

## Digital Payments in Algeria: Requirements for Modernization After the Covid-19 Pandemic

المدفوعات الرقمية في الجزائر: متطلبات التحديث بعد جائحة كوفيد 19

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Received: 15/10/2022

Accepted: 26/12/2022

Published: 31/12/2022

### Abstract:

This study aims at analyzing the reality of digital payments as one of the areas of financial technology in Algeria, as well as identifying mechanisms for modernizing and localizing digital payments too, particularly due to the economic stagnation imposed by the Covid 19 pandemic.

According to the study, financial technology has significantly contributed to the development of the digital payments sector, and the Covid-19 pandemic has had a significant impact on accelerating the pace of this development. However, the digital payments sector in Algeria is still developing at a slow pace., owing to a lack of legal and institutional coverage that regulates transactions and protects customers, as well as a lack of regulatory and institutional oversight. However, Algeria is regarded as one of the economies with the greatest potential for growth in the area of financial technology and digital payments, provided that it meets a number of requirements.

**Keywords:** Financial technology; Digital payments; The Covid-19 Pandemic; The reality of digital payments in Algeria; Requirements for Modernizing Digital Payments .

**JEL Classification Codes :** E42- G23- O33

### ملخص:

تهدف هذه الدراسة إلى تحليل واقع المدفوعات الرقمية كأحد مجالات التكنولوجيا المالية في الجزائر، وكذا تحديد آليات تحديث وتوطين الدفع الرقمي في الجزائر خصوصاً في ظل الركود الاقتصادي الذي فرضته إجراءات مجابهة جائحة كوفيد 19.

توصلت الدراسة إلى أن التكنولوجيا المالية ساهمت بشكل كبير في تطوير قطاع المدفوعات الرقمية، وكان لجائحة كوفيد 19 بالغ الأثر في تسريع وتيرة هذا التطور. غير أن قطاع المدفوعات الرقمية في الجزائر لا زال يشهد تطوراً محدوداً نسبياً، ويرجع ذلك أساساً إلى عدم توفر تغطية قانونية ومؤسسية تنظم التعاملات وتحمي المتعاملين وكذا عدم توفر بنية تحتية رقمية تشجع على تطوره. ومع ذلك، تعتبر الجزائر من الاقتصادات الواعدة في مجال التكنولوجيا المالية والدفع الرقمي شرط توفيرها جملة من المتطلبات.

**الكلمات المفتاحية:** المدفوعات الرقمية، التكنولوجيا المالية، جائحة كوفيد 19، واقع المدفوعات الرقمية في الجزائر، متطلبات تحديث المدفوعات الرقمية.

**تصنيفات JEL:** E42, G23, O33

## **INTRODUCTION:**

Financial technology refers to a set of innovations that aims at competing with traditional financial methods in the provisions of services. In recent years, emerging companies in the field of financial technology have experienced rapid growth, drawing attention to them and highlighting them as a fierce competitor to traditional banks and financial institutions, prompting, hence, the latter to adopt new methods to compete. Merging and acquisition of financial technology companies, as well as the application of the latter's techniques in the various financial operations provided.

Financial technology's rapid development has resulted in rapid growth in many areas and sectors, most notably the digital payments sector. The latter is defined as a series of complex operations which implementation must provide a set of means and procedures that shortens financial transactions and saves customers time and effort by utilizing digital media and various electronic devices referred to as electronic payment channels.

In the same context, the digital division has shrunk in size in many nations due to the Covid-19 pandemic, which has strengthened and accelerated the pace of digital transformation. In spite of the bad effects of this terrible pandemic the value of digital payments and their significant role in helping the country recover from the economic stand still that was encouraged by social isolation and quarantine was put to stress.

### ▪ **Research problem:**

Algeria, like many other countries around the world, is attempting to join the digital transformation in the field of payments, as evidenced by the Covid-19 pandemic. As a result, the purpose of this study is to identify the reality of digital payments that is one of the areas of financial technology in Algeria prior to and during the Corona pandemic, as well as to highlight the needs for the localization and modernization of both financial technology and digital payments. Based on the previous data, we present the following main question:

### **What are the necessary requirements for modernizing the algerian digital payment?**

In order to answer this question, we must first answer the following sub-questions:

- How has the Covid-19 pandemic contributed in the advancement of digital payments?
- What does digital payment actually look like in Algeria?
- What are the procedures and mechanisms present in Algeria for localizing digital payments and financial technology?

### ▪ **Research hypotheses:**

the following hypotheses was put to the test in order to answer the study's problem and subsidiary questions:

**H01 :** the Covid-19 pandemic emphasized the importance of digital payment as an effective and exclusive mechanism for breaking the siege and economic stagnation caused by quarantine and social distancing measures.

**H02 :** digital payments in Algeria are developing slowly due to a legal vacuum and a lack of infrastructure.

**H03 :** the most important procedure and mechanisms for the localization of digital payments in Algeria are creating an enabling environment for digital transformation and attracting financial technology.

▪ **Research objectives:**

This Research aims at accomplishing several objectives, the most important of which are:

- Shedding light on the new financial event "fintech" and its role in revitalizing the digital payments market.
- Learning about the realities of digital payment in Algeria, particularly during the Corona pandemic.
- Identifying the requirements for modernizing and localizing Algerian financial technology and digital payments.

▪ **Research Methodology:**

Given the nature of the topic, we relied on both the descriptive and analytical approaches in this study. The descriptive approach is used to describe the conceptual aspect of digital payments, and the analytical approach was used to study the reality of digital payments in Algeria, analyze their benefits, and identify the conditions for updating the latter.

**1. Digital Payments An Overview:**

The payments ecosystem is a complex network of disparate, often unrelated services that is continually growing. In real-time, from cash to cards to mobile (Equinix, 2018, p. 04). the payments system is still expanding, as developments in the payments market are dependent on technological updates for traditional payment services and tools, and in many cases, the new online and mobile payment service is the traditional service with different and innovative features.

**1.1. Defining the Digital Payments:**

The digital payment system is regarded as the backbone of e-commerce and one of its most important aspects. It is a payment service that makes use of information and communication technologies such as integrated circuit (IC) cards, cryptography, and telecommunication networks (Bezhovski, The Future of the Mobile Payment as Electronic Payment System, 2016, p. 127).

A digital transaction can be defined as a payment transaction in a seamless system effected without the need for cash at least in one of the two legs if not in both. This includes transactions made through digital / electronic modes wherein both the originator and the beneficiary use digital / electronic medium to send or receive money (RBI, 2019, p. 19).

Digital payments are one of the most notable technology advancements in the fields of banking, finance, and commerce, and they offer a number of benefits not accessible with traditional payment systems. Convenience, time savings, privacy, integrity, mobility, and acceptability are just a few of them. According to Marketwatch.com, electronic payments minimize the amount of time spent paying for products or services by 60 percent on average (Dudin, Zasko, Frolova, Pavlova, & Rusakova, 2018, p. 79). Same time, digital payment must have the following characteristics to become accepted around the world (Awais, Abdul, & Muhammad, 2019, p. 02):

- **Confidentiality/Information kept secure:** The transaction record should be kept as secure as possible in the organization, and it should only be available to the confidential level if there is a need to trace back at some point.

- **Security:** The system must safeguard against the possibility of fraud within the system..
- **Availability:** The system must be available during the said working hours.
- **Cost effective:** The transaction cost must obey the rules as per authority.
- **The ability of integration:** The system must ensure that it is compatible with all other existing payment systems that are similar to the properties, and they must be integrated with the new payment system within the same environment.

### **1.2. Global Drivers of Digital Payments:**

Banking services, particularly payment services, have become increasingly digitalized during the previous few decades. Home banking and the adoption of (physical) credit card identification numbers for internet purchases paved the start of the digital era in payment services. Virtual card services and prepaid electronic money accounts arose as a result of the expansion of online services, which separated physical and digital payment instruments (FinConet, 2016, p. 23).

Thus, digital payments are not a new phenomenon, but they appear to be accelerating. This increasing speed of adoption is driven by four main factors:

#### **1.2.1. The ongoing digital / technology revolution:**

The widespread use of the Internet and Internet-enabled mobile devices (smart phones) has helped the development of novel payment services and solutions on both the Internet and mobile platforms. The growing adoption of mobile devices, as well as technological advancements in hardware and infrastructure, are among the key drivers of innovation in digital payment systems.

The use of the Internet via mobile phone is rapidly increasing, in 2020, the number of unique mobile internet users was 4.28 billion, indicating that more than 90% of the global internet population uses a mobile device to access the internet. Mobile phone ownership and internet usage are expected to rise in the future (Statista, 2021). Mobile Payments are being adopted increasingly rapidly in both emerging and developed markets, according to The Telecoms Pricing Mobile Payments - 2019 report forecasts global usage of mobile payments to expand from US\$ 348 billion to just under US\$ 1.3 trillion by 2022 (Research and Markets, 2022).

otherhand, powering cryptocurrencies, Internet of Things (IoT) backed device automated payments, APIs, point of sale (POS), mobile wallets; tokenization is digitally integrating every industry with the payments landscape to create a seamless payments ecosystem (Infosys, 2019, p. 03).

#### **1.2.2. Entry of nontraditional players:**

The technology companies and the e-commerce giants provided the first impetus for the growth of the digital payments ecosystem, Non-banking players such as Google, Apple, Facebook, Amazon (GAFA), and Alibaba have created innovative payment systems that have lifted the bar even higher by changing the way consumers "experience" payments. These companies also have an inherent advantage: their other services bring them closer to the customer (Accenture, 2018, p. 04).

In addition, the entry of financial technology companies is considered one of the most important factors in adopting digital payments in the world. Fintech has analyzed the financial

field, partially or completely solving the discovered problems, and transforming them into more efficient and effective services by integrating new technology. The most prominent achievements in the field of digital payments are the following (Dubey, Sonar, & Mohanty, 2020, p. 3769):

- New technology development;
- The convenience of services without having to travel;
- Adapting services to the needs of customers;
- Simple to use, Its services are delivered quickly and transparently;
- Adaptability to technological innovations;
- Adoption of smartphones as a communication tool.

### **1.2.3. More demanding customer expectations:**

Consumer habits and preferences have changed dramatically as a result of digital transformations, and the simplicity and convenience provided by e-commerce has also changed their behavior. In the new era, consumers expect transactions to be fast, smooth, and personal, and this quickly extended to the payments market, which has undergone significant changes in recent years.

For example, approximately 75% of consumers aged 30 use credit cards less than 20 times per year, but they are eager to explore "buy now, pay later" BNPL. According to a late 2020 US focus group, merchants who implemented BNPL features saw a 20–30% increase in conversion rates and a 50–80% increase in average order value, while repeat business increased by up to 20% (Capgemini Research Institute, 2021, p. 06).

### **1.2.4. Enabling regulations:**

Regulations have a significant impact on the nature and success of payment solutions. With most countries' payment infrastructures being modernized, payment service providers can use real-time systems to provide cutting-edge payment solutions to customers.

In India, for example, the Unified Payment Interface (UPI) is a government-led initiative that has boosted digital payments. The primary goals for the Government of India (GoI) in establishing the UPI were universal electronic payments, a cashless economy, and financial inclusion (BCG, 2020, p. 08).

## **1.3.Digital Payments Forms:**

In recent years, a variety of digital payment systems have been developed, and these systems can be broadly classified as follows:

### **1.3.1. PaymentCards :**

Payment cards are classified into three types: debit cards, credit cards, and prepaid cards. Debit cards are currently the most popular cashless payment instrument in the world. People can use payment cards to make purchases in stores, on the Internet, through mail-order catalogs, and over the phone. They save both customers and businesses time and money, making transactions more convenient (Babulal, 2019, p. 02).

### **1.3.2. Digital Wallets :**

A digital wallet (e-wallet) is a software-based system that securely stores user's payment information as well as passwords for a variety of payment methods and websites. Since 2007, advancements in mobile and digital wallets have resulted in a proliferation of wallet models and solutions, all with the goal of improving consumer convenience, leveraging

data, serving up offers, reducing friction, or lowering payment costs (US Payments Forum, 2018, p. 05). According to Juniper Research, the number of digital wallet users worldwide will reach nearly 4 billion by 2024, increasing wallet transaction values by more than 80% to more than \$9 trillion annually (Juniper Research, 2019).

The following are some examples of world-famous e-wallets (Kurniawan, Wahyuni, & Valentina, 2019, p. 03):

- **PayPal:** is an electronic payment system that replaces traditional transactions such as checks and money transfers. Having a PayPal account is similar to having an online account that can be used to purchase products and receive funds from people who also have a PayPal or credit card account.
- **Google Pay:** is a simple and quick way to make online payments.
- **Apple Pay:** is a mobile payment and digital wallet service provided by Apple Inc. that enables users to make payments directly through iOS applications and the web.

### **1.3.3. Mobile payment :**

Payments made through wireless devices such as mobile phones and smartphones provide more convenience, reduce transaction fees, and increase the security of electronic payment. This payment system has also made it easier for businesses to collect useful information about their customers and their purchases. (Bezhovski, 2016, p. 128), SMS payments, direct mobile phone billing, and digital mobile wallets are all examples of mobile payments.

After considering the various types of digital payments, we have to define the term Contactless Payments, which is relate to the capacity of paying for goods and services without having to contact the supplier or the customer. Payments can now be made without having to contact the persons involved because to advancements in technology such as the Internet and other technologies (Vivek, Sonar, & Mohanty, 2020, pp. 3730-3732). The transmission of payment information from a physical device without the need for physical contact between the payee's acceptance device and the payer's payment instrument is a key feature of contactless technologies. Contactless payment information can be stored on and/or accessed through a variety of physical devices (eg payment cards, mobile phones, wearables) (BIS, 2020, p. 10).

Contactless payments are divided into two categories:

- **Contactless Cards:** Credit or debit cards have an NFC chip inserted in the card that allows payment data to be transmitted wirelessly.
- **Digital Mobile Wallets:** Customers can keep credit card information on their NFC-enabled phones using apps like Google Pay or Apple Pay.

### **1.4. The COVID-19 pandemic's impact on digital payments:**

The COVID-19 public health crisis has had an impact on almost every aspect of daily life around the world, leaving the global economy in an uncertain state, with many sectors suffering from a lack of activity. With the outbreak of the pandemic, governments moved to protect citizens through total or partial closures to varying degrees, and this caused a significant decrease in spending, which initially decreased by 40% globally (McKinsey, 2020, p. 04).

Covid-19 has altered the way people buy goods and services. Concerns that the corona virus could be transmitted by cash have caused many consumers to be wary of using cash since the pandemic began ( Ehrentraud, Prenio, Boar, Janfils, & Lawson, 2021, p. 03). On the other hand, Global non-cash transaction volumes increased by only 8% in 2020, but are expected to grow at a CAGR of 18.6% (2020–2025F) and reach 1.8 trillion in volume by the end of the forecast period. (Capgemini, 2021, pp. 21-22),

The Covid 19 has accelerated the adoption of financial technology related to digital payments, as statistics show a qualitative leap in their use, an increase estimated at 60%, indicating an acceleration in the transformation of digital payments (World Bank, CCAF, 2020, p. 24). For example, in the first quarter of 2020, more than 13 million customers in Latin America made their first online transaction, and the United States, in particular, saw an impressive growth in contactless payments, with Visa reporting a 150 percent increase in the year ending in 2020 (Deloitte, IIF, 2020, pp. 03-04). Digital payments increased by more than 200 percent in Kuwait during April and May 2020 compared to the same period last year (KPMG, 2020, p. 13).

Contactless digital payments have contributed to the preservation of social distance and the potential spread of COVID-19. Existing digital payment methods have been used such as (debit/credit cards, online banking, mobile wallets, digital payment applications, and the Unified Payments Interface service). Many economic activities have been able to continue online during the pandemic, and the temporary closure of physical stores has led to an increase in e-commerce, with the greatest reliance on social media being for basic products, groceries, pharmaceuticals, health and hygiene products, restaurant delivery, and financial services. Digital payments via mobile phone came in first, followed by transactions via electronic banking services and credit cards, but cash on delivery remained popular, particularly in developing countries.

As a result, the year 2020 is regarded as one of the most transformative years in the payments industry, with new trends emerging in the adoption of financial technology and consumer behavior as a consequence of the nearly total reliance on cashless payments in transactions since the start of the Covid 19 pandemic.

## **2. The reality of digital payments in Algeria:**

Modernization of digital payments increases access to finance and financial services while also promoting greater transparency and efficiency. To determine the requirements for modernizing and upgrading Algeria's digital payment system, it is necessary to identify the latter's reality by highlighting its legal structure and infrastructure, as well as providing an overview of Algeria's electronic payment activity.

### **2.1. Algeria's legal framework for digital payments:**

Algeria attempted to escape the legal vacuum created by digital payment by enacting a number of laws and regulations, the union of which is known as the Algerian legal structure of digital payment.

#### **2.1.1. Law No. 18-05 of Sha'ban 1439 corresponding to May 10, 2018:**

In its sixth article, it defines the digital payment method as follows: "Every payment method that has been licensed in accordance with the applicable legislation and allows its owner to make a payment via an electronic system, whether locally or remotely". It emphasizes the need of completing electronic transactions using licensed payment

mechanisms in conformity with existing regulations in its twenty-seventh article. The same article also emphasizes the importance of completing electronic payment operations through platforms established and operated solely by banks approved by the Bank of Algeria and Algeria Post, and connected to any type of electronic payment terminal via the network of the public telecommunications operator.

While Article 29 of the same law emphasizes on the need for electronic payment platforms established and used in accordance with Article 27 to be subject to the Bank of Algeria's supervision to ensure their responsiveness to the requirements of their operation as well as the confidentiality and security of their data exchange (القانون 05-18، 2018، صفحة 5، 8).

### **2.1.2. Law on Finance for the Year 2020:**

Which stipulates that merchants provide electronic payment tools and make them available to consumers by December 31, 2020 at the latest (مرصد التقنيات المالية الحديثة في الدول العربية، 2020، صفحة 16). It also requires in Article 41 that the text of Article 23, which outlines the numerous activities for which the reduced fee of 9% is applied instead of 17 percent or 19 percent, be amended to include electronic sales (القانون رقم 19-14، 2019، الصفحات 14-15).

### **2.2. Algerian digital payment infrastructure:**

Aside from the adoption of the electronic clearing system and various digital payment mechanisms, Algeria's digital payment infrastructure has been reinforced by the Banking Economic Interest Grouping (GIE Banking), a critical center specialized in the field of electronic payment.

#### **2.2.1. Overview of the Banking Economic Interest Grouping (GIE Banking): the Automated Cash Control Authority**

The Algerian government considers the construction of a successful digital payment system to be one of their top goals, especially in light of their efforts to promote and modernize automatic cash as well as the widespread usage of digital payment methods. To support this endeavor, the Banking Economic Interest Grouping (GIE Banking) was established in June 2014 to support this strategic approach to defining the tasks and powers of the total actors in this system. It is also responsible for ensuring the monetary system's relationship with banks and its compatibility with local or international monetary networks. There are 19 members in the GIE Banking, including 18 banks and Algeria Post. As a non-participating member, the Bank of Algeria contributes to it in order to insure the conformance of payment systems and methods, as well as the standards employed in this field, in accordance with current regulations (تجمع النقد الآلي، le GIE Monétique, 2021).

**Table 01: GIE Banking members**

	<b>banking institutions</b>	<b>BankABC</b>
		<b>Gulf Bank Algeria</b>
		<b>Al Baraka Bank Algeria</b>
		<b>Salam Bank Algeria</b>
		<b>Arab Bank</b>
		<b>Bank of Agriculture and Rural Development</b>
		<b>Local Development Bank</b>
		<b>Algerian Foreign Bank</b>
		<b>Algerian National Bank</b>



<b>Subscribedmembers</b>		<b>BankBNP PARIBAS El djazair</b>
		<b>National Savings and Reserve Fund</b>
		<b>Algerian popularloan</b>
		<b>FRANSABANK El djazair spa</b>
		<b>Housing Bank of Algeria</b>
		<b>HSBC</b>
		<b>NATIXIS ALGERIE</b>
		<b>SOCIETE GENERALE ALGERIE</b>
		<b>TRUST BANK ALGERIA</b>
	<b>Non-banking institutions</b>	<b>Algeria Post</b>
<b>Unaffiliatedmembers</b>		<b>Algeria Bank</b>

**Source:** Prepared by the researchers, based on the website: <https://giemonetique.dz>.

## 2.2.2. Banking Economic Interest Grouping (GIE Banking) activities: Represented in: (تجمع النقد الألي) Le GIE Monétique(2021 ،

### 2.2.2.1. Managing the monetary relationship between banks:

GIE Banking controls cash transactions over the banking network and enables CIB card holders to take use of the system's suggested services.

### 2.2.2.2. Adjustment function:

GIE Banking provides the following services:

- Managing the relationship between the members involved.
- Imposing all regulations, guidelines, and practices on the participants with a view to establishing automated cash transfers between banks, and make sure that all parties concerned adhere to it.

### 2.2.2.3. Upgrading Function:

GIE Banking develops interbank cash products and services under this function. In this context, a project was launched to introduce new cash products and services that address the members' various and diverse needs.

### 2.2.2.4. Authentication function:

By adhering to a certain common reference to the environment, components, and processes that run the activity of automated cash between banks, the authentication function seeks to produce a sort of conformity and standardization in the field of automated cash.

### 2.2.2.5. Security Function:

In order to maintain confidence among all the participants in the automated bank cash system, particularly the end user, who may be either the cardholder or the business accepting the card, GIE Banking works to continuously improve security and safety mechanisms in accordance with international standards.

## 2.3. Digital payment activity in Algeria:

Algeria, like the rest of the world, seeks to keep up with technological advancements and reap the benefits of electronic payment, all while modernizing financial and banking transactions and establishing a financial system capable of dealing with the world's varying

economic and financial levels. As a result, we present below Algeria's digital payment situation prior to and during the Covid-19 pandemic.

### **2.3.1. Online payment activity in Algeria:**

According to Table No. 01, the number and volume of online payment transactions in Algeria have been steadily increasing over the study period. The first notable jump was recorded in 2017, which saw a significant increase compared to 2016 with an estimated development rate of 1,364.08 percent in the number of transactions, which can be explained by the official launch of payment by CIB bank card on October 04, 2016. (تجمع النقد الآلي, Le GIE Monétique, 2022) Following that, the rate of increase accelerated as a result of Algeria's adoption of a set of incentive measures to facilitate joining the payment platform via the Internet, particularly by lowering the benefit rights, which were reduced to 50,000 dinars (one-time payment) from 500,000 dinars previously. (رئيس هيئة تجمع النقد الآلي)مجيد مسعودان), 2019)

**Table No. 02: The number and volume of online payment transactions in Algeria before the Covid-19 pandemic**

Year	Total number of transactions	Transaction growth rate (%)	Total Amount of Transactions (DZD)
2016	7366	-	15009842.02
2017	107844	1364.08	267993423.40
2018	176982	64.10	332592583.28
2019	202480	14.40	503870361.61

Source: Prepared by the researchers, based on the website: <https://giemonetique.dz>.

The rate of increase in the number of online payment transactions in them was estimated at 2,168.85%, 70.25%, and this is primarily due to the outbreak of the Covid-19 pandemic, which positively affected the electronic payment system in Algeria, as well as the joining of Algeria GIE Banking.

**Table No. 03: The number and volume of online payment transactions in Algeria during the Covid-19 pandemic**

Year	Total number of transactions	Transaction growth rate (%)	Total Amount of Transactions (DZD)
2020	4593960	2168.85	5423727074.80
2021	7 821 346	70.25	11 176 475 535,68

Source: Prepared by the researchers, based on the website: <https://giemonetique.dz>

In terms of online payment transactions in Algeria as shown in Table No. 02, the use of online payment was limited to the fields of communications, transportation, insurance, and the payment of electricity and gas bills in 2016 and 2017. This field in general, and finally the online payment system culminated in the sale of goods. The recovery of online payments is clearly visible, particularly in the year 2020, which saw a significant increase in the number of transactions across various fields, particularly in the field of telephone and communications, particularly after Algeria Post joined the GIE banking, where the golden card played an active role in settling various online payment transactions.

**Table No. 04: Fields of online payment transactions in Algeria during the period 2016-2021**

Year	Phone / Communications	Transfer	Insurance	Electricity /water	administrative service	Services	Sale of goods
2016	6 536	388	51	391	0	0	0
2017	87 286	5 677	2 467	12 414	0	0	0
2018	138 495	871	6 439	29 722	1 455	0	0
2019	141 552	6 292	8 342	38 806	2 432	5 056	0
2020	4 210 284	11 350	4 845	85 676	68 395	213 175	235
2021	6993135	72164	8372	120841	155640	457726	13468

Source: The GIE banking <https://giemonetique.dz>

### 2.3.2. Withdrawal activity on the cash machine:

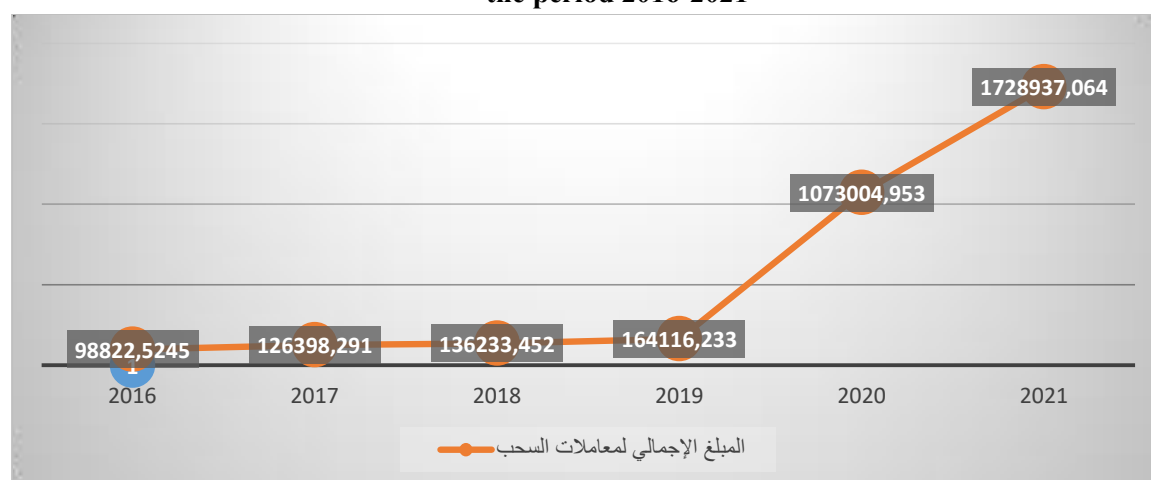
Because of the growing trend toward an automated cash system, particularly through electronic withdrawals, it was necessary to strengthen the infrastructure in this field by increasing the necessary mechanisms, particularly interbank ATMs, which more than doubled in number compared to 2016.

**Table No. 05: Evolution of the number of operating interbank ATMs during the period (2016 - September 2021)**

Year	Total number of operating interbank automated teller machines
2016	1370
2017	1443
2018	1441
2019	1621
2020	3030
Until September 2021	3053

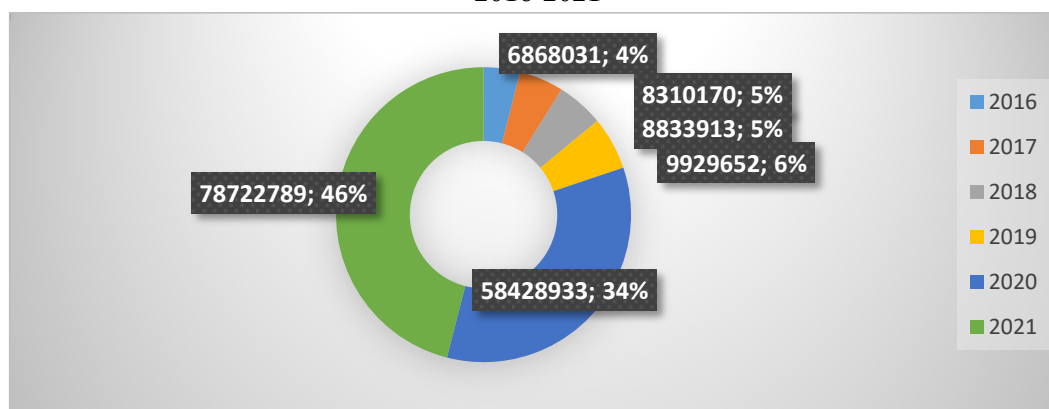
Source: The GIE banking <https://giemonetique.dz>

**Figure No.01: Evolution of the volume of electronic withdrawal transactions in Algeria during the period 2016-2021**



Source: Prepared by the researchers, based on the website: <https://giemonetique.dz>.

**Figure No.02: Evolution of the number of electronic withdrawals in Algeria during the period 2016-2021**



**Source:** Prepared by the researchers, based on the website: <https://giemonetique.dz>.

The previous two figures show that the years 2020 and 2021 accounted for the lion's share of total electronic withdrawals in Algeria, both in terms of the number of transactions and their volume, which is due to a number of factors, most notably the Corona health pandemic, which made interbank exchange machines a haven for citizens seeking electronic withdrawal. To avoid crowds inside post offices, Algeria Post added the golden card as one of the electronic withdrawal methods after joining the GIE Banking (as the statistics for the years 2020 and 2021 include the operations performed through the golden card, which is the most prevalent and used card in Algeria).

### **2.3.3. Payment activity at electronic payment terminals:**

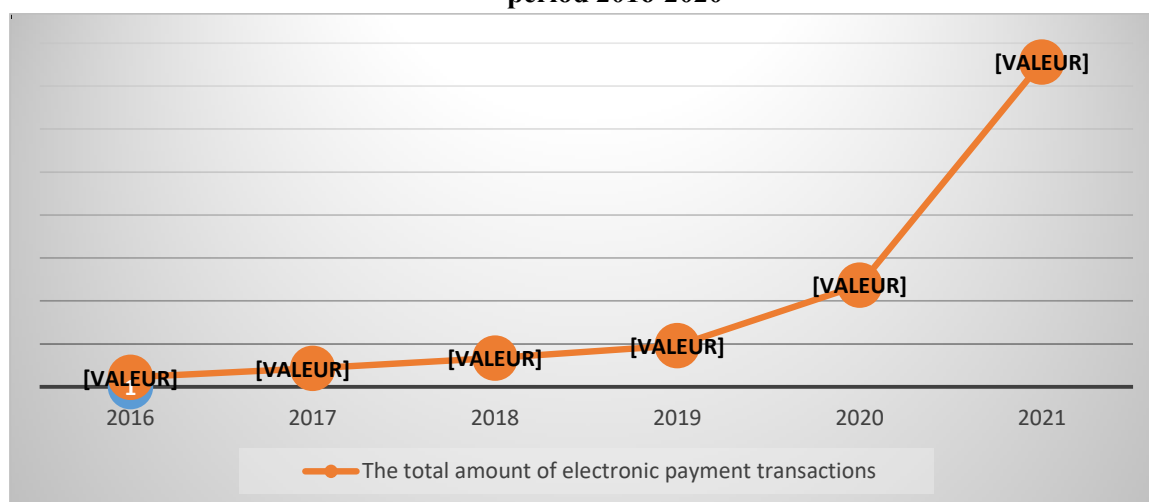
The evolution of the number of electronic payment stations operating in Algeria between 2016 and 2022, where we notice a rapid increase in the total number of electronic payment stations at very high rates, with the number of stations reaching approximately 7 to 8 times the number in 2016, which can be explained Provided, however, that all stores provide electronic payment stations by December 31, 2020.

**Table No. 06: The evolution of the total number of electronic payment stations operating during the period (2016 - June 2022)**

Year	The total number of operating electronic payment terminals
2016	5049
2017	11985
2018	15397
2019	23762
2020	33945
2021	37561
June 2022	40064

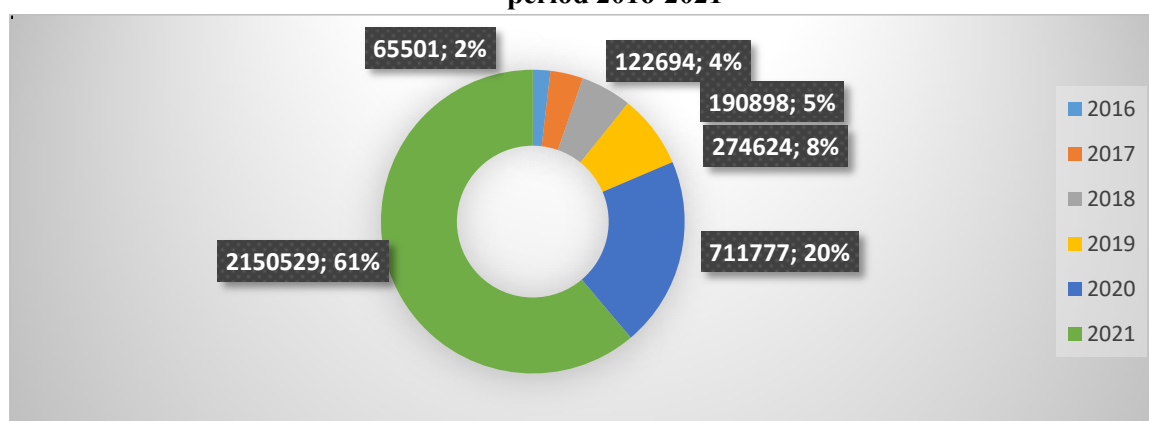
**Source:** The GIE banking <https://giemonetique.dz>

**Figure No.03: Evolution of the volume of electronic payment transactions in Algeria during the period 2016-2020**



Source: Prepared by the researchers, based on the website: <https://giemonetique.dz>.

**Figure No.04: Evolution of the number of electronic payment transactions in Algeria during the period 2016-2021**



Source: Prepared by the researchers, based on the website: <https://giemonetique.dz>.

The previous two figures depict the quantity and size of electronic payment transactions in Algeria, where we observe significant growth in both variables over the course of the study. This development can be attributed to the expansion of electronic payment terminals into more shops and points of sale. However, when compared to the quantity and size of withdrawals overall, it can be said that the citizen has made fewer and smaller withdrawals. The Algerian is still cautious when it comes to payments and clearly favors electronic withdrawal (especially the process of withdrawing salaries through the golden card).

In light of the foregoing, it can be stated that there is a clear trend from Algerian authorities toward strengthening, modernizing, and upgrading the digital payment system, which is reflected in the strengthening of this system's infrastructure as well as the various efforts and incentives aimed at encouraging Algerian citizens to move forward in the field of digital payments. except It should be noted that the recorded development is related to conventional payment methods as opposed to those employed in numerous nations that have

made significant advances in the area of modernizing digital payments and the mechanisms of the payment system generally by adopting financial technology innovations.

### **3. Algerian requirements for supporting digital payments:**

The creation of a digital payment system requires the creation of an integrated ecosystem with a number of supporting conditions. The latter distinguishes between technological requirements for modernizing the infrastructure of the information and communication sector, legislative, legal, and institutional requirements for the institutional and regulatory aspects of the various main actors within the digital ecosystem, namely: the government, the private sector, consumers, and financial requirements primarily related to the activation of the banking system and the financial market. In addition to the cultural and social requirements associated with the individual's upbringing within the community. The data and data obtained from various sources were used to analyze the requirements that must be met within the Algerian ecosystem.

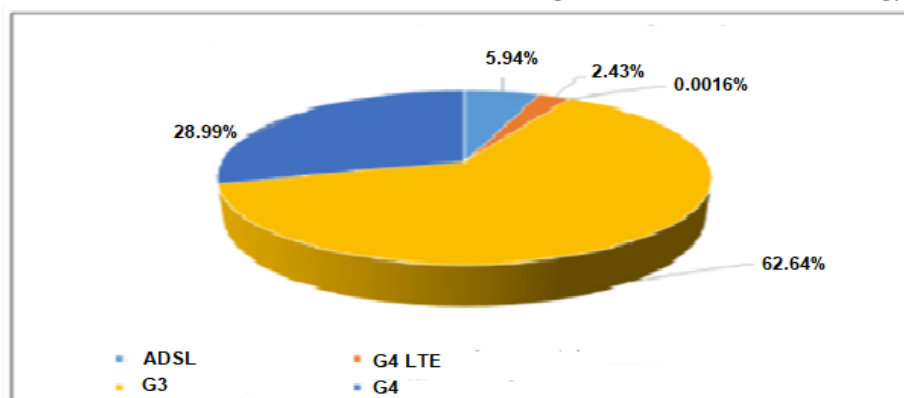
#### **3.1. Technological requirements:**

The evolution of electronic payment methods is closely related to the evolution of information and communication technologies, which are measured using two main indicators: the Internet index and the mobile services index.

##### **3.1.1. internet index:**

The rise of information and communication technology, particularly the Internet, has been a defining feature of the past ten years. In order to meet Internet customers' needs, all municipalities were connected to the Optic-Fiber network in late 2017 as part of the modernization of infrastructure and services. At the end of 2017, there were 37.83 million Internet users in Algeria, including 34 million mobile phone users.

**Figure No.05: Distribution of subscribers according to the nature of technology in 2017**



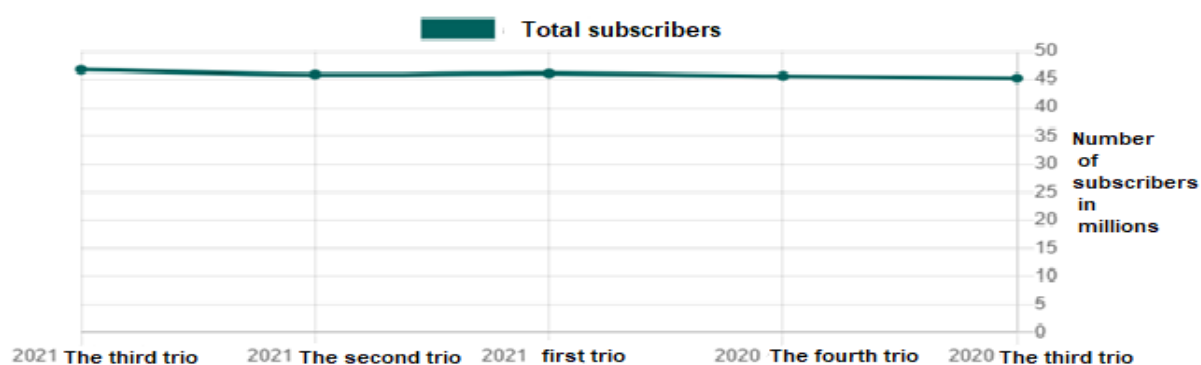
**Source:**The Algerian Ministry of Post and Telecommunications on the website:  
<https://www.mpt.gov.dz>

Nevertheless, in comparison to both leading and lagging countries, as well as several Arab countries, the penetration of information and communication technology into the national economy is still quite low. According to the World Bank's 2015 annual report, Algeria was rated 140th in the world. This explains Algeria's apparent usage of information and communication technology at a clear level of delay.

### 3.1.2. mobile phone service index:

Algerian mobile phone services have seen remarkable improvement, with a significant increase in the number of people using them. as the population coverage rate in the mobile phone network exceeded 98% in 2016, explaining the continuous increase in the number of subscribers, which reached 49.87 million in 2017, compared to 47.04 million in 2016, an increase of 6.02%, with 46.8 million active subscribers registered. The low cost, which made it suitable for a larger segment of the population, contributed to this.

**Figure No.06: The evolution of the total number of active subscribers in mobile networks between 2020 and 2021**



**Source:** The Algerian Postal and Electronic Communications Control Authority, on the following website:<https://www.arpce.dz/ar/indic/mobile>

Despite the developments described previously, this field of services remains subject to oligopolistic competition, as it lacks true competition due to the presence of only three major mobile phone operators that have been active in the Algerian market for years. The following graph, which depicts the distribution of their market shares, clearly demonstrates this.

**Figure No.07:Market share distribution among major mobile service providers in 2017**



**Source:**The Algerian Ministry of Post and Telecommunications on the website:  
<https://www.mpt.gov.dz>

With a score of 39.69%, Orascom Telecom Algeria (Djezzy) was ranked first, as it has consistently been due to its quick entry into the Algerian market, the affordable rates of the different offers made, as well as the efficacy and efficiency of its service delivery. Al-

Wataniya Telecom Algerie is next, then "Algeria Telecom Mobilis" (Mobilis) (Oreedo). With 48.12% and 36.54% of the 3G and 4G markets, respectively, "Mobilis" is in the lead among dealers. In December 2013, 3G mobile phone service launched in Algeria. 308,019 new subscribers were added in a single month, and by 2014, this figure had increased 27 times; by 2017, it had surpassed 23 million. The fact that Algeria was able to provide thorough coverage for the majority of 4G network beneficiaries is one of the positives that need to be mentioned. This is supported by the worldwide report published by the World Bank in 2021, which shows the level of coverage of 100% of the 4G network. (La Banque Mondiale, Les avantages du numérique pour les pays du Moyen-Orient et d'Afrique du Nord : L'adoption des technologies numériques peut accélérer la croissance et créer des emplois, 2020)

**Table No. 07: information and communications technology ICT Infrastructure Coverage**

<i>Economy or region</i>	<i>% of individuals using the internet</i>	<i>Fixed broadband connections per 100 inhabitants</i>	<i>Active mobile broadband subscriptions per 100 inhabitants</i>	<i>% of population with 4G coverage</i>	<i>Telecom Infrastructure Index</i>
<i>Economy</i>					
Algeria	48	8.3	96.0	100	58

**Source:** The World Bank- The benefits of digital for countries in the Middle East and North Africa- 2021- P67.  
On the following website:

<https://www.worldbank.org/en/region/mena/publication/the-upside-of-digital-for-the-middle-east-and-north-africa>

Indeed, ICT in Algeria has seen a remarkable improvement since the 2000s, which coincided with the establishment of the Telecommunications Regulatory Authority (ARPT), in addition to being able to connect to mobile broadband networks above the average in the eastern region. North Africa and the Middle East (MENA). However, the use of digital financial services remains very low: only 16 percent of Algerian adults use digital payments, compared to 23 percent of adults in the region and 36 percent of adults in emerging and developing markets. (La Banque Mondiale, Les services financiers numériques peuvent être les vecteurs de la reprise économique en Algérie, 2021) In order to achieve what is known as "economic recovery," which is dependent on digitization, the challenge will always be the degree of delay in the introduction of information and communication technology and its generalization to all economic sectors. The following requirements must also be met:

- Building digital platforms for the delivery of digital payment services, which would aid in their quick growth and distribution to larger user bases (P2B, P2P, P2G);
- Create a shared digital infrastructure for actors, such as open application programming interfaces (APIs) and data exchange solutions that connect a large number of organizations and provide a wide range of services. Developing a digital infrastructure lowers barriers to information transmission and promotes innovation.

### **3.2. Legislative, legal and institutional requirements:**

Digital payments force governments to adhere to advanced levels of digital protection through clear and effective rules for all electronic transactions, which firmly raises the issue



of data ownership, sharing, and how to safeguard it. Such transactions are classified as informal transactions because there is no legal framework in place for them. In this context, Algeria enacted Law 18-05 relating to electronic commerce in 2018, which specifies the procedures associated with this type of trade and establishes in its content the idea of electronic payment methods. However, this law alone is insufficient because the legislative and regulatory framework must be upgraded in order for this new economy to be better stabilized. To protect users from malicious practices, the digital economy requires a fully appropriate ecosystem that ensures the availability of a legal framework that specifically allows building trust as a prerequisite and encouraging innovation and competition.

### **3.3.Financial requirements:**

This kind of requirement, which covers one of the system's most significant actors, namely the banks that can offer these services, is seen as the cornerstone of supporting and developing the digital payments system. As a result, the following elements provide a summary of the financial requirements:

- Activating the banking system at the national and international levels, as the banking system's ineffectiveness and complete lag behind international developments in this field make it impossible to activate digital and even electronic payment in a market that does not deal with banks. If traditional payment methods such as checks are not widely used in our country, how about discussing electronic and digital payment methods? According to the World Bank, 57% of Algerian adults do not have a simple current account that allows them to make and receive payments securely and efficiently (La Banque Mondiale, Les services financiers numériques peuvent être les vecteurs de la reprise économique en Algérie, 2021). For instance, only when traveling abroad or making purchases online are Visa and Mastercard accepted in Algeria, whereas they are accepted widely throughout the rest of the developed world and even in some third-world nations like Tunisia and Morocco. This includes hotels, shops, and other establishments. Additionally, only a select few of the banks operating in Algeria accept this form of credit card.
- Fostering trust in the financial system. The main factor impeding the growth of this kind of payment method in Algeria is the consumer's lack of trust in the banking system in general and in electronic payment methods in particular. The cause of this is primarily attributable to a string of financial scandals that had an impact on the entire system, both old and new. as a result of problems with financial and administrative corruption and the misallocation of funds for public banks, which control the system in the absence of competition with a market share of more than 90 percent.
- Opening up the banking market to national and international competition is one of the most important mechanisms used in modernizing or modernizing the banking system to attract investors (finance and technology for foreign investors). The reality, however, is very different, as Algeria's economy is considered very closed, as Algeria's adoption of the market economy system since the 1990s remains a formal matter only because it did not seek to implement its most important foundations of involving the private sector in economic life or privatizing economic institutions on a large scale.
- eradicating the parallel economy; The informal sector dominates the Algerian economy, forming a parallel economy to the legal economy. According to economic

expert Mohamed OuldMoussa, electronic payment is not possible in an informal market plagued by chaos and lack of transparency.(Abdelwahab Makhoulfi, 2021)

### **3.4. social and cultural requirements:**

The development of digital culture, which is strongly tied to the monetary culture, or what we often refer to as "currency," and is primarily related to the nature and upbringing of the Algerian individual, is at the core of the social and cultural requirements. The Algerian society is evolving in a cash-centric environment that discourages the use of electronic payments and even works to prevent their existence. Because we have not said that the transition to digitization is impossible in the short term and takes years and generations, it becomes very difficult to make as an unavoidable and urgent demand. The lack of a clear vision and lack of confidence in one's competence are to blame for Algerians' underdeveloped digital culture.

### **Conclusion:**

The study provides a descriptive and introductory overview of digital payments in an effort to highlight their growing importance with the advent of financial technology, particularly in light of Covid-19 pandemic. Because it had a significant impact in mitigating the impact of the latter's economic stagnation, and Algeria, of course, was not isolated from these technological and health ramifications that affected the entire world. Nonetheless, to varying degrees, and after our study of the reality of electronic payment in Algeria, particularly in light of the Covid-19 pandemic, