem fulfills a dual and mutually reinforcing function: enhancing economic efficiency while simultaneously advancing financial inclusion. Recent statistics published by GIE Monétique (2024) indicate a 60% increase in mobile payment transactions, suggesting that the payments segment has reached a threshold of critical mass. This inflection point confirms that digital payments are no longer marginal tools but have begun to function as a mainstream transactional infrastructure. However, from a developmental perspective, the consolidation of a payments ecosystem constitutes only a necessary but insufficient condition for sustainable FinTech growth. Without a transition toward productive financial services—notably digital credit, savings instruments, and investment platforms—the ecosystem risks stagnation within a narrow utility-based model centered on bill payments and administrative transactions.

Achieving this transition requires the activation of strategic coordination mechanisms that redefine the relationship between incumbents and new entrants. Rather than framing the ecosystem as a zero-sum confrontation between traditional banks and FinTech startups, contemporary literature emphasizes the superiority of collaborative configurations (EY, 2025). In such arrangements, banks leverage startups as external innovation laboratories, outsourcing agility, experimentation, and user-centric design, while startups gain access to banks' core assets—namely regulatory licenses, balance sheets, and large card-holding customer bases. This complementariness transforms competition into co-opetition, enabling the ecosystem to scale without undermining systemic stability.

III. Mapping Digital Payments in Algeria

In Algeria, the gradual deployment of FinTech solutions—particularly in the domain of digital payments—has become a central lever for improving access to financial services, enhancing transactional transparency, and increasing overall economic efficiency. Digital payment instruments reduce reliance on cash, facilitate traceability, and contribute to the formalization of economic activity. Moreover, by lowering transaction costs and expanding service accessibility, they create enabling conditions for broader financial inclusion,

especially for households and small economic actors traditionally excluded from the formal banking system. To accurately identify the structural requirements for modernizing and scaling Algeria's digital payment infrastructure, it is necessary to conduct a systematic assessment of existing practices. Such an assessment provides insight into both the progress achieved and the persistent constraints that shape the current FinTech landscape. Examining the range of electronic payment activities across sectors allows for a nuanced understanding of how digital finance is actually used, rather than how it is formally designed.

1. Online Payment Activity by Sector in Algeria (2016–2024)

Between 2016 and 2024, FinTech development in Algeria has been largely concentrated in what the literature describes as the first wave of FinTech adoption**,** which is predominantly centered on payment services. This phase encompasses electronic purchases, utility and bill payments, mobile-based transactions, and online payment platforms. These services represent the most accessible and least risky entry point for digital finance, both from a regulatory perspective and in terms of user acceptance.

Sectoral analysis reveals that online payment activity has expanded unevenly across the economy. Public services and utilities—such as electricity, water, telecommunications, and administrative fees—have acted as early adopters, largely due to state-led digitalization strategies and mandatory payment channels. Telecommunications operators, in particular, have played a catalytic role by integrating mobile payment solutions into everyday consumption patterns, thereby familiarizing users with cashless transactions.

In contrast, the diffusion of online payments within the private commercial sector, especially among small and medium-sized enterprises (SMEs), has progressed more slowly. Structural barriers such as limited digital infrastructure, concerns over transaction security, interoperability constraints, and a persistent preference for cash continue to inhibit widespread adoption. As a result, digital payments in Algeria remain predominantly transaction-oriented and utility-driven, rather than embedded within broader value-creation processes such as digital lending, supply-chain finance, or e-commerce ecosystems.

Overall, the dominance of payment services within Algeria's FinTech landscape confirms that the country is still situated within the initial stage of FinTech evolution. While this focus has enabled the establishment of foundational infrastructure and user familiarity, it also highlights the need for a strategic transition toward more advanced and productive FinTech applications. Such a transition would involve integrating digital payments with credit, savings, and investment services, thereby transforming digital finance from a transactional tool into a driver of sustainable economic development. The following table depicts the online payment by sector:

Table 02: Online Payment Activity by Sector in Algeria (2016–2024)

Year	Telecom	Transport	Insurance	Bill Payment	Administrative Service	Service Provider	Goods Sale	Sports &Leisure	Total Transactions	Total Transaction Amount (DZD)
2016	6536	388	51	391	0	0	0	0	7366	15009842,02
2017	87286	5677	2467	12414	0	0	0	0	107844	267993423,4
2018	138455	18171	6437	29722	1455	0	0	0	176892	382592532,9
2019	141552	6292	8428	30886	2432	5056	0	0	192546	503870861,6
2020	211384	11563	20345	65476	3985	213175	124275	342	492930	1539774084
2021	699135	12384	8370	120841	153650	457746	123468	1985	781246	1116475536
2022	1091659	56569	35480	302273	393757	7051145	1491429	12146	1841509	24177135526

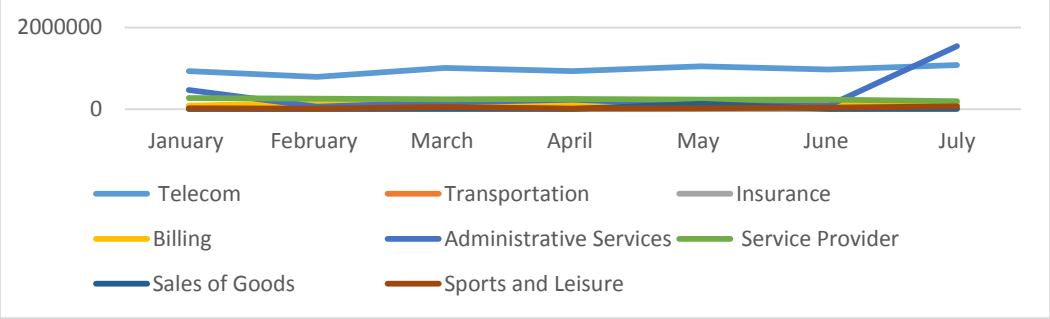
2023	3886829	758317	317317	640185	4086659	7056597	1751574	51821	15128312	13762202403
2024	9836882	758764	617437	1447168	5248922	1336790	166219	746198	19594482	51948560351

Source: Activity Report (GIE, 2025)

Online payment activity in Algeria has grown significantly between 2016 and 2024, reaching approximately 19.6 million transactions valued at over 51 billion DZD, yet this growth remains structurally uneven and sectorally concentrated (GIE, 2025). Early adoption from 2016 to 2019 was largely limited to telecommunications and utility bill payments, reflecting low-risk, standardized transactions and a cautious approach toward digital financial tools consistent with the Technology Acceptance Model (Davis, 1989). This phase highlights the persistence of structural and socio-institutional barriers, including limited merchant acceptance, weak interoperability, transaction security concerns, and a deeply entrenched cash-based culture (Arner, 2015; World Bank, 2022). A pronounced acceleration occurred from 2020 onward, triggered by the COVID-19 pandemic, which functioned as an exogenous "digital catalyst" forcing both institutions and users to adopt remote payment channels, complemented by regulatory mandates for electronic payment acceptance in essential services (Fu & Mishra, 2022). Between 2021 and 2024, online payments expanded to include a wider array of public and administrative services, such as university registration, housing programs, tax obligations, and sports ticketing, broadening user exposure to digital interfaces. Despite these gains, adoption has largely been administratively driven rather than market-led, with transactions concentrated in small-value, non-discretionary payments, indicating limited qualitative maturity and minimal integration into high-value commercial or e-commerce activities (Gomber, 2018; Thakor, 2019). From an ecosystemic perspective, Algeria's online payment development reflects a model of state-led modernization, where infrastructure and exposure have increased, but trust, interoperability, and user-centric innovation remain underdeveloped (Alt, 2018). To progress from extensive growth to intensive economic integration, policy measures must focus on strengthening digital trust, incentivizing merchant participation, improving interoperability, and linking online payments to broader financial services such as digital credit, savings, and e-commerce platforms (Arner et al., 2016; World Bank, 2022). Only under these conditions can online payments evolve from administrative tools into drivers of a sustainable, FinTech-led economic transformation.

However, the evolution of online payment activity by sector in 2025 (January–July) has recorded an increased growth across all sectors up to the month of July:

Figure 02: Online Payment Activity by Sector in 2025 (January–July)



Source : Prepared by the authors

The analysis of figure2 reveals a distinct monthly pattern in the evolution of online payment activity in Algeria between January and July 2025, characterized by a generally upward trajectory interspersed with short-term fluctuations. Notably, a temporary contraction in February interrupted the growth trend, likely reflecting seasonal factors such as limited administrative activity following the year-end period and a general decline in non-essential transactions. Following this brief downturn, the volume and value of transactions resumed a steady ascent, culminating in a record peak in July 2025, during which nearly 3.1 million transactions were processed, corresponding to a total value of 7.7 billion Algerian dinars.

The observed growth is primarily attributable to the structural dominance of the telecommunications sector, which continues to serve as the backbone of digital payments in Algeria. Mobile operators, through integrated platforms, provide both infrastructure and widespread user access, enabling continuous transaction flows. Alongside telecommunications, the administrative services sector experienced a particularly strong surge, driven largely by the concentrated demands of university registration for the 2025/2026 academic year. This seasonal spike demonstrates that much of the observed growth is event- and institutionally-driven, rather than stemming from continuous, voluntary adoption by consumers or businesses. In other words, the July peak reflects a concentrated influx of high-volume administrative transactions rather than a sustained expansion of discretionary commercial activity.

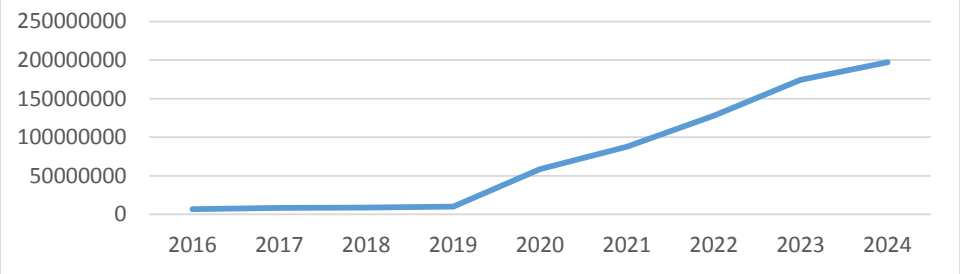
Quantitative analysis of sectoral contributions further underscores the structural imbalance of the ecosystem. Telecommunications and administrative services together accounted for approximately 70% of total online payment volume, signaling a high dependency on quasi-mandatory transactions. Conversely, the retail sector—particularly e-commerce platforms and online goods sales—remains marginally integrated, contributing less than 1% to total online transactions. This indicates that the penetration of digital payments into everyday commercial activity is still extremely limited. Several factors help explain this underperformance: persistent consumer skepticism toward digital payments, relatively immature e-commerce infrastructure, weak integration of payment gateways within commercial supply chains, and concerns over security and reliability (Gomber, 2018); Arner et al., 2016).

These findings suggest that, despite impressive quantitative growth, the qualitative depth of adoption remains constrained. Online payments continue to function primarily as a regulated and administratively mandated utility, rather than as a spontaneous, market-driven phenomenon. The limited contribution of retail commerce indicates that digital payments have yet to evolve into an endogenous FinTech ecosystem capable of stimulating entrepreneurial activity, enabling scalable e-commerce, or generating systemic economic transformation. In short, while Algeria has successfully established foundational payment infrastructure and achieved record transaction volumes, the sector's developmental trajectory remains dependent on state-driven or mandatory activities, emphasizing the need for strategies that enhance consumer trust, diversify commercial adoption, and integrate payments into broader digital economic practices (Thakor, 2019; World Bank, 2022).

2. ATM Withdrawal Activity:

ATM withdrawals remain a central component of Algeria's payment ecosystem, reflecting both the persistence of cash-based habits and the gradual adoption of digital banking services. Despite the expansion of card-based solutions such as the EDAHABIA card, withdrawal volumes indicate that cash continues to play a dominant role, particularly in rural areas and among populations with limited access to mobile or online banking. The network of ATMs, managed jointly by commercial banks and GIE Monétique, provides the physical infrastructure necessary to bridge traditional and digital financial practices, acting as a transitional channel toward broader digital adoption. The following figure depicts the evolution of the number of ATMs :

Figure 03: Evolution of the Number of Interbank Automated Teller Machines (ATMs) in Operation in Algeria (2016–2023)



Source : Prepared by the authors

The evolution of interbank ATM usage in Algeria between 2016 and 2024 reflects a marked acceleration in cash withdrawal activity, particularly from 2020 onward (GIE, 2025). Between 2016 and 2019, both transaction volumes and total values exhibited moderate growth, reflecting incremental adoption of automated banking channels. A structural inflection occurred in 2020, driven by the expansion of the interbank ATM network, broader circulation of interbank cards, and the COVID-19 pandemic, which encouraged reliance on self-service cash withdrawals as a safe alternative to in-person banking (Fu & Mishra, 2022).

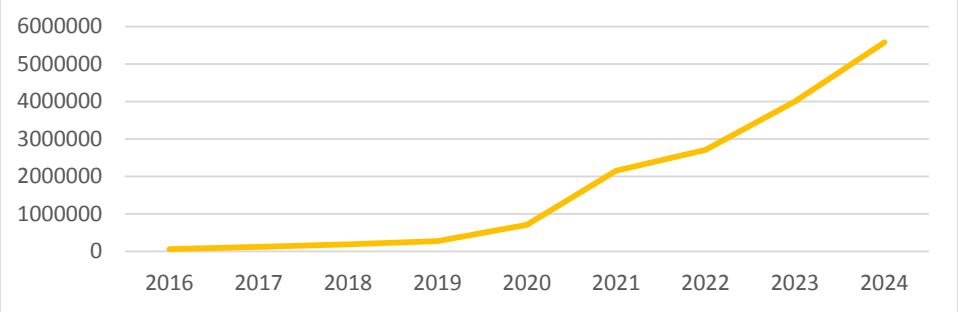
By 2024, nearly 197 million ATM transactions had been recorded, totaling over 3,691 billion DZD. Despite this surge, the average transaction value remained stable at approximately 18,500 DZD, indicating that the growth was primarily frequency-driven rather than due to larger individual withdrawals. This trend underscores the persistent centrality of cash in Algeria's payment ecosystem, highlighting a paradoxical coexistence with the expanding digital payment infrastructure (Arner et al., 2016; Thakor, 2019).

Observations in 2025 reveal seasonal fluctuations in ATM usage, with peaks in March and May and a temporary decline in July, coinciding with heightened adoption of POS payments, mobile wallets, and P2P transfers. These patterns suggest a partial, context-dependent substitution of cash by digital channels rather than a complete transition. Overall, the Algerian payments landscape exhibits a dualistic structure: while digital channels are gaining traction, cash remains the default medium for everyday transactions, emphasizing the need for policy measures and innovations to bolster trust, convenience, and broader adoption of electronic payment instruments (Gomber, 2018; World Bank, 2022).

3. POS Payment Activity in Algeria :

Point-of-Sale (POS) transactions have emerged as a key driver of digital payments, complementing traditional cash withdrawals and fostering gradual financial inclusion. In Algeria, POS usage is concentrated in urban centers and commercial hubs, facilitated by the widespread deployment of terminals connected to the GIE Monétique network. While adoption has grown steadily, particularly through the integration with cards such as EDAHABIA, overall usage remains limited compared to cash, highlighting both infrastructure and behavioral constraints. POS payments serve as a critical bridge between traditional retail transactions and the broader digital payment ecosystem, promoting familiarity with electronic financial services. The following figure shows tha annual evolution of POS payment :

Figure 04: Annual Evolution of "POS Payment" Activity (2016–2024)



Source : Prepared by the authors

Point-of-Sale (POS) payment activity in Algeria has experienced steady growth between 2016 and 2024, reflecting gradual public acceptance of electronic payments and their integration into everyday transactions (GIE, 2025). Transaction volumes increased from 65,501 in 2016

to over 5.5 million in 2024, while total transaction values rose from 444 million DZD to 44.5 billion DZD over the same period. Growth accelerated notably from 2020 onward, following institutional interventions that enabled full interoperability of the EDAHABIA card across the national POS network, particularly in high-interaction sectors such as public transport and retail. Despite this progress, POS usage remains concentrated in urban centers and on low- to medium-value transactions, with average payments rising modestly from around 6,000 DZD in 2020 to 8,000 DZD in 2024, highlighting residual trust issues, uneven merchant adoption, and structural limitations in network density and terminal availability. Monthly peaks, such as the 10% increase recorded in July 2025, indicate alignment of POS usage with seasonal consumer activity and the embedding of electronic payments into routine financial behavior. Overall, while institutional support and interoperability have accelerated adoption, widespread usage across diverse merchants and high-value transactions remains limited, underscoring the need for continued infrastructure expansion, public awareness, and behavioral shifts to reduce reliance on cash and foster a more inclusive digital payment ecosystem.

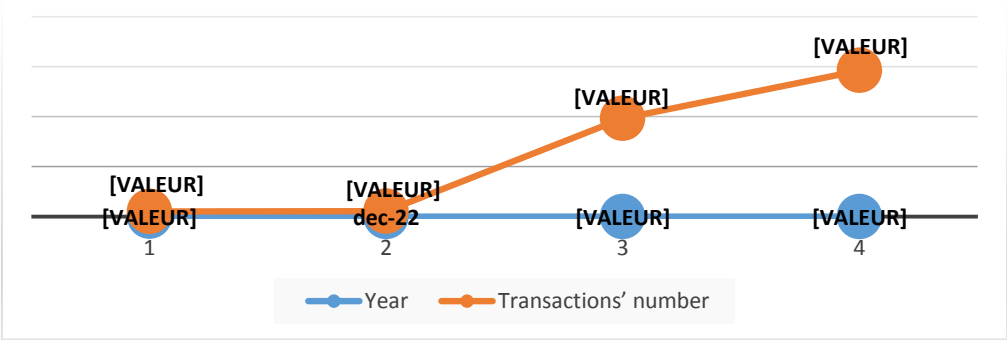
4. Evolution and Dynamics of Mobile Payments and Peer-to-Peer Transfers

Within this payment landscape, a distinction can be made between mobile payments conducted within the same bank and peer-to-peer (P2P) transfers occurring intra-bank.

a. Mobile Payment Activity

The figure below illustrates the progression of mobile payment activity over the years 2022, 2023, and 2024.

Figure 05: Evolution of Mobile Payment Activity (2022–2024)



Source : Prepared by the authors

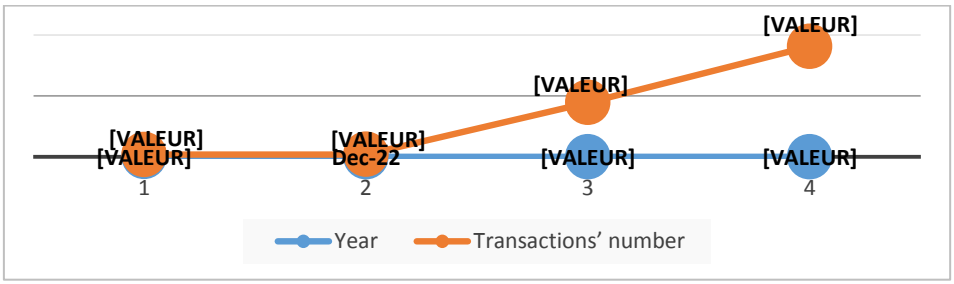
Between 2022 and 2024, mobile payment activity in Algeria experienced rapid and sustained growth, reflecting an increasing adoption of digital financial instruments within the national ecosystem (GIE, 2025). Transaction volumes grew from approximately 2 million in late 2022 to over 58 million in 2024, with total transaction values rising correspondingly from 1.46 billion DZD to 43.59 billion DZD. Early adoption was initially limited to a few financial institutions and mostly intra-bank transfers, reflecting both the nascent stage of mobile payments and cautious user behavior. Adoption accelerated significantly in 2023–2024, driven by the convenience, speed, and flexibility of mobile transactions, which support everyday needs such as peer-to-peer transfers, bill payments, and low-value retail purchases. Despite this growth, usage remains largely concentrated in low-value transactions, constrained by structural limitations including limited interbank interoperability, a restricted number of participating institutions, and uneven user trust and awareness. Seasonal factors, such as summer spending, contributed to spikes in usage, exemplified by an 11% increase in July 2025, highlighting the alignment of mobile payments with socio-cultural patterns. Overall, while mobile payments are increasingly embedded in daily financial routines and

represent a key component of Algeria's digital financial ecosystem, their potential to drive systemic transformation—through cash reduction, broader financial inclusion, and higher-value transactions—depends on expanded infrastructure, regulatory support, and enhanced user confidence.

b. Intra-Bank P2P Transfer Activity

Intra-bank peer-to-peer (P2P) transfers represent a key component of digital payment adoption, allowing users to transfer funds directly between accounts within the same financial institution. This type of transaction is particularly important in Algeria, where it provides a secure, fast, and low-cost alternative to cash for everyday payments. Monitoring the evolution of intra-bank P2P activity offers insights into user behavior, trust in digital systems, and the effectiveness of early-stage mobile and online banking services. The following figure shows the evolution of intra-bank transfer activity :

Figure 06: Evolution of Intra-Bank P2P Transfer Activity (2022–2024)



Source : Prepared by the authors

Analysis of figure 6 demonstrates a remarkable expansion of intra-bank peer-to-peer (P2P) transfers via mobile platforms in Algeria between 2022 and 2024, signaling a rapid shift in financial behavior toward digital and mobile-first practices. Over this period, transaction volumes more than doubled between 2023 and 2024, reflecting a gradual but sustained adoption of mobile-based financial interactions. This growth is underpinned by the increasing portability, speed, and reliability of mobile banking applications, including BaridiMob, the BNA Mobile App, and AL SALAM BANK services, which facilitate instant peer-to-peer fund transfers without the need for physical presence. The adoption of mobile P2P payments is reinforced by strong network effects: as more individuals use the service, its utility increases, creating a self-reinforcing cycle of adoption. Additionally, the low or zero transaction fees associated with mobile P2P transfers present a compelling alternative to traditional postal money orders, further encouraging usage.

A key milestone in this trajectory was the launch of the national mobile switch, **DZ Mob Pay**, in January 2025. This platform introduced interbank interoperability for the first time, breaking down long-standing institutional silos and significantly expanding the reach of P2P transfers. The immediate impact of this initiative was evident in July 2025, which recorded a 12% increase in transaction volumes compared to the previous month, reflecting both seasonal factors—such as heightened consumer spending during summer—and the growing adoption of mobile P2P as a preferred method for interpersonal financial transfers. These developments illustrate what can be characterized as a "silent revolution" within the Algerian digital financial ecosystem, highlighting the emergence of new norms in transactional behavior and the increasing integration of digital tools into everyday life.

Throughout 2025, intra-bank mobile P2P transfers continued on a positive trajectory, maintaining consistent transaction volumes and average amounts ranging from approximately 13,000 to 14,000 DZD. This pattern indicates that the service is increasingly used for

medium-value transactions, representing a shift beyond mere micro-payments toward broader financial engagement between individuals. The growth observed in July 2025, which marked the largest monthly increase of the year (+12%), is linked to the intensification of social and economic interactions during the summer, including travel, holidays, and seasonal consumption, reflecting the alignment of mobile P2P usage with socio-cultural rhythms.

The expansion of P2P activity has been facilitated by the progressive consolidation of Algeria's digital payment infrastructure. Prior to interbank interoperability, mobile transfers were largely confined to customers of specific institutions, such as Algeria Post's BaridiPay, the National Bank of Algeria, and AL SALAM BANK. While these early systems allowed intra-bank transfers, they did not enable cross-institutional interoperability, limiting network effects and adoption. The introduction of DZ Mob Pay, initially piloted across seven banks, expanded transactional reach, enhanced accessibility, and catalyzed the widespread adoption of digital payment methods. Despite these advancements, the overall uptake of mobile P2P services remains uneven, constrained by limited financial literacy, infrastructural gaps, and a historically entrenched cash culture. Moreover, although the COVID-19 pandemic accelerated digital adoption in some sectors, the overall modernization of digital practices in Algeria continues to depend on sustained investment in infrastructure, regulatory support, and public trust.

IV. FinTech in Algeria: Development Pathways and Strategic Outlook

The trajectory of FinTech development in Algeria is intimately connected to the country's broader processes of digitalization, banking modernization, and economic diversification. The evolution of this sector reflects the interplay between technological innovation, institutional reforms, and socio-economic factors, and offers both opportunities and challenges for financial inclusion, economic efficiency, and systemic transformation. Several strategic perspectives emerge as particularly salient for the sustainable growth of Algeria's FinTech ecosystem.

1. Building Trust and Digital Literacy as Foundations for Adoption :The expansion of FinTech solutions in Algeria is fundamentally dependent on citizens' confidence in digital tools and their familiarity with financial technologies. Trust in digital services is not merely a technological question but is deeply embedded in socio-institutional contexts, particularly in countries with a historically cash-oriented culture (Arner D. W., 2017); Thakor, 2019). In Algeria, enhancing financial and digital literacy through formal education programs, public awareness campaigns, and media outreach is essential. Integrating financial education into school curricula and promoting competency in the use of digital payment instruments can mitigate barriers to adoption and facilitate a smoother transition toward platform-based financial services. Such measures are particularly critical for reducing information asymmetries, fostering user confidence, and encouraging the broad utilization of mobile payments, digital banking applications, and other FinTech innovations (Berg et al., 2020).

2. Accelerating Peer-to-Peer (P2P) Transactions :The remarkable growth of intra-bank and mobile P2P transfers represents a cornerstone of digital financial inclusion in Algeria. Peer-to-peer payments facilitate the rapid, secure, and cost-effective movement of funds between individuals, bypassing traditional intermediaries and reducing reliance on cash (Dorfleitner et al., 2017). Expanding the interoperability of payment platforms across banks and Algérie Poste is essential to reinforce this dynamic. Complementary financial services, such as micro-savings, microcredit, and digital wallet integration, could further strengthen the utility of P2P systems, enabling them to function as robust instruments for enhancing access to formal

financial services and promoting financial inclusion, particularly among underserved populations.

3. Promoting Interbank Mobile Payments :The launch of initiatives such as "DZ Mob Pay" in 2025 represents a strategic step toward the digitalization of banking services. The success of such interbank mobile payment systems depends on widespread adoption across all banking institutions and user familiarity with the technology. Mobile payments are particularly suited to promoting inclusion in remote or underserved areas, providing a convenient alternative to physical banking infrastructure. To maximize impact, targeted awareness campaigns and educational programs must accompany technological deployment, encouraging habitual usage for everyday transactions, including bill payments, small retail purchases, and peer-to-peer transfers (Alt, 2018); (Gomber, 2018)

4. Strengthening Financial Inclusion through Digital Tools :FinTech provides a critical mechanism for expanding access to financial services in Algeria, where traditional banking penetration remains relatively low. Mobile payments, online banking platforms, digital microcredit, and other tools can reach marginalized populations, including those in rural regions, informal sector workers, and low-income households (Lee, 2017). By enabling secure, low-cost, and convenient access to financial services, these solutions have the potential to reduce the informal economy, promote formal banking adoption, and encourage broader participation in economic activities. As (Alt, 2018) note, the transformative potential of FinTech lies in its ability to overcome traditional barriers to access while enhancing financial literacy and trust.

5. Modernizing the Banking and Fiscal System :Electronic payment adoption serves as a driver of both operational efficiency and fiscal modernization. Data from Algérie Poste and GIE Monétique indicate a dramatic increase in electronic transactions, from approximately 20,000 in 2019 to over 6 million in 2022, facilitated by the widespread deployment of CIB and EDAHABIA cards. This evolution establishes a foundational infrastructure for digital payment processing, enhances traceability of financial flows, and supports transparency in fiscal operations. Over time, this improved traceability can underpin reforms to Algeria's tax system, optimize revenue collection, and reduce evasion, illustrating the dual economic and regulatory benefits of a robust FinTech ecosystem (Catalini&Gans, 2020).

6. Regional and International Integration :Algerian FinTech development can gain significant momentum through regional and international integration. The implementation of the African Continental Free Trade Area (AfCFTA) creates opportunities for domestic FinTech firms to participate in cross-border e-commerce and payment networks, promoting economic integration and regional financial connectivity (Arner, 2015). Realizing this potential requires solutions capable of handling cross-country transactions, multi-currency operations, and lower transaction costs, while maintaining security and regulatory compliance. Such regional alignment could position Algerian FinTech firms as competitive actors within the emerging African digital economy.

7. Development of Innovative Niche Segments
Emerging FinTech niches present significant growth potential, particularly in areas such as:

- InsurTech, where technological modernization of insurance products can stimulate the startup ecosystem and expand access to coverage (Arner D. W., 2017).
- Digital Islamic Finance, which responds to rising demand for Sharia-compliant products, enabling mobile and online transactions, digital savings, and microcredit solutions aligned with religious principles (Thakor, 2019).

- Cybersecurity, which underpins trust in digital services, requiring investments in secure operations, authentication systems, and online fraud prevention mechanisms.
- Digital Identity and KYC/KYC Compliance, where reliable authentication infrastructure is crucial to secure transactions and promote widespread adoption of FinTech solutions (Zachariadis&Ozcan, 2017).

8. Institutional and Entrepreneurial Ecosystem Development :The Algerian FinTech landscape is strongly shaped by proactive government involvement and emerging entrepreneurial initiatives. The 2023 Algeria FinTech& E-Commerce Summit highlighted the sponsorship of multiple ministries (Post and Telecommunications, Digitalization, Knowledge Economy), the establishment of startup investment funds, and regulatory support aimed at promoting innovation. Key actors, including Algérie Poste, SATIM, GIE Monétique, and private startups such as Chargily, Slick-Pay, Guiddini, and MyTPE, contribute to a dynamic entrepreneurial environment that diversifies services, fosters competition, and strengthens ecosystem resilience (EY, 2025).

9. Challenges and Strategic Considerations :Despite these promising developments, the sustainable expansion of FinTech in Algeria remains contingent upon overcoming several structural and institutional challenges. Legal and regulatory frameworks must evolve to accommodate digital innovation while ensuring consumer protection. Public awareness campaigns and educational initiatives are essential to build trust and digital competence. Technical infrastructure, particularly interoperability among banks and payment platforms, must be strengthened to allow scale, efficiency, and broad adoption. Achieving these conditions will enable the integration of digital solutions across payments, insurance, and Islamic finance, as well as support participation in regional and international financial networks.

Conclusion

The study demonstrates that FinTech has emerged as a pivotal driver in the modernization of financial systems, fostering efficiency, transparency, and financial inclusion through digital innovation while simultaneously challenging traditional financial models. In Algeria, recent developments—including the expansion of mobile payments, the widespread deployment of POS terminals, enhanced banking interoperability, the adoption of the EDAHABIA card, and the growth of intra-bank P2P transfers—reflect a deliberate effort to align with global digital finance trends. Empirical data indicates a substantial increase in electronic transactions, signaling rising user engagement and a gradual shift toward digital financial behaviors.

Despite this positive momentum, several challenges continue to constrain the widespread adoption of FinTech solutions. Regulatory delays, insufficient digital infrastructure, the persistence of cash-based transactions, limited public trust, and gaps in financial literacy constitute significant barriers that must be addressed to fully leverage the sector's potential.

To overcome these obstacles and accelerate the development of FinTech in Algeria, the following strategic measures are recommended:

- **Strengthening the regulatory framework**: Implement clear, flexible, and innovation-friendly regulations, particularly in emerging areas such as cryptocurrencies, crowdfunding, and open banking, to provide legal certainty and stimulate innovation.
- **Investing in digital infrastructure**: Expand access to high-speed and mobile internet, modernize interbank systems, and enhance cybersecurity to ensure secure, reliable, and scalable digital transactions.

- **Promoting financial education and inclusion**: Launch targeted awareness campaigns and training initiatives for citizens, merchants, and SMEs to increase confidence and competence in using digital financial services.
- **Supporting local innovation**: Encourage the growth of Algerian FinTech startups through incubators, specialized investment funds, and public-private partnerships, fostering a vibrant and competitive ecosystem.
- **Fostering interoperability and strategic alliances**: Facilitate cooperation among banks, telecom operators, insurance providers, and FinTech companies to establish a seamless and integrated financial ecosystem.
- **Implementing financial and fiscal incentives**: Provide benefits to organizations that invest in FinTech solutions or adopt electronic payment methods at scale, encouraging broader participation.
- **Gradually transitioning to dematerialization**: Reduce reliance on cash by progressively mandating electronic payments in key sectors, including public administration, transportation, structured commerce, and essential public services, thereby reinforcing the shift toward a fully digital economy.

Collectively, these measures can strengthen Algeria's FinTech ecosystem, enhance financial inclusion, and position the country to benefit from the efficiency and innovation offered by digital financial technologies.

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