

The Role of Electronic Payment Methods in Eliminating the Phenomenon of Bank Liquidity in Algeria

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Abstract:

This study examines the requirements for activating and developing electronic payment mechanisms as a means to reduce the banking liquidity crisis that affects the Algerian national economy, particularly in light of the ongoing global digital transformation. The study aims to analyze the relationship between electronic payment and banking liquidity, identify the obstacles hindering this transformation, and propose practical and comprehensive solutions. The importance of this topic lies in its relevance to a pressing issue that directly impacts citizens' daily lives and influences the stability of the financial sector.

The study concludes that electronic payment is no longer an option but an urgent economic necessity to address the banking liquidity crisis, enhance transparency, and achieve financial inclusion. It also recommends strengthening cooperation among the three key sectors — government, private sector, and civil society institutions — to establish a secure and efficient digital environment that contributes to financial stability and economic growth.

Keywords: Electronic Payment; Financial and Banking Liquidity; Financial Inclusion; Digital Transformation.

JelClassificationCodes: G21, G28, E51, E58.

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1. INTRODUCTION:

Electronic payment mechanisms are among the fundamental components of the transition toward a digital economy, as they play a central role in facilitating financial transactions and increasing the efficiency of the financial system in Algeria. Although this field has witnessed remarkable progress, it still faces numerous challenges that affect cash liquidity in the national market. The shift from traditional systems to electronic payment represents a strategic step aimed at improving transaction efficiency and reducing dependence on cash.

Research indicates that the use of electronic payment can enhance transparency and reduce administrative and financial corruption, thereby improving the business climate and attracting investments. However, the limited attention given to electronic payment and the weakness of the infrastructure remain among the main obstacles hindering this transformation. Therefore, studying the impact of these mechanisms on cash liquidity in Algeria is essential to understanding how to improve the financial system and promote

sustainable economic growth.

Main Axes of the Study:

- **First Axis:** The evolution of financial and banking liquidity in Algeria
- **Second Axis:** Analysis of the current situation of electronic payment mechanisms in Algeria
- **Third Axis:** Conditions for the success of electronic payment in Algeria and its role in reducing the liquidity crisis

Main Problem:

The liquidity crisis is considered one of the most significant economic challenges facing Algeria, as it affects the ability of individuals and businesses to carry out their daily transactions smoothly amid heavy reliance on paper money and the growing need for more efficient financial systems. This highlights the necessity of activating and developing electronic payment mechanisms as one of the effective solutions. Accordingly, the main research question can be formulated as follows:

To what extent can electronic payment mechanisms contribute to reducing the banking liquidity crisis in Algeria?

Sub-Questions:

To address the various aspects of the study and answer the main research question, the following sub-questions are posed:

- What are the methods and determinants of the evolution of banking liquidity in Algeria?
- What are the drivers behind the development of electronic payment in Algeria?
- What are the conditions for the success of electronic payment and the elimination of the financial liquidity crisis in Algeria?

Research Objectives:

This study aims to achieve the following objectives:

- To explore the current situation of the electronic payment mechanism in Algeria in terms of infrastructure and adoption levels by individuals and institutions.
- To examine the obstacles and hindering factors facing the development of electronic payment technologies while attempting to propose appropriate solutions.
- To analyze the impact of electronic payment on the liquidity crisis and review how these systems contribute to improving liquidity levels in the market.

2. Research Methodology:

To cover all aspects of the proposed problem and draw conclusions that serve the study's objectives, the research relies on the descriptive-analytical method to describe and analyze the general framework of electronic payment mechanisms and the aggravation of the banking and financial liquidity crisis in Algeria, as well as to evaluate the current policies and mechanisms adopted to support the financial sector. Additionally, the prospective method is employed to extract results through the analysis of collected data and statistics and to propose a future vision and practical mechanisms to strengthen electronic payment and eliminate the financial and banking liquidity crisis in Algeria.

First Axis: The Evolution of Financial and Banking Liquidity in Algeria**Table 1.** Developments in Banking Liquidity in Algeria (2011–2022) Unit: Billion Dinars

Years	2011	2012	2013	2014	2015	2016
Banking Liquidity	2845.10	2876.26	2692.99	2730.9	1832.6	820.9
Years	2017	2018	2019	2020	2021	2022
Banking Liquidity	1380.6	1557.6	1100.9	632.33	1331.95	1966.41

Source: Annual Reports of the Bank of Algeria

From the previous table, it is observed that banking liquidity recorded a modest improvement in 2012, increasing by 1.1% compared to the end of 2011. Banking liquidity rose by 31.16 billion dinars, driven by the dual effect of renewed accumulation of external assets and an increase in deposits from corporations and households. This occurred in a context marked by rising public expenditures, which contributed to the growth of banking liquidity, particularly during the second half of 2012.

The year 2013 was characterized by another decline in banking liquidity by 6.4% at the end of the period, as liquidity dropped by more than 183 billion dinars due to a decrease in the accumulation of net external assets, despite a slight rise in corporate and household deposits and controlled budgetary spending (Bank of Algeria, 2011-2022).

Banking liquidity increased by 37.91 billion dinars, resulting from the combined effect of renewed external asset accumulation and higher deposits by businesses and households. However, it later decreased by 32.9%, dropping from 2,730.9 billion dinars in 2014 to 1,832.6 billion dinars in 2015, mainly due to the reduction in net external assets, the depreciation of the dinar against the U.S. dollar, and the deficit in the overall balance of payments — all consequences of the sharp fall in oil prices in the second half of 2014.

The contraction continued, with liquidity declining from 1,832.6 billion dinars in 2015 to 820.9 billion dinars in 2016, representing a decrease of 1,011.7 billion dinars, as the factors draining liquidity outweighed those contributing to its increase. This situation forced the Bank of Algeria to suspend liquidity absorption operations after gradually lowering absorption thresholds and eliminating deposit facility rates to encourage banks to channel their surplus funds into the interbank money market. Furthermore, the Bank of Algeria reduced the required reserve ratio from 12% to 8% in 2016, revitalized the refinancing of private and public securities, lowered the rediscount rate from 4% to 3.5%, and prepared to launch open market operations through Instruction No. 06-16 of September 1, 2016, which set the terms for the Bank's interventions in the money market.

Refinancing operations resumed in March 2017, coinciding with the introduction of non-conventional financing in November 2017. Consequently, liquidity increased to 1,380.6 billion dinars, an addition of 559.7 billion dinars, with 595.6 billion dinars injected in October 2017 as part of open market operations with varying maturities. This helped contain the sharp decline in liquidity and maintain levels consistent with loan growth to the economy, which reached 12.3% in 2017 compared to 8.7% in 2016.

With liquidity levels improving, the Bank of Algeria suspended liquidity injections in December 2017 and implemented monetary policy instruments to absorb potential excess liquidity resulting from non-conventional financing. Consequently, open market operations to recover liquidity were reactivated in January 2018 (seven-day multiparty operations) and May 2018 (one-month bilateral operations). The required reserve ratio was raised from 4% to 8% in January, and from 8% to 10% in June 2018. As a result, banking liquidity rose in 2018 to 1,557.6 billion dinars, an increase of 177 billion dinars, while free bank reserves dropped significantly from 996 billion dinars at the end of 2017 to 204 billion dinars at the end of 2018.

With continued monetary financing of public treasury needs (about 1,000 billion dinars), liquidity rose again, peaking at 2,081 billion dinars on January 22, 2019. However, after the Bank of Algeria halted all liquidity injection operations and replaced them with seven-day liquidity recovery operations, and raised the required reserve ratio to 12% in February 2019, coupled with the structural deficit in the balance of payments, banking liquidity fell to 1,100.9 billion dinars by the end of 2019.

The noticeable decline in banking liquidity during the second half of 2019 prompted the Bank of Algeria in August 2019 to resume seven-day liquidity injections and reduce the required reserve ratio to 10% in December of the same year.

In 2020, banking liquidity dropped sharply from 1,100.9 billion dinars at the end of 2019 to 632.33 billion dinars at the end of 2020. This decline was mainly due to a sharp fall in net external assets — linked to the deficit in the balance of payments — and an unusual increase in cash circulation, especially among households during the COVID-19 pandemic. To address this contraction, the Bank of Algeria adopted corrective measures, notably reducing the required reserve ratio to 6% on May 15, 2020, and to 3% on September 15, 2020, while increasing refinancing thresholds for negotiable public securities, extending the refinancing period from seven days to one month, and accepting all banks' refinancing requests.

The easing of prudential regulations introduced by the Bank of Algeria to support economic activity amid the difficult pandemic context — especially the reduction of the required reserve ratio and the implementation of a special refinancing program — had a direct effect on liquidity levels. Banking liquidity rose sharply in 2021, reaching 1,331.95 billion dinars compared to 632.33 billion dinars in 2020. With the continued implementation of these easing measures and the special refinancing program, liquidity further increased in 2022, though at a slower pace, reaching 1,966.41 billion dinars compared to 1,331.95 billion dinars in 2021 (Bank of Algeria, 2011-2022).

Second Axis: Analysis of the Current Situation of Electronic Payment Mechanisms in Algeria

As part of its efforts toward digital transformation and the promotion of financial inclusion, the Algerian monetary authorities have worked since 2016 to expand the scope of electronic payment. These efforts included the deployment of automated teller machines (ATMs) across various regions and the introduction of multiple electronic payment options

through online platforms and smart applications. The aim of these initiatives is to reduce dependence on cash, facilitate financial transactions, and improve the efficiency of the financial system.

Despite the progress achieved, several challenges remain, such as the need to raise awareness about the importance of electronic payment and to strengthen cybersecurity measures to ensure safe and reliable operations.

3. Evolution of the Number of ATMs and Withdrawal Operations

The automated teller machine (ATM) is a key component of Algeria's electronic payment infrastructure, providing customers with convenient access to their funds at any time and from any location. The ATM network has experienced rapid growth in recent years, leading to a significant shift in consumer behavior and a greater reliance on electronic payments. This development reflects the increasing interest in adopting digital solutions in financial transactions, thereby promoting financial inclusion and facilitating citizens' daily lives.

Table 2. Evolution of the Number of ATMs in Algeria (2016–2024)

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of ATMs in Service	1370	1443	1441	1621	3030	3053	3640	3847	3942

Source: <https://giemonetique.dz/activite-retrait-sur-atm/> Consulted on :20/01/2025 à 16:50

Electronic payment mechanisms in Algeria — particularly through automated teller machines (ATMs) — have witnessed remarkable and rapid growth during the period from 2016 to 2024. The number of ATMs increased from 1,370 in 2016 to 3,942 in 2024, representing a rise of 188%. This significant growth reflects a major shift toward digitalization in financial transactions and the adoption of electronic payment solutions. The steady increase also highlights the efforts of banks and public financial institutions to develop the financial infrastructure and meet the growing demand for digital banking services.

Analysis indicates a consistent upward trend in the number of ATMs throughout the years, with a notable leap between 2019 and 2020, when the number surged from 1,621 to 3,030, marking an 87% increase. This acceleration in digital transformation is attributed to several factors, including government policies encouraging electronic payments, intense competition among banks aiming to attract customers through better services, and changes in consumer behavior favoring digital transactions and easier access to funds. In addition, technological advancements played an important role in accelerating the spread of ATMs, as these machines have become more efficient, secure, and capable of offering diversified services. The sharp increase during that period also stemmed from the COVID-19 pandemic, which prompted widespread adoption of contactless and remote financial transactions as part of public health measures.

Between 2021 and 2024, the ATM sector in Algeria continued to grow, albeit at a slower pace compared to the significant surge observed in 2020. The annual growth rates were approximately 0.76% (2021), 19.20% (2022), 5.69% (2023), and 1.3% (2024). This

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sustained growth reflects the consolidation of digital transformation in financial transactions and the continued adoption of electronic payment solutions in Algeria. After the pandemic accelerated the shift toward cashless transactions, this upward trend persisted, driven by supportive government policies, increasing competition among banks, and the evolving consumer preference for digital interactions.

This evolution in the number of ATMs was accompanied by a similar trend in cash withdrawal operations, as shown in the following table:

Table 3. Evolution of ATM Withdrawal Operations (2016–2024)

Years	Total Number of Withdrawal Transactions	Years
2016	6 868 031	98 822 524 500,00DZD
2017	8 310 170	126 398 291 000,00DZD
2018	8 833 913	136 233 452 000,00DZD
2019	9 929 652	164 116 233 000,00DZD
2020	58 428 933	1 073 004 953 000,00DZD
2021	87 722 789	1 728 937 064 000,00DZD
2022	128 035 361	2 182 896 695 000,00DZD
2023	174 415 895	3 262 245 367 500,00DZD
2024	129 114 014	3 691 600 492 000,00DZD

Source: <https://giemonetique.dz/activite-retrait-sur-atm/> Consulted on :20/01/2025 à 16:50

The table illustrates the evolution of the number and total amounts of ATM withdrawal transactions in Algeria during the period 2016–2024, where both indicators show significant increases over the years, reflecting the development of banking channels and the growing demand for cash liquidity.

3-1. Analysis of the Evolution in the Number of Withdrawal Transactions:

- From 2016 to 2017, the number increased from 6.86 million to 8.31 million, marking a 21% rise.
- From 2017 to 2018, it reached 8.83 million, an increase of 6.3% compared to 2017.
- From 2018 to 2019, it grew to 9.93 million, recording a 12.4% growth rate.
- A major leap occurred between 2019 and 2020, as the number surged dramatically to 58.42 million, a huge increase of 488%, reflecting the intensified reliance on digital transactions and a significant change in cash withdrawal behavior.
- In 2021, the figure rose to 87.72 million, an increase of 50%.
- In 2022, the number reached 128.03 million, up by 46%.
- The year 2023 recorded the highest level, 174.42 million, with 36% growth.
- In 2024, however, the number declined to 129.11 million, representing a 26% decrease, possibly indicating a shift toward other electronic payment methods.

3-2. Analysis of the Evolution in the Total Amount of Withdrawal Transactions:

- From 2016 to 2017, the total amount rose from 98.8 billion DZD to 126.4 billion DZD, a 28% increase.
- From 2017 to 2018, it reached 136.2 billion DZD, up by 7.8%.
- From 2018 to 2019, it grew to 164.1 billion DZD, marking a 20.5% increase over

2018.

- From 2019 to 2020, it jumped to 1.073 trillion DZD, an exceptional 553.8% increase, likely reflecting the surge in ATM usage during the pandemic and possible changes in banking policies.
- From 2020 to 2021, it increased to 1.73 trillion DZD, a 61% rise.
- From 2021 to 2022, it reached 2.18 trillion DZD, growing by 26%.
- From 2022 to 2023, it climbed to 3.26 trillion DZD, a 50% increase — the highest growth since 2020.
- Between 2023 and 2024, the total amount rose further to 3.69 trillion DZD, a 13% increase, despite the decline in the number of transactions, indicating a higher average withdrawal value per transaction.

Although the number of transactions declined in 2024, the increase in the total withdrawn amount suggests a rise in the average withdrawal value per operation, likely due to inflation and higher cash needs among individuals. Overall, these figures reveal a general upward trend in the reliance on cash withdrawals over the past decade, though the recent decline in the number of transactions may signal the beginning of a shift toward non-cash payment methods and changing banking habits among consumers.

4. Evolution of Electronic Payment Terminal (EPT) Transactions in Algeria:

In recent years, Algeria has witnessed significant progress in electronic payment thanks to the growing deployment of Electronic Payment Terminals (EPTs) across various points of sale. These terminals offer a practical and convenient solution for both consumers and merchants. For consumers, they provide a fast and secure way to make payments without the need to carry large amounts of cash. For merchants, they help increase sales, reduce errors associated with cash handling, and improve cash flow management.

The following table provides a detailed overview of the evolution of the number of Electronic Payment Terminals (EPTs) in Algeria during the period 2016–2024, reflecting the country's efforts to promote financial inclusion and facilitate commercial transactions. This digital transformation not only brings greater convenience to consumers but also contributes to economic growth and reduces costs associated with cash-based transactions.

Table 4. Evolution of the Number of Electronic Payment Terminals (EPTs) in Algeria (2016–2024)

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Number of Electronic Payment Terminals (EPTs) in Service	5049	11985	15397	23762	33945	37561	46263	53191	68140

Source: <https://giemonetique.dz/activite-paiement-sur-tpe/> Consulted on: 20/01/2025 à 17:04

The field of electronic payment in Algeria has experienced rapid growth, with the number of Electronic Payment Terminals (EPTs) increasing from 5,049 terminals in 2016 to 68,140 terminals in 2024, marking a remarkable 1,249% rise during this period.

In 2016, there were 5,049 terminals, and this number rose to 11,985 in 2017, then to

15,397 in 2018. In 2019, the number of EPTs made a significant leap, reaching 23,762 terminals. In 2020, the total increased to 33,945, up by 10,183 terminals compared to the previous year. The outbreak of COVID-19 played a major role in boosting the use of electronic payment terminals, as cash was considered a potential vector of virus transmission, prompting people to turn to contactless payment alternatives.

In March 2020, Algérie Poste launched an initiative providing free electronic payment terminals for two months to merchants and economic operators, prioritizing those in lockdown-affected provinces. All related services were offered free of charge during this period — including subscription, internet connection, installation, operation, training, and maintenance — and each merchant received 20 packs of printing paper. This initiative was well-received by economic operators, especially amid the country’s financial difficulties.

As the pandemic persisted, the number of terminals continued to grow — reaching 37,561 in 2021 and 46,263 in 2022, representing a 23.17% increase. The upward trend continued in 2023, with 53,191 terminals installed, as part of ongoing efforts to expand electronic payment services nationwide. In 2024, the growth accelerated again, with the number of terminals increasing from 53,191 in 2023 to 68,140 in 2024, a 28% rise, reflecting the country’s strong commitment to digital transformation and financial inclusion.

5. Evolution of Internet Payment Operations in Algeria

Internet payment was launched in Algeria in October 2016, enabling holders of the interbank card (CIB) or Algérie Poste’s GOLD card to pay bills and access online services through approved websites. Initially, online payment services were made available to major economic entities, such as: **Air Algérie, Water, gas, and electricity distribution companies, Mobile and landline operators, Insurance companies.**

The system was later expanded to include additional service providers.

By the end of March 2021, the number of merchants subscribed to online payment services reached 92, and this service enabled holders of CIB and GOLD cards to make online payments and benefit from various remote financial services. The total number of online payment transactions reached 8,458,760 by March 2021, distributed as shown in the following table.

Table 5. Evolution of Online Electronic Payment Operations in Algeria (2016–2022)

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024
Telecom / Communications	6.536	87.286	138.495	141.552	4.210.284	6.993.135	7.490.626	8.400.869	9.838.682
Transport	388	5.677	871	6.292	11.350	72.164	195.490	371.317	758.764
Insurance	51	2.467	6439	8.342	4.845	8.372	23.571	36.996	61.739
Electricity & Water	391	12.414	29.722	38.806	85.676	120.841	302.273	640.485	1.447.168
Administrative Service	0	0	1.455	2.432	68.395	155.640	153.957	4.086.659	5.248.922
Services	0	0	0	5.056	213.175	457.726	705.114	1.055.672	1.386.790
Goods Sales	0	0	0	0	235	13.468	24.169	51.154	106.219
Sports & Entertainment	0	0	0	0	0	0	152.925	708.212	746.198
Total Number of Transactions	7.366	107.844	176.982	202.480	4.593.960	7.821.346	9.048.125	15.351.354	19.594.482
Total Amount (DZD)	15.009.842,02	267.993.423,40	332.592.583,28	503.870.361,61	5.423.727.074,80	11.176.475.535,68	18.151.104.423,96	32.196.672.024,03	51.945.560.351,45

Source: <https://giemonetique.dz/activite-paiement-sur-tpe/> Consulted on: 20/01/2025 à 17:19

From the previous table, it is evident that Algeria has undergone a remarkable transformation in the use of electronic payment systems, reflecting significant growth in the adoption of financial technology. This shift was driven by various economic and social factors, such as increased trust in e-payment services, the entry of new service providers, and the COVID-19 pandemic, which greatly accelerated digital transformation.

In 2016, electronic payment began in Algeria, with a total of only 7,366 transactions recorded across all sectors. The telecom/communications sector was the leader with 6,536 transactions, while the transport, insurance, and utilities (electricity and water) sectors registered very low numbers. There were no transactions in the categories of goods sales, sports, or other services, indicating a lack of awareness of electronic payment methods at that time.

By 2017, the total number of transactions increased to 107,844, a 1,364% rise compared to 2016. The telecom sector remained dominant with 87,286 transactions. The transport sector also saw a sharp rise from 388 to 5,677 transactions, an increase of 1,363%, showing a growing trust in digital payment solutions.

Growth continued in 2018, with the total number of transactions reaching 176,982, up 64% from 2017. The telecom sector maintained its lead with 138,495 transactions, while transactions in transport and insurance sectors doubled, reflecting the spread of payment services to new industries.

In 2019, the total number of transactions rose to 202,480, marking a 14% increase. The telecom sector achieved notable growth, and the transport and insurance sectors also expanded considerably. This year represented a turning point, as more citizens began adopting electronic payments thanks to greater awareness of their benefits.

The year 2020 saw a radical transformation, with transactions soaring to 4,593,960, an extraordinary 2,169% increase over 2019. The telecom sector accounted for 4,210,284 transactions, showing heavy reliance on it during the pandemic. The electricity and water sector also saw a large increase, from 38,806 to 85,676 transactions (+120%), reflecting growing use of digital utilities payment services.

By 2021, e-payment continued to flourish, reaching 7,821,346 transactions, up 70% compared to 2020. The administrative services sector emerged as an important player with 155,640 transactions, indicating the digitization of government services. The services sector also grew strongly, with 457,726 transactions, and online sales began to expand, registering 13,468 transactions.

In 2022, the total number of transactions reached 9,048,125, an increase of 16% over 2021. Most sectors achieved stable growth, with the electricity and water sector exceeding 302,273 transactions, and the services sector recording over 705,114 transactions. The sports and entertainment category rose to 152,925 transactions, showing the inclusion of new sectors into the digital system.

In 2023, total transactions jumped to 15,351,354, an increase of 69% compared to 2022. The sports and entertainment sector recorded a record high of 708,212 transactions, while administrative services reached 4,086,659 transactions, demonstrating a major digital transformation in government operations.

By 2024, electronic payments continued to set new records, with 19,594,482 transactions, an increase of 28% over 2023. The telecom sector remained the leader with 9,838,682 transactions, while all other sectors also showed positive growth, including transport (758,764 transactions) and electricity and water (1,447,168 transactions).

Overall, Algeria has experienced a steady and deep expansion of electronic payments between 2016 and 2024, with the total number of transactions rising from 7,366 to 19,594,482. This progress was primarily driven by the COVID-19 pandemic, which marked a turning point in 2020, when transactions surged by more than 2,000%. Since then, all sectors have continued to expand, with e-payments spreading across administrative services, utilities, transport, and sports and entertainment.

Moreover, the total transaction amount increased from 15 million DZD in 2016 to 51.9 billion DZD in 2024, reflecting a profound shift toward a digital economy. This ongoing growth reinforces electronic payment as a core component of Algeria's financial transactions, expected to continue expanding thanks to increased digitization of services and greater consumer awareness of its benefits.

Third Axis: Conditions for the Success of Electronic Payment in Algeria and Its Role in Reducing the Liquidity Crisis

The Algerian economy has been facing a liquidity crisis for several years, particularly during sensitive periods. Multiple factors have contributed to this situation, including the decline in oil prices since the second half of 2014, the spread of financial and administrative corruption, the rise in import bills, budget deficits, and the accumulation of public debt. Electronic payment mechanisms represent one of the promising solutions to help alleviate this crisis and enhance financial inclusion. However, for these mechanisms to play an effective role, several essential requirements must be fulfilled, as outlined below:

6. Electronic Payment Infrastructure (Belhadi & Nezai, 2018, p. 44)

The infrastructure of electronic payment systems forms the cornerstone of any successful digital transformation in financial transactions. The availability of high-quality internet, the development of digital systems, and the strengthening of cybersecurity are crucial prerequisites for the large-scale adoption of such technologies.

Despite the relative improvement in telecommunications services in Algeria, limited coverage—especially in rural areas—remains a major obstacle to electronic payment usage. Therefore, it is vital to invest in expanding the fiber-optic network, support wireless internet in remote regions, and reduce internet service costs to make them accessible to all segments of society.

Given the predominance of traditional financial transactions, there is also a need to modernize existing systems and expand the use of modern payment tools such as electronic wallets and mobile payment devices. This requires an advanced digital infrastructure aligned with international standards, including the widespread availability of point-of-sale (POS) devices and incentives for merchants to adopt these technologies.

Furthermore, an effective infrastructure cannot exist without a robust cybersecurity

framework, which is the key to building user trust. With the growing threat of cyberattacks, it is essential to adopt strict data protection policies, provide specialized cybersecurity training programs, and launch awareness campaigns to educate users on protecting their financial data. Strengthening these combined aspects will help create a secure and encouraging digital environment that fosters broader use of electronic payment methods (Aouni, 2022, pp. 28-30).

7. Media and Awareness on Electronic Payment (Amara & Abbas, 2022, pp. 63-64)

Media and public awareness play a pivotal role in fostering a culture of electronic payment and promoting its adoption among various social groups. Despite the technological progress achieved, many citizens still lack sufficient awareness of the benefits of electronic payment or do not fully trust its use.

Therefore, awareness and guidance campaigns are an effective tool to highlight the advantages of e-payment, especially in rural areas and communities with low digital literacy. These campaigns may include multimedia programs and hands-on workshops that help individuals understand and practically use these tools, reducing technical barriers.

Building trust is another critical factor in the success of electronic payment. Concerns about data security and privacy protection continue to deter many potential users. Hence, it is crucial to emphasize security measures, obtain international security certifications, and establish effective communication channels to reassure users.

Additionally, empowering merchants and business owners through training and education is vital, as many lack sufficient knowledge of digital technologies. Offering training programs, instructional materials, and practical workshops can enhance their readiness and expand the national adoption of electronic payment systems.

8. Enriching the Legislative and Legal Framework for Electronic Payment

A comprehensive legal and regulatory framework is one of the fundamental pillars for ensuring the success of electronic payment. It not only organizes commercial operations but also strengthens the confidence of users and merchants and safeguards the rights of all parties involved. The clearer and more comprehensive the legal system, the greater the potential for widespread adoption of digital payment methods.

In the Algerian context, the current legal framework still suffers from gaps in the legislation specific to electronic payment, which hinders the growth of this vital sector. It is therefore necessary to enact new laws that clearly define the rights and obligations of both users and service providers while revising existing regulations to align them with the requirements of the digital age. These laws should be clear and unambiguous to prevent legal confusion that might discourage companies from adopting digital payment systems.

Moreover, addressing legal challenges related to electronic transactions requires enhanced coordination among governmental authorities and the adoption of best practices from leading international models. Issues such as tax evasion, identity verification, and anti-money laundering demand precise and harmonized legislation consistent with international standards, ensuring the integrity of the electronic financial system and bolstering stakeholder confidence. A solid legal framework can thus serve as a cornerstone for the success of electronic payment in Algeria.

9. Cooperation Among Relevant Sectors

Cooperation among various sectors is a critical factor for the success of electronic payment. Weak coordination among stakeholders—such as the government, banks, financial institutions, and the private sector—leads to duplicated efforts and delays in project implementation. This lack of synergy often results from the absence of a unified national strategy, the multiplicity of actors, and the divergence of their priorities.

To overcome these challenges, it is recommended to establish a national authority dedicated to coordinating electronic payment policies and to develop a clear strategic vision. Regular meetings, collaboration platforms, and tangible incentives should be implemented to strengthen inter-sector cooperation.

The role of the private sector remains limited due to a lack of awareness and technological capacity. Its contribution can be enhanced by offering tax incentives, providing technical and training support, and promoting partnerships between banks and technology companies. Such collaboration will ensure the private sector's active involvement in expanding the use of electronic payment and achieving the desired digital transformation in Algeria.

10. CONCLUSION

It is evident that electronic payment mechanisms represent a major opportunity to enhance cash liquidity in Algeria and improve the efficiency of the financial system. The shift toward electronic payment is not merely an option but an urgent necessity to keep pace with global developments in financial technology.

Despite existing challenges, the proposed solutions — such as improving infrastructure, raising awareness, and strengthening financial security — can significantly contribute to achieving the objectives of digital transformation. The adoption of these mechanisms should be among the government's top priorities within Algeria's economic policies to ensure a sustainable and secure financial future.

This requires close cooperation among the three key sectors — the public sector, the private sector, and civil society institutions — to create an enabling environment for the growth and expansion of electronic payment systems.

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