

The electronic payment system and its role in strengthening the financial inclusion in Algeria: an analytical study

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Abstract:

The purpose of this study is to demonstrate how Algeria's financial inclusion has been strengthened by the use of electronic payment systems. In the process, we analyse Algeria's financial inclusion and the current state of the electronic payment system using the descriptive technique. Results indicate that via the expansion of banking services, Algeria's electronic payment systems have enhanced the financial inclusion indices in recent years. Additionally, as more people turn to credit cards instead of cash to make payments, the amount of money transacted via cards has grown owing to the efforts of banks and post offices. Ultimately, the study suggested that the infrastructure of ICTs be improved in order to enable banks and financial technology startups to conduct business using the electronic payment system. Furthermore, a national strategy to raise financial education and, consequently, financial, technical, and banking expertise must be established, and the experiences of the states that attained high levels of financial inclusion must be emulated.

Keywords: Electronic payment systems; Financial inclusion; Financial technology, Financial services.

JEL Classification: F44 ;G21 ; F36.

Introduction

Following the 2008 global financial crisis, nations embraced initiatives to broaden financial inclusion and offer financial services to all societal strata, including individuals and businesses. This led to an increase in interest in the concept of financial inclusion. In this sense, fintech helps meet the difficulties and adds to them since it offers financial solutions, such as comprehensive financial services that give small projects the funding they need to carry out their operations. Algeria's goal in this regard is to increase financial inclusion by making Fin Tech more widely used in the provision of financial services. It has done this primarily by implementing an electronic payment system in order to spur economic growth and promote appropriate development.

Problematic of the study:

Owing to the significance of financial inclusion, the state generalised the use of electronic payment systems in financial transactions and included them in its policies aimed at promoting economic growth. In light of what was stated, we bring up the following issue: **“To what degree does Algeria's financial inclusion get bolstered by the electronic payment system?”**

Importance of the study:

The study's significance stems from the fact that financial inclusion plays a significant role in minimising poverty and funding small-scale projects, which makes it a priority in state policy. To this end, it is imperative to identify processes that assist in getting over the challenges this idea faces. Consequently, utilising financial inclusion and implementing financial technology may aid in achieving this goal.

Aims of the study:

1. 1. Being aware of Algeria's current electronic payment situation.
2. 2. Being aware of Algeria's current state of financial inclusion.
3. 3. Formulating suggestions to raise Algeria's financial inclusion levels.

Method of the study:

The descriptive method was chosen because it is appropriate for summarising the current state of the electronic payment system and how it supports financial inclusion

Literature Review:

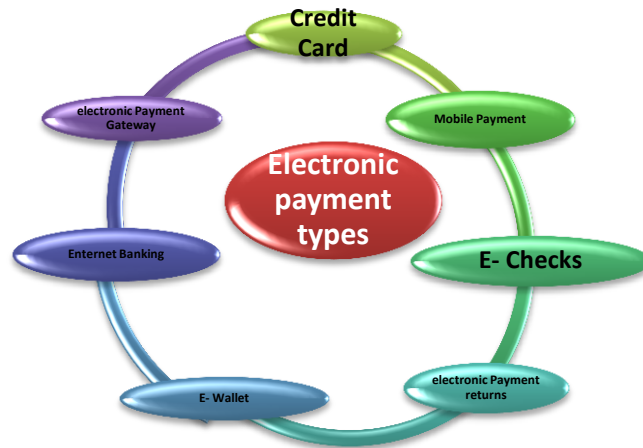
First: Electronic payment system

1. Defining the electronic payment system: Electronic payment refers to an online financial transaction that occurs between buyers and sellers.

Usually, some sort of digital financial instrument backed by a bank, an intermediary, or legal tender—such as encrypted credit card information, electronic checks, or digital cash—is the content of this trade. (CA. Raj Garg, 2016, pp. 48-49)

Any type of online transaction facilitated by a digital financial instrument between customers and providers is referred to as an electronic payment system (Marwah , Methaq , & Mustafa , 2019, p. 3)

2. Electronic payment system types: Figure 1 below shows electronic payment types



Source :Prepared by the authors based on the reference :Mohmed Hassan Nasr, Mohamed Farrag, *E-PaymentSystemsRisks, Opportunities and Challenges for ImprovedResults in E-Business*, International Journal of Intelligent Computing and Information Sciences ,Vol.20, No. 1, Egypt, 2020, pp 17-20.

3.Characteristics of E-payment systems:

Privacy and Information Preservationsecure: The transaction record is preserved in the organisation in the safest possible way, and it should only be accessible to the confidential level in the event that a traceback is required at any point.

Security: The system needs to make sure that fraud is possible within it.

Availability: The system has to be accessible throughout the specified working hours.

Economical: The transaction cost has to abide with the authority's requirements.(Awais Ahmed, 2019, p. 2)

Second: financial inclusion

As we will explain, the notion of financial inclusion encompasses several ideas.

The World Bank claims that it is the ability of people and businesses to get advantageous financial products and services that meet their requirements (transactions, payments, savings, and credit). (Mohamed Abdelafateh, 2012, p. 09).

According to the Consultative Group to Assist the Poor (CGAP), families and businesses need access to appropriate financial services in order to make good use of them. It further states that the services must be rendered in an orderly setting and in a sustainable and responsible manner. (Mammeri & Oukil , 2019, p. 33).

These definitions lead us to the conclusion that financial inclusion is the provision of financial services to the socioeconomic strata and businesses at reasonable prices in a timely manner by ethical and sustainable enterprises.

2. The dimensions of the financial inclusion:

Financial inclusion is measured by:

2.1 The access to the financial services:

This indicates that the client is sufficiently materially close to the service locations—branch, agency, ATM, etc.—to be able to utilise the range of financial services and goods with ease. In this context, financial goods are closely associated with internet platforms, including computers and phones. (Mohamed & Mohamed, 2022, p. 756) The number of ATMs and bank services (bank branches or financial firms, such as insurance companies) per 100 adults in a state serves as a proxy for access to financial services. (Saadouni, Bouhrara , & Gharbi Nasser , 2021, p. 373)

2.2 The use of the financial services:

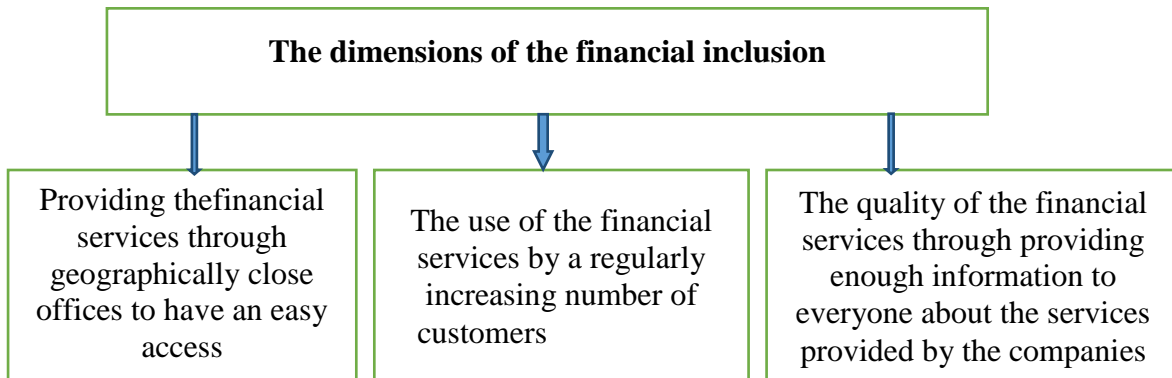
The degree of financial service usage reveals how much a consumer uses the financial services offered by banking industry businesses. To this end, we want all available data on the frequency and regularity of service usage during a certain time frame. (Mohamed & Mohamed, 2022, pp. 756-757).

2.3 The quality of the financial services:

The process of creating indices to gauge quality is difficult in and of itself since, in recent years, emerging governments have adopted the notion of financial inclusion (FI) into their agendas, with the goal of improving access to financial services first. Within this framework, the lack of access to financial services remains a problem and varies among states. Still, attempts are made to ensure the calibre of financial services by researching, evaluating, contrasting, and making well-informed choices. Numerous factors influence the quality dimension, making it indirect and unclear. These factors include service costs, customer awareness, compensation

effectiveness, customer protection, financial guarantees, competition transparency, and other intangibles like customer trust. (Chanbi & al Said , 2019, p. 110). Additional indicators of the quality of financial services include affordability, ease of use and comfort, transparency, financial culture, and consumer protection.(Yasmina Ibrahim & Yahya, 2021, p. 128), as summed up in figure 02.

Figure 02: the dimensions of the financial inclusion:



Source: by the authors based on the previous data

3. The requirements of the financial inclusion:

For any state to achieve financial inclusion, it needs (Yasmina Ibrahim & Yahya, 2021, p. 129):

- Establishing and growing effective institutional, control, and organisational frameworks; disseminating knowledge; taking decisive action, such offering assistance; and establishing requirements that must be met in order to ensure financial inclusion.
- Developing national policies that pinpoint the discrepancy between supply and demand and provide enough infrastructure.
- Increasing the number of digital services available to facilitate better communication and information sharing.
- Conducting research on the available financial services to determine whether they are suitable for the consumer; connecting remote regions to the internet and fostering a greater financial culture. Different state sectors must take part in this.
- Safeguarding customers to boost faith in the banking and finance industries.

4. The contribution of Financial technology in strengthening the financial inclusion:

Fin Tech boosts financial technology by offering innovative solutions that improve security and make financial services easier to use. Because financial services are no longer exclusively available to those with large incomes, these solutions enable a large number of consumers to switch to technology services, which boosts economic growth and generates employment openings. (Ahmed & Hussein, 2020, pp. 477-478).

Furthermore, when more digital financial services are provided to rural communities, the relationship between banks and these impoverished and rural populations improves since the problem of transportation and lengthy wait times at banks is resolved. There won't be as many clients at the bank's main office in this situation, hence fewer branches will be required. As a result, banks will spend less and incur less costs, but financial inclusion for underprivileged and rural communities would rise. (Farid & Mosli, 2021, p. 474). Lastly, Fin Tech offers enormous opportunities, including lower prices for clients, instant payment, and greater options. It also makes it easier for people and small and medium-sized businesses in need of banking services to obtain finance (Ibtihaj , Faiha Abdullah , & Zainab , 2021, p. 65).

Third: the status-quo of the economic payment system and its role in strengthening the financial inclusion:

1. The legal and organizational measures for economic payment system in Algeria:

The first Algerian regulation to integrate the current electronic transactions of the banking sector is order 03-11 on cash and loans, which demonstrates the legislators' tacit recognition of the E-payment without providing a definition. Regarding this, Article 69 said that, independent of the technological approach utilised, the payment instruments are all those that allow an individual to send money. (Hidaya , 2019, p. 15). Furthermore, the legislature employed the term "electronic payment tools" in Article 03 of order 05-06 regarding smuggling, categorising these tools as measures to combat smuggling. In addition, paragraph 3 of Article 404 of law 05-02, which supplements and complements the commercial law, stipulates that the exchange can be conducted using any electronic instrument specified in the relevant legislation. The concept of the "loyalty check" was included into Article 502, allowing for the submission of the "loyalty check" using any electronic communication platform. (Hidaya , 2019, p. 16).

According to Article 6/5 of law 18-05 on electronic trade, economic payment instruments are defined as any legally authorised tools inside an electronic system. This statute represents the initial legal control of economic payment mechanisms. (Boukhalifa, 2022, p. 457). In addition,

Algeria made significant efforts to provide legal safeguards for cyber systems and the automated processing of data by modifying legislation 04/15 on the criminal code. Articles 364 Bis and 394 Bis. 07 provide that any breach of the automatic processing of data or any obstruction of its operation will be subject to punishment. Ensuring the integrity of data protection is the primary precautionary step to preserve the confidentiality of data transmitted across networks, particularly the internet, and to safeguard the privacy of electronic communications. The regulatory framework of the governing body is established by the banking and currency legislation, as well as the electronic currency regulations of the Algerian Bank. In addition, we locate the organisational and procedural documents of the regulatory body responsible for electronic cash.(Fund, 2020, p. 21).

2. The status-quo of economic payments systems in Algeria:

2.1 The development phases of the credit card in Algeria:

Payment cards or credit cards have experienced a significant surge recently, with the implementation of electronic clearing and its widespread use by all financial institutions and post offices. Regarding this matter, the credit card underwent the following stages.(Racham, 2021, p. 164):

- In 1998, the concept of an interbank withdrawal mechanism was introduced.
- In 2002, the EP project was officially inaugurated, and SATIM was tasked with monitoring and organising the transmission of data between state and private banks.
- In 2004, the utilisation of the ENV card for payment commenced.
- In 2005, the interbank monetary committee was formed.
- In 2006, the first credit card was introduced in Algeria and handed to all bank customers in order to assess their financial shortfalls.
- In 2007, the CIB card was widely distributed throughout Algeria, available at both post offices and banks.
- In 2007-2008, the finance minister authorised the widespread implementation of ATMs and credit card usage in large retail outlets and densely populated areas.

2.2 The electronic payment systems in Algeria:

• **Internet Banking:** Currently, there are 510 traders enrolled in Internet Banking. Regarding this matter, the figures indicate a total of 4,056,773 electronic transactions, as displayed in table 01.

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Table 01: the Internet Banking transactions

Year	Phone/communications	Transportation	Insurance	Bills	Administrative service	Services	Goods selling	Sport and leisure	Total number of the transactions
2016	6 536	388	51	391	0	0	0	0	7 366
2017	87 286	5 677	2 467	12 414	0	0	0	0	107 844
2018	138 495	871	6 439	29 722	1 455	0	0	0	176 982
2019	141 552	6 292	8 342	38 806	2 432	5 056	0	0	202 480
2020 (*)	4 210 284	11 350	4 845	85 676	68 395	213 175	235	0	4 593 960
2021	6 993 135	72 164	8 372	120 841	155 640	457 726	13 468	0	7 821 346
2022	7 490 626	195 490	23 571	302 273	153 957	705 114	24 169	152 925	9 048 125
2023	8 400 869	371 317	36 996	640 485	4 086 659	1 055 672	51 154	708 212	15 351 354
2024	Phone/communications	Transportation	Insurance	Bills	Administrative service	Services	Goods selling	Sport and leisure	Total number of the transactions
January	813 293	47 466	8 472	63 462	1 252	67 500	6 365	61 278	1 069 088
February	649 587	45 421	1 690	84 186	1 164	89 888	5 702	33 802	911 440
March	880 653	54 943	1 758	139 695	1 749	100 081	6 677	902 32	1 275 788

Source: The electronic monetary gathering, URL:
<https://giemonetique.dz/ar/activite-retrait-sur-atm>

Table 01 demonstrates a gradual growth in the number of customers utilising the Internet Banking service in Algeria over time. This index serves as a comprehensive measure of the extent to which the activity is spread across the state, with the aim of facilitating financial transactions. Regarding this matter, there were a total of 3,256,316 financial transactions recorded in the first quarter of 2024, amounting to a total sum of 3,608,383,466 AD. This activity encompasses a range of services, sales,

goods, insurance, and other related offerings. Algeria is actively working on enhancing its electronic payment systems (EP) to stimulate economic growth and facilitate electronic commerce both domestically and internationally.

2.3 Money withdrawal from ATMs

Table 02: the total number of ATMs in Algeria from 2016 to 2023

Year	Total number of ATMs
2016	1 370
2017	1 443
2018	1 441
2019	1 621
2020	3 030
2021	3 053
2022	3 658
2023	3 848

Source: The electronic monetary gathering, URL: <https://giemonetique.dz/ar/activite-retrait-sur-atm>

Table 02 indicates that Algeria is increasingly using electronic payment (EP) instruments by installing automated teller machines (ATMs) in banks. Regarding this matter, the total count of ATMs in the year 2023 amounted to 3868. This demonstrates a significant advancement in comparison to 2019, which may be attributed to the implementation of law 18-05 concerning electronic commerce and electronic payment technologies in 2018.

2.4 The activity of the payment via the electronic payment stations

Table 03: the total number of EP stations in Algeria 2016-2023

Year	The total number of EP stations
2016	5 049
2017	11 985

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2018	15 397
2019	23 762
2020	33 945
2021	37 561
2022	46 263
2023	53 191

Source: The electronic monetary gathering, URL:
<https://giemonetique.dz/ar/activite-retrait-sur-atm>

Table 03 illustrates a consistent upward trend in the quantity of electronic payment stations from 2016 to 2023. This indicates that Algeria is actively promoting the use of electronic payments by implementing advanced payment systems and stations to keep up with the advancements in financial technology.

Third: the status-quo of in Algeria:

1. Evaluation of financial inclusion infrastructure in Algeria:

Table 04 provides information on the number of commercial bank branches per 1000 adults and the number of ATMs per 100000 adults in Algeria. These figures indicate the degree of banking infrastructure development, which in turn contributes to the increased financial inclusion in the country.

Table 04: the number of the commercial banks branches per 1000 adults and the ATMs per 100000 adults

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
commercial banks branches per 1000 adults	5,20	5,20	5,30	5,30	5,20	5,20	5,30	5,30	5,30
ATMs per 100000 adults	6,51	7,61	8,35	8,57	9,13	9,54	9,33	9,31	9,30

Source: by the authors based on the World Bank information

Table 04 demonstrates the fluctuating nature of the ratio of commercial bank branches per 1000 individuals between 2013 and 2021. This may be attributed to the population's demographic expansion and the lack of alignment between commercial banks and the needs of the public.

However, there has been a consistent and steady growth in the past three years, indicating that commercial banks have implemented a deliberate plan to expand their financial intermediation (FI) and presence by opening more branches. Moreover, the research period witnessed an erratic rise in the ratio of ATMs per 100,000 individuals. This expansion is aimed at enhancing financial inclusion by offering financial services to clients and making them more accessible. Furthermore, it is important to highlight the global market and company closures resulting from the Covid-19 pandemic, which has subsequently heightened the need for ATMs as a means of cash withdrawal.

2. Evaluating the extent of using the financial services in Algeria:

The borrower density, measured as the number of borrowers per 100,000 individuals, provides insight into the level of financial sector use in Algeria.

2.1 Analysis of borrowing from the commercial banks:

Table 05: the development of the number of borrowers from the commercial banks per 100000 adults during 2013-2021

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
the number of borrowers from the commercial banks per 100000 adults	45,02	42,45	44,24	39,16	40,64	45,18	50,33	46,70	46,80

Source: by the authors based on the World Bank information

Table 05 indicates that the borrower-to-adult ratio in commercial banks ranged from 39 to 45 per 100,000 adults in the initial years of the survey. Furthermore, it reached its highest point at 50.33 in 2019. This value represents the degree of financial independence. Subsequently, the figure declined to 46.80 in 2021 as a result of the Covid-19 pandemic and its consequential impact on economic initiatives.

3. Evaluation of the index of the financial service quality in Algeria:

Article 119 Bis of the amended and complemented order 03-110 grants individuals the right to open bank accounts and requires banks to furnish consumers with essential information regarding pricing and terms for financial goods. Furthermore, legislation 13-01, which was enacted by the cash and credit council on 08 April 2013, outlines the specific regulations governing banking operations. This law mandates that banks must offer some services free of charge in order to strengthen financial inclusion for the economically disadvantaged groups.

In addition, if an individual or legal entity's request to create an account is declined, they can call the Algerian Bank, which will select a

bank and authorise it to open the account. (Yasmina Ibrahim & Yahya, 2021, p. 142). Additionally, according to Article 27 of the 2018 electronic commerce law, it is stated that commercial transactions can be paid for using dedicated platforms established by banks in collaboration with Algeria Post and the Algerian Bank, utilising both wired and wireless communication networks. Furthermore, it mandates that every economic operator and wholesaler must choose to use EP devices, which enable clients to make payments using their accounts. In addition, Article 28 of the aforementioned legislation stipulates the imperative need to ensure the security of the websites belonging to the electronic provider of the Algerian Bank in order to safeguard the confidentiality and integrity of the data (Fund, 2020, p. 16).

The authorities provide several benefits, such as waiving credit card use fees and decreasing costs imposed on dealers for electronic purchases valued at above 5000 AD. In addition, the post offices are urged to offer credit cards to consumers without any cost or restrictions through online platforms with unlimited application opportunities. (Fund, 2020, p. 18).

4. Evaluating the contribution of EP to financial inclusion in Algeria:

Table 06: the size of transactions via cards during 2016-2023

Year	2016	2017	2018	2019	2020	2021	2022	2023
The total number of online payments	7 366	107 844	176 982	202 480	4 593 960	7 821 346	9 048 125	15 351 354
The total number of ATMs transactions	6 868 031	8 310 170	8 833 913	9 929 652	58 428 933	87 722 789	128 035 361	174 415 895
The total number of payments in EP stations	65 501	122 694	190 898	274 624	711 777	2 150 529	2 712 848	3 997 165

Source: The electronic monetary gathering, URL:
<https://giemonetique.dz/ar/activite-retrait-sur-atm>

Table 06 indicates that from 2016 to 2023, there was a rise in credit card usage at both EP stations and ATMs. This may be attributed to clients of the Algerian Bank and Algeria Post transitioning to credit card payments, particularly following the implementation of the electronic commerce law in 2019. This index provides a comprehensive overview of the utilisation of financial services in the European Union and the growth of financial institutions in Algeria. In addition, Algeria has recently experienced a significant improvement in its financial inclusion indicators due to the government's efforts to promote the widespread adoption of financial technology in service provision, enhance infrastructure, develop electronic payment systems, expand the number of electronic branches, and establish a legal framework that supports electronic commerce and electronic payment tools.

However, some obstacles hinder financial inclusion in Algeria, namely (Falak , Soudani , & Maamer, 2019, pp. 287-288):

- The legislative framework governing banking and financial activities in Algeria does not keep pace with the advancements in the banking and financial sector.
- The user's text is empty. The use of payment tools and settlement systems is limited due to the provision of CBR and CIB cards by banks, which enable clients of a particular bank to make payments and withdraw funds. Furthermore, these cards, including Master Card and Visa Card, are readily accessible to a broad range of consumers. However, they are specifically designed for a particular group of individuals, such as businessmen and investors, and come with unique and limited requirements.
- The prevalence of the public financial sector diminishes competition, as all banks and insurance firms provide comparable goods.
- The lack of financial literacy in Algerian society hampers the demand for banks deposits, and conversely.
- The absence of competition in the communications industry, which is heavily monopolised by the state, contributes to the high cost of internet. (Racham, 2021, p. 168).
- The success of digital financial services is heavily dependent on client trust and a robust infrastructure, both of which are lacking in Algeria. (Bouchlouch, 2022, p. 591).

Conclusion:

Upon this study, our findings show that:

- The payments sector, namely the E-payment system, holds a dominant position in Algeria in comparison to other areas within the financial technology industry.
- Algeria has had a significant growth in the availability of ATMs and branches, which has improved access to financial services. This demonstrates the government's objective of broadening financial services by increasing the reach of banks and their electronic branches in close proximity to clients.
- Prior to the onset of the Covid-19 pandemic, there was a noticeable rise in the utilisation of financial services, particularly in terms of borrowing from commercial banks. However, the subsequent stoppage of projects had a detrimental impact on borrowing activities. Furthermore, it serves as a reliable indicator of people's inclination to seek loans from formal organisations.
- Algeria's objective in the financial services sector is to safeguard consumer interests and ensure affordable access to financial services. Furthermore, it strongly encourages banks and post offices to offer credit cards to consumers without any restrictions, allowing them to apply online without limitations.

The E-payment system has played a significant role in strengthening financial inclusion in recent years. This is due to the government's efforts to promote the use of financial technology, enhance infrastructure, develop the E-payment system, expand electronic branches, and establish a legal framework that supports electronic commerce and E-payment tools. As a result, there has been a notable increase in the size of financial transactions conducted through cards.

Based on these results, we suggest that:

- It is imperative to share data and experiences with governments that have achieved significant levels of financial inclusion, and to capitalise on the technology advancements in financial and banking services.
- The state must implement a nationwide plan to enhance financial education and promote financial literacy. This may be achieved by incorporating financial education into the school curriculum, therefore increasing knowledge and understanding of financial, technological, and banking concepts, as well as fostering a greater demand for financial services.
- Opting for Islamic banking is essential since it aligns with Algerian societal norms and promotes financial inclusion by facilitating transactions such as deposits and credits with banks.

- The infrastructure for information and communication technologies (ICTs) has to be enhanced, particularly the internet, in order to enable financial startups and banks to carry out their activities utilising electronic payment methods.
- Legislation must be implemented to safeguard consumers and establish transparency in digital financial transactions.

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