

Reality of E-Payment and it's embodied requirements in Algeria

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Abstract:

This study aims to show the reality of E-Payment and it's embodied requirements in Algeria during the period 2019 -2024.

This study relies on the analysis of the volume of E-Payment and it's various embodied requirements in Algeria, This was done by analyzing The number of Gold Card "CIB", E-Payment transactions via Gold Card, Fixed and Mobile Internet Subscription Indicator, FTTH and ATMs.

The study concluded that Algeria has implemented several elements related to E-Payment infrastructure to promote financial inclusion. However, E-Payment is still in its early stages, as the available means remain far behind those in counterpart countries.

Keywords: E-Payment; Financial inclusion; Gold Card "CIB"; Algeria.

Jel Classification Codes: E42, G21.

1. INTRODUCTION

E-Payment is one of the modern and necessary tools in the era of digital transformation and digital economy, and the basic pillar for achieving financial inclusion, as E-Payment refers to the processes through which money is exchanged between different parties using electronic means instead of traditional means. It contributes to facilitate purchasing and trade processes at the level of individuals and companies in a fast, safe and convenient manner, and it also provides the opportunity to expand the scope of business via E-Commerce and reach world markets.

The problematic of study:

The problematic on which this study is based can be formulated in the following question:

What is the reality of E-Payment and it's embodied requirements in Algeria during the period 2019 -2024?

Study Objectives:

Presenting the reality of E-Payment and it's embodied requirements on the ground in Algeria during the period 2019 - 2024.

The methodology of study:

The descriptive analytical method was used to describe and analyze the reality of E-Payment and it's various embodied requirements in Algeria, This was done by analyzing the following indicators: Fixed Internet Subscription Indicator, Mobile Internet Subscription Indicator, the number of households connected to the Fiber To The Home, International Telecommunications Network Capacity, The number of Automated Teller Machines, the number of Postal Current Account, The number of Gold Card "CIB", E-Payment transactions via Gold Card "CIB, Withdrawal transactions completed via Automated Teller Machines, Transactions completed via the BaridiMob application.

2. Theoretical framework of the E-Payment

2.1 The concept of E-Payment:

Payment in a sales contract is an important factor. Ease of payment in shopping is a convenience factor (Thangamuthu, 2020, p. 86).

Payment is defined as an exchange of monetary value for the receipt of goods or services. In this simple context, an E-Payment transaction may therefore be defined as one in which monetary value is transferred electronically or digitally between two entities such as a bank, business, government or even an individual consumer, as compensation or consideration for the receipt of goods or services (Margaret , 2004, p. 3). The E-payment feature enables customers to perform payments electronically and efficiently (LAI, 2021, p. 90).

The term E-payment has been synonymously used with electronic payment or digital payment or cashless payment, or digital transaction. E-Payment is described as transactions in which the customer empowers the movement of funds from electronic modes, and the money moves directly between accounts in banks or with entities/providers (Deepa & Others , 2023, p. 5).

E-payment is a form of a financial exchange that takes place between the buyer and seller facilitated by means of electronic communications (Dennis , 2004, p. 3).

E-payment is a vital part of E-commerce, it is based on an open system platform (namely, the Internet), while traditional payment is operated in a relatively closed system (Zheng , 2010, p. 123).

In our view, E-payment can be defined as a method of transferring money or paying for goods and services online or through electronic systems using digital tools such as credit cards (Visa, MasterCard), Online payment services (PayPal), Digital wallets (Apple Pay, Google Pay).

2.2. Advantages and Disadvantages of E-Payment System

There are many different advantages and disadvantages of E-payment, can be summarized in the following table:

Table 1. Advantages and Disadvantages of EPS

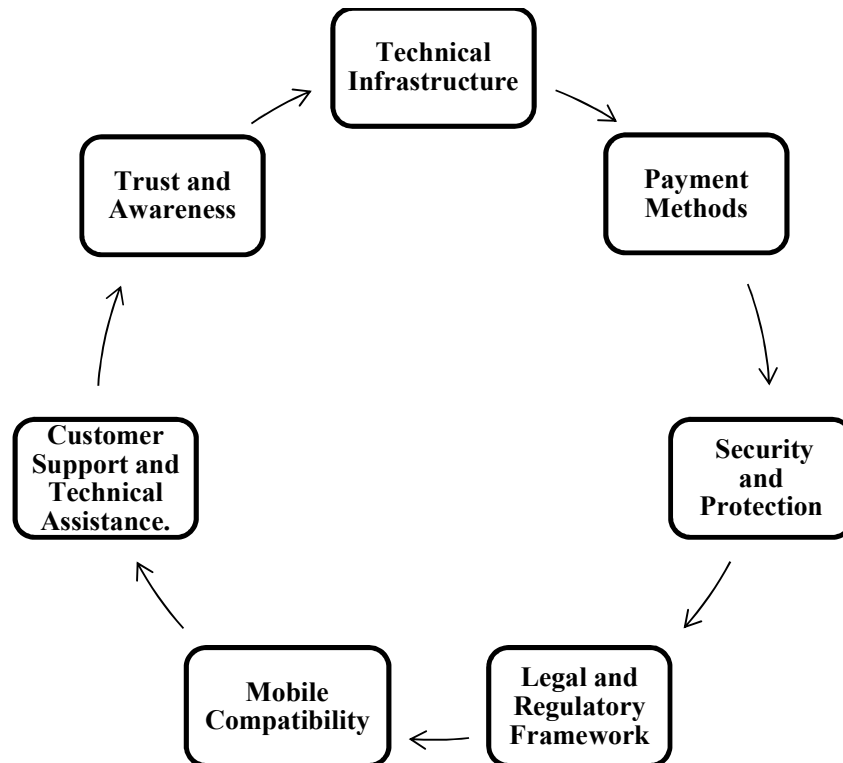
Advantages of EPS	Disadvantages of EPS
➤ Speed of transactions ➤ Convenience ➤ Reaching global audience ➤ Low transaction costs ➤ Quick and easy setup ➤ Variety of payment choices ➤ Availability of more distribution channels ➤ Easy management ➤ Better customer experience ➤ Recurring payment capabilities	➤ Technical problems ➤ Password threats ➤ Cost of fraud ➤ Security Concerns ➤ Technological illiteracy ➤ Limitations on amount and time ➤ Service fees and other additional costs ➤ Disputed transactions ➤ Loss of smart cards ➤ False identity

Source: Prepared by the researcher based on the web site: (NTTDATA PAYMENT SERVICES, 2024)

2.3. E-Payment Systems Requirements

The requirements for the E-Payment Systems indicated in the following figure:

Fig. 1 : E-Payment Systems Requirements



Source: Prepared by the researcher

2.4. Characteristics of E-Payment Systems

E-payment systems must have the following characteristics to become accepted (Awais & Muneeb, 2019, p. 2):

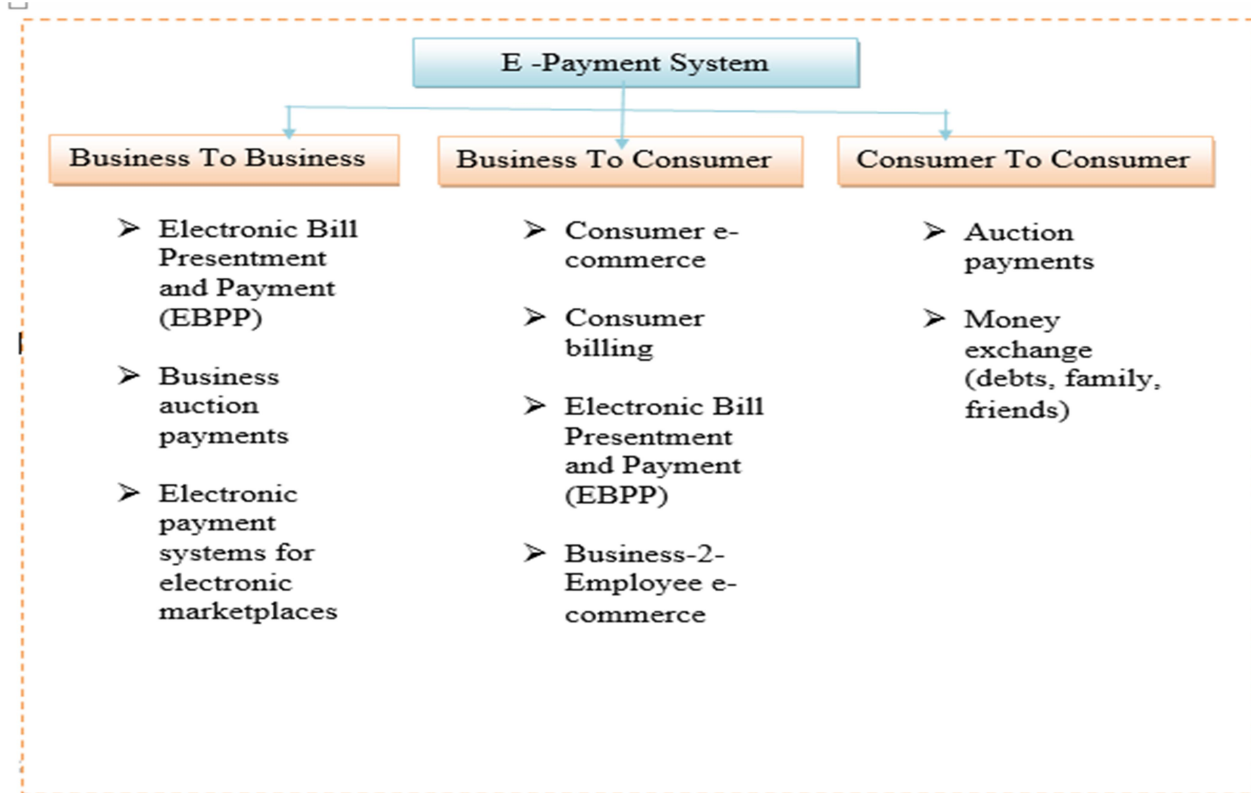
- Confidentiality/Information kept secure.
- Security.
- Availability, the system must be available.
- Cost effective.
- The ability of integration: The system must ensure that it can work with all other existing payment systems.

2.5. E-payments for different types of E-commerce

According to the transfer method, E-payment systems can be classified in: systems based on token or electronic money and systems based on a bank account or on credit/debit (Cabanillas & Others, 2014, p. 222).

On the other hand, there are three types of E-commerce: Business-to-Business, Business-to-Consumer and Consumer-to-Consumer, have unique requirements for E-payments. Here's a detailed overview of how payment solutions differ in these categories:

Fig.2 E-payments for different E-commerce



Source: Prepared by the researcher based on: (Dennis , 2004, p. 16)

3. E-Payment in Algerian

3.1 Embodied requirements for E-Payment in Algeria

The requirements for E-Payment in Algeria involve several key elements necessary to enable secure and efficient financial transactions online, these include:

- Technical Infrastructure.
- Payment Methods.
- Security and Protection.
- Legal and Regulatory Framework.
- Trust and Awareness.
- Customer Support and Technical Assistance.

To illustrate the reality of these requirements in Algeria, the following indicators were analyzed: Fixed Internet Subscription indicator, Mobile Internet Subscription indicator, the development of the number of Automated Teller Machines, the development of the number of Postal Current Account, and the development of the number of Gold Card "CIB".

3.1.1 Fixed Internet Subscription Indicator:

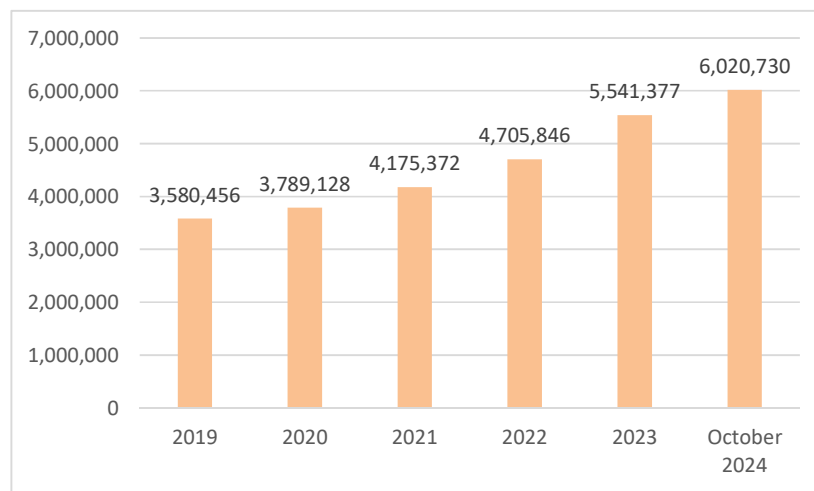
Fixed Internet Subscription (Home Internet or Fixed Broadband) is a service that provides a stable internet connection for homes or offices using technologies such as: ADSL/VDSL, Fiber Optics..., the following table shows the number of subscriptions in Algeria during the period 2019-2024:

Table 2. Fixed Internet Subscription indicator in Algeria during the period 2019-2024

Year	2019	2020	2021	2022	2023	October 2024
Number of subscriptions	3 580 456	3 789 128	4 175 372	4 705 846	5 541 377	6 020 730

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

We observe that the number of subscribers increased to 1 960 921 subscribers from 2019 to 2023, the percentage change is 54, 76 %. Up until octobre 2024, the subscribers toll reached 6 020 730 subscribers. The data of the table can be illustrated in the following figure.

Fig.3. Bar graphs of Fixed Internet Subscription indicator in Algeria during the period 2019-2024

Source: Prepared by the researcher based on the results of Excel

From the figure above, this rise is in line with the policy of providing Internet access for everyone, where even remote areas benefit from the Internet with the aim of reducing digital gaps, enhancing social inclusion and stimulating the economy.

3.1.2 Mobile Internet Subscription Indicator:

Mobile internet is a service that allows users to access the internet through their mobile phones using wireless network technologies. The networks used in this field include technologies such as: 3G and 4G Network. The following table shows the number of subscriptions in Algeria during the period 2019-2024:

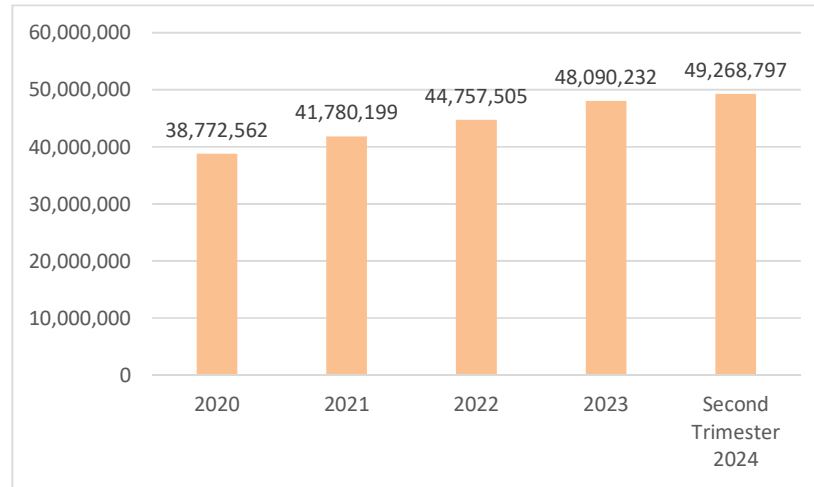
Table 3. Mobile Internet Subscription indicator in Algeria during the period 2019-2024

Year	2020	2021	2022	2023	Second Trimester 2024
Number of subscribers	38 772 562	41 780 199	44 757 505	48 090 232	49 268 797

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

From the table above, which shows the number of subscribers increased to 9 317 670 subscribers from 2020 to 2023, the percentage change is 24,03% . Up until second trimester 2024, the subscribers toll reached 49 268 797 subscribers.

Fig.4. Bar graphs of Mobile Internet Subscription indicator in Algeria during the period 2019-2024



Source: Prepared by the researcher based on the results of Excel

From the figure above, turns out that this acceptable increase has witnessed an increasing migration of subscriptions from 3G to 4G technology, in order to obtain high-quality service.

3.1.3 The development of the number of households connected to the Fiber To The Home:

FTTH is a technology that relies on optical fibers to transmit data directly from service providers to subscribers' homes. It is one of the latest high-speed internet solutions, replacing traditional copper cables with fiber optics to deliver superior speed and performance. The following table shows the number of households connected to the FTTH in Algeria during the period 2019-2024:

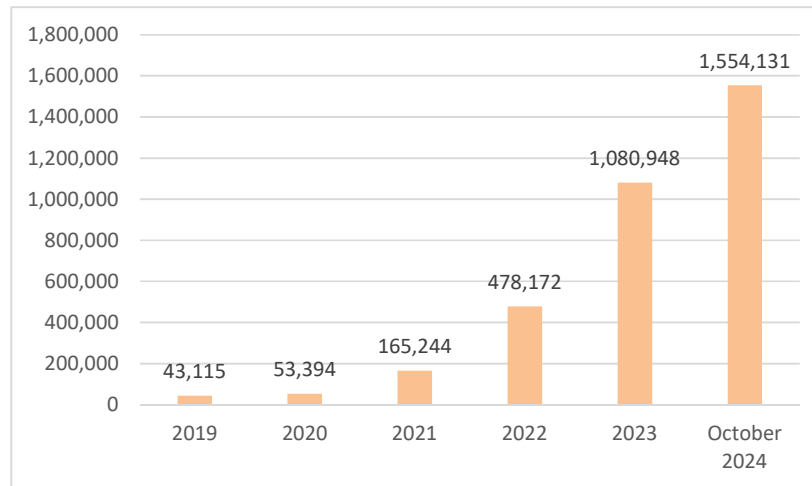
Table 4. The number of households connected to the FTTH in Algeria during the period 2019-2024

Year	2019	2020	2021	2022	2023	October 2024
Number of Households	43 115	53 394	165 244	478 172	1 080 948	1 554 131

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

We notice that the total number of households connected to the FTTH increased from 43 115 to 1 080 948 households during the period 2019-2023, multiply by 25 times and exceeded 1 554 131 households at the beginning of October 2024, distributed across 58 states.

Fig.5. Bar graphs of the number of households connected to the FTTH in Algeria during the period 2019-2024



Source: Prepared by the researcher based on the results of Excel

In order to generalize FTTH and embodying the comprehensive digitization endeavor, in 2024, a quantitative development was achieved with 1,131,554 subscribers, and the endeavor is still ongoing to connect all households that do not benefit from fixed Internet, especially in new neighborhoods and urban centers, as well as modernizing the existing copper access network and gradually converting subscribers of the old copper network xDSL to FTTH technology.

3.1.4 The development of International Telecommunications Network Capacity (ITN):

The International Telecommunication Network refers to the global infrastructure that enables the transfer of data and information between countries and various networks. This network encompasses multiple technologies, such as: FTTH, 4G, 5G..., the following table shows the network capacity in Algeria during the period 2020-2024:

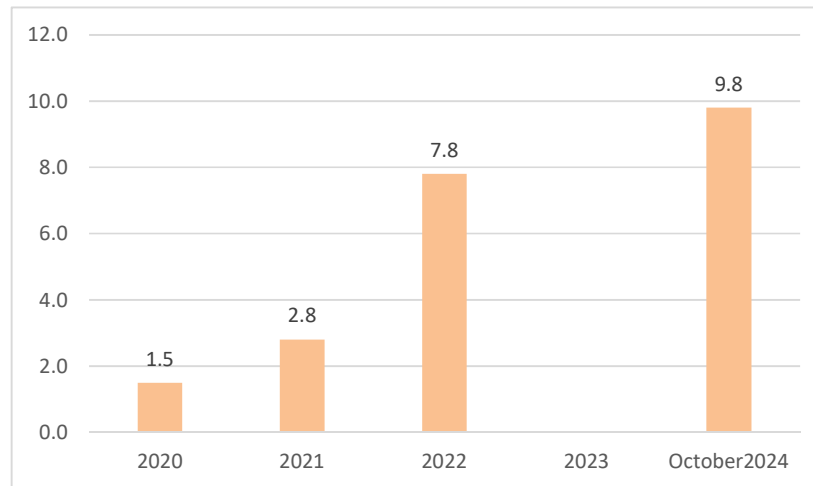
Table 5. International Telecommunications Network Capacity in Algeria during the period 2020-2024

Year	2020	2021	2022	2023	October 2024
Network capacity (TB/S)	1,5	2,8	7,8	—	9,8

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

We observe that the capacity of International Telecommunications Network increased from 1, 5 to 9, 8 TB/S during the period 2020-2024, multiply by 6, 5 times. The data of the table can be illustrated in the following figure.

Fig.6. Bar graphs of the International Telecommunications Network Capacity in Algeria during the period 2019-2024



Source: Prepared by the researcher based on the results of Excel

From the figure above, turns out that this substantial increase to 9,8 TB/S in 2024. It came to meet Algeria's needs in the field of International Telecommunications Network, and it also seeks to increase the capacities of the link systems via existing undersea cables, and support the gradual replacement of cables that will expire, as well as developing solutions "Local Cache" for social networks (OTT) with the aim of rationalizing the consumption of ITN.

3.1.5The development of the number of Automated Teller Machines:

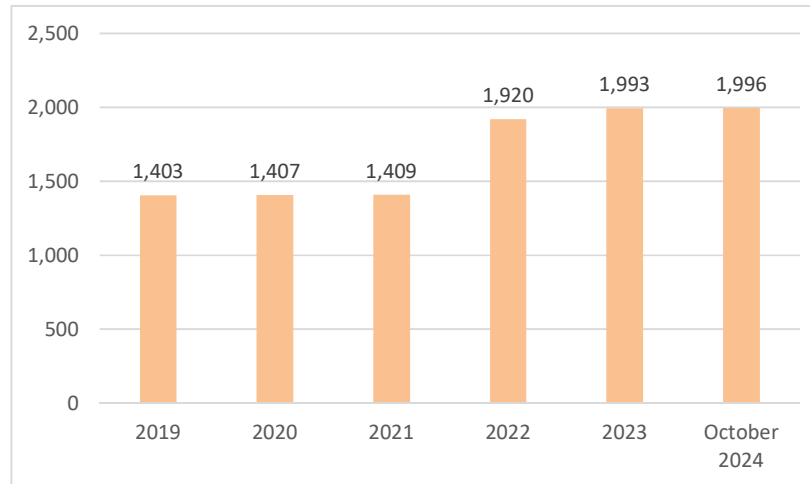
Automated Teller Machine (ATM). It is an electronic device designed to provide self-service banking services to customers. The ATM allow holders of the Gold Cash Card to benefit in particular from the following services: Withdraw cash, check the balance of the postal current account, transferring money from the postal current account to another, recharge the mobile phone chip (Mobilis, Djezzy and Ooredoo)...., the following table shows the number of Automated Teller Machines in Algeria during the period 2019-2024:

Table 6. The number of Automated Teller Machines in Algeria during the period 2019-2024

Year	2019	2020	2021	2022	2023	October 2024
Number of ATM	1 403	1 407	1 409	1 920	1 993	1 996

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

We notice that the total number of Automated Teller Machines increased from 1 403 to 1996 machines during the period 2019 -October 2024. The percentage change is 42, 26%. The data of the table can be illustrated in the following figure.

Fig.7. Bar graphs of the number of Automated Teller Machines in Algeria during the period 2019-2024

Source: Prepared by the researcher based on the results of Excel

Up until October 2024, 1 996 ATMs have been acquired, it has eased the pressure on post offices. In 2023, 62 free spaces of service have been put into service, distributed across the national territory including the ten new states, note that in 2020 there were no free postal spaces in our country.

3.1.6 The development of the number of Postal Current Account:

A postal current account is a type of banking account offered by postal services in many countries, designed for individuals or businesses to manage daily financial transactions. The following table shows the number of Postal Current Account in Algeria during the period 2019-2024:

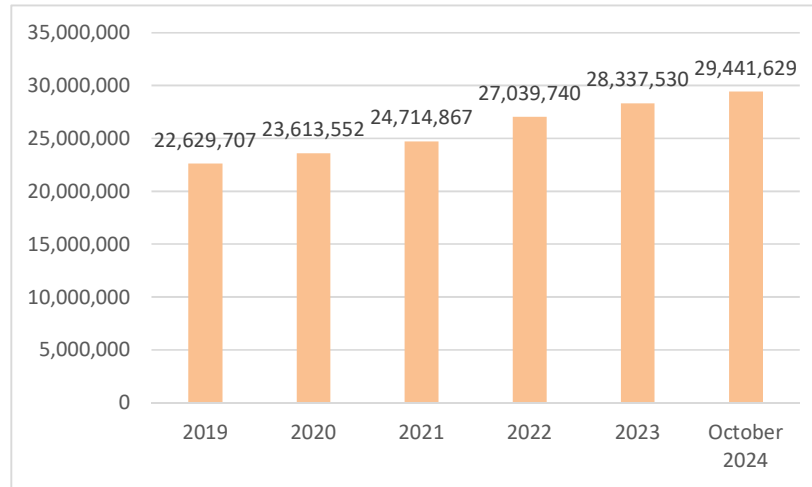
Table7. The number of Postal Current Account in Algeria during the period 2019-2024

Year	2019	2020	2021	2022	2023	October 2024
Number of PCA	22 629 707	23 613 552	24 714 867	27 039 740	28 337 530	29 441 629

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

From the table above, which shows the number of PCA increased to 6 811 922 accounts during the period 2019-2024, the percentage change is 30, 10%. The data of the table can be illustrated in the following figure.

Fig.8. Bar graphs of the number of Postal Current Account in Algeria during the period 2019-2024



Source: Prepared by the researcher based on the results of Excel

The number of postal current accounts has witnessed a significant increase to meet the needs of individuals and businesses, as well as the trend towards relying on digital banking services out of the digital transformation of transactions.

3.1.7The development of the number of Gold Card "CIB":

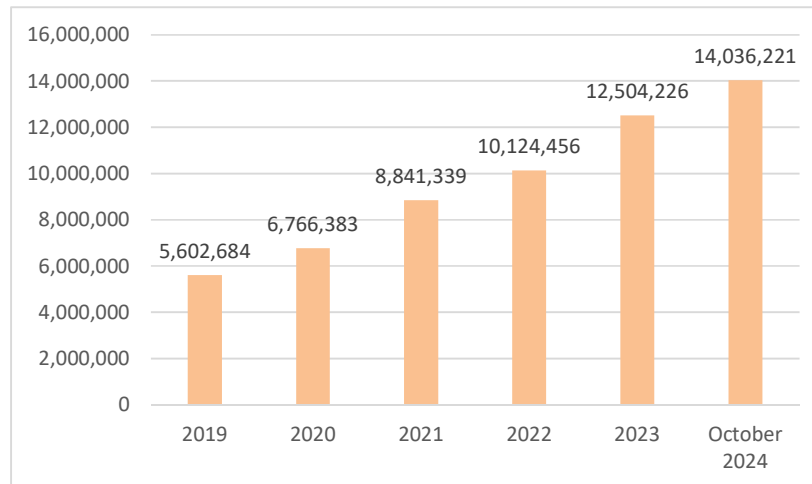
The Gold Card "CIB", it is a distinguished E-payment card linked to postal current accounts. It's features include: Cash withdrawals, Electronic payments, Money transfers, Bill payments: For utilities such as electricity, water, internet, and phone services..., the following table shows the number of Gold Card "CIB" in Algeria during the period 2019-2024:

Table 8. The number of Gold Card "CIB" in Algeria during the period 2019-2024

Year	2019	2020	2021	2022	2023	October 2024
Number of Gold Card "CIB"	5 602 684	6 766 383	8 841 339	10 124 456	12 504 226	14 036 221

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

The number of Gold Card "CIB" increased from 5 602 684 to 14 036 221 cards during the period 2019-2024, which represents the percentage change estimated at 150%. The data of the table can be illustrated in the following figure.

Fig.9. Bar graphs of the number of Gold Card "CIB" in Algeria during the period 2019-2024

Source: Prepared by the researcher based on the results of Excel

With the aim of developing the technology infrastructure and generalizing E-payment, in October 2024, the number of Gold Card "CIB" circulating has reached 2, 5 times what it was in 2019.

3.2 E-Payment transactions in Algeria

3.2.1 E-Payment transactions via Gold Card "CIB"

The increase in the number of holders of the "CIB" has allowed for a significant rise in the number and value of E-payment transactions, as shown in the following table the number of E-Payment transactions via Gold Card "CIB" in Algeria during the period 2019-2024

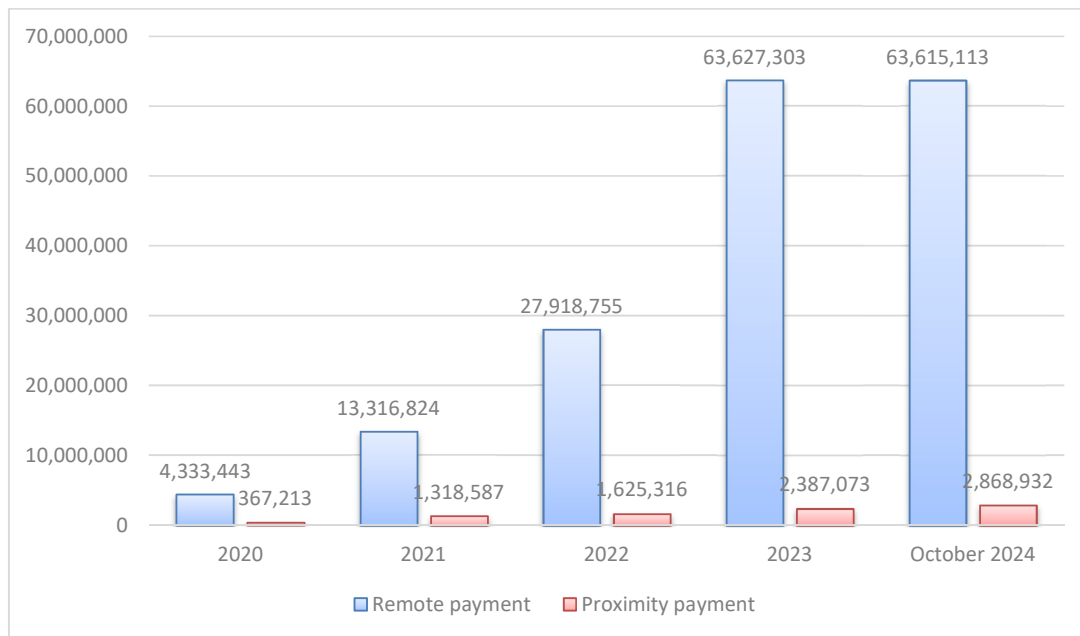
Table 9. Trend in the number of E- Payment transactions via Gold Card "CIB" in Algeria during the period 2019-2024

Year	2020	2021	2022	2023	October 2024
Remote payment	4 333 443	13 316 824	27 918 755	63 627 303	63 615 113
Proximity payment	367 213	1 318 587	1 625 316	2 387 073	2 868 932
Σ	4 700 656	14 635 411	29 544 071	66 014 376	66 484 045

Source: Prepared by the researcher based on the web site: <https://www.mpt.gov.dz>

Increasing the number of holders of the Gold Card "CIB" allowed for a significant increase in the number and amount of E-payment transactions, as the number of payment transactions in 2023 recorded an increase of 14 times what was recorded in 2020, while the number of transactions in 2024 reached 66 484 045 transactions. The data of the table can be illustrated in the following figure.

Fig.10. Bar graphs of the number of E- Payment transactions via Gold Card "CIB" in Algeria during the period 2019-2024



Source: Prepared by the researcher based on the results of Excel

3.2.2 Withdrawal transactions completed via Automated Teller Machines (mpt.gov, 2024)

With the increase in the number of ATMs and the improvement in cash availability at these machines, the total number of withdrawal transactions has doubled from around **13** million transactions per month to over **24** million. This growth occurred without an increase in transactions through traditional post office counters, which has helped accommodate a larger number of citizens and relatively eased the pressure on post offices.

3.2.3 Transactions completed via the BaridiMob application (mpt.gov, 2024)

In order to activate financial services easily, quickly, and reliably, Algeria Post has developed two applications for postal account holders: "BaridiMob", the most downloaded payment application in Algeria, and the "ECCP" application.

These two applications allow the user to benefit from a large number of services such as recharging the mobile phone, paying landline bills and paying Internet subscriptions, in addition to paying water bills for the "Sial" and "Algerian Water" Corporations, paying Zakat moneis, get account information, transferring money from one account to another and other services.

The "Baridi Mob" application has been downloaded more than **5** million times. The amount and number of transactions completed via this application recorded a significant development between 2020 and 2022, estimated at more than **6** times in terms of amounts and more than **24** times in terms of the number of transactions completed via it.

Algeria Post also seeks to spread the pioneering young experience of electronic payment using a mobile phone via the **QR** Code.

3.2.4 Convention concluded (mpt.gov, 2024)

In 2020, to ensure widespread use of E-Payment means in current transactions between economic agents, an agreement was concluded between the Algerian Post Office, ATM and SATIM for interoperability.

In 2021, a second agreement between the same parties to generalize the E-Payment service via the Internet, which enabled the completion of the interoperability cycle of the E-Payment system for the postal and banking monetary platforms, by making the online payment service available to all cardholders (postal and bank).

As for National Education, an agreement was embodied that allows parents of students to pay registration fees for national school exams online using the Gold Card (CIB), without having to go to post offices.

In 2023, an agreement was made in which Algeria Post took on the responsibility of manufacturing bank cards for Public Banks, thanks to the National Center for Card Personalization affiliated with it.

An agreement signed with the Higher Education and Scientific Research Sector, which allows students to pay their university registration fees online. This initiative ended with great success, as Algeria Post's payment platform processed over 2.4 million transactions during the 2023-2024 academic year.

In the same effort, on Sunday, October 22nd. 2023, the Minister of Finance, the Minister of Post and Telecommunications, and the Minister of Trade and Export Promotion, supervised, at the level of the National Higher School of Mathematics, in the new city of Sidi Abdellah in Algiers, the launch of the “**Model City for E-Payment**” project.

4. CONCLUSION

Through this study, the reality of E-Payment and its embodied requirements in Algeria during the period 2019 -2024.

This study used the analysis of the number of Gold Card "CIB", E-Payment transactions via Gold Card, Fixed and Mobile Internet Subscription Indicator, FTTH and ATMs...

The study concluded that Algeria has implemented several elements related to E-Payment infrastructure to promote financial inclusion during the period 2019-2024:

- The number of Fixed Internet subscribers increased, this rise is in line with the policy of providing Internet access for everyone.
- The number of Mobile Internet subscribers grew at an acceptable rate.
- The number of households connected to the FTTH increased, in order to generalize this network.
- The number of ATMs developed; it has eased the pressure on post offices.
- The number of Postal Current Account went up to meet the needs of individuals and businesses.
- In 2024, the number of Gold Card "CIB" has reached 2,5 times what it was in 2019. The number of payment transactions in 2023 recorded an increase of 14 times what was

recorded in 2020, while the number of transactions in 2024 reached 66 484 045 transactions.

Many agreements have been concluded to enhance E-payment systems, but the available means remain far behind those in counterpart countries. The following propositions were made:

- Improve and expand high-speed internet coverage to include remote areas.
- Establish secure, local payment platforms that comply with international standards.
- Implement regulations to ensure the security of digital transactions and boost user trust.
- Provide incentives for businesses adopting electronic payment systems.
- Conduct campaigns to inform citizens about the benefits of electronic payment.
- Offer training courses for consumers and merchants on how to use electronic systems.
- Strengthen collaboration between the government, banks, and tech institutions to develop innovative solutions.
- Encourage startups specializing in financial technologies.
- Lower fees for electronic transactions to promote their widespread use.
- Develop robust protection systems to prevent fraud and hacking.
- Provide electronic payment services via smartphones for unbanked populations.

5. Bibliography List:

- Deepa, J., & Others. (2023). The Sustainability of Financial Innovation in E-Payment Systems (éd. Emerald Publishing Limited). UK.
- Dennis, A. (2004). Electronic Payment Systems: a User-Centered Perspective and Interaction Design (éd. Technische Universiteit Eindhoven).
- LAI, P. (2021). Handbook of Research on Social Impacts of E-Payment and Blockchain Technology (éd. IGI Global).
- Zheng, Q. (2010). Introduction to E-commerce. China: Tsinghua University Press.
- Awais, A., & Muneeb, M. (2019, 07 01). Electronic payment system: A complete guide. Journal of Multidisciplinary Sciences, 1(2), 1-17. doi:10.33888/jms.2019.121
- Cabanillas, F., & Others. (2014, 01). Electronic Payment Systems for Competitive Advantage in E-Commerce. IGI GLOBAL. doi:10.4018/978-1-4666-5190-6
- Thangamuthu, A. (2020, 01 01). A Survey on Various Online Payment and Billing Techniques. International Journal of Arts, Science and Humanities, 7(3), 86-91. doi:https://doi.org/10.34293/sijash.v7i3.1374
- Margaret, T. (2004). E-payment The Digital Exchange. Singapore: NUS Publishing.
- NTTDATA PAYMENT SERVICES. (2024, 09 04). Consulté le 12 01, 2024, sur <https://www.nttdatapay.com/blog/advantages-and-disadvantages-of-online-payments/>
- Mpt.gov: <https://www.mpt.gov.dz> Consulté le 10 04, 2024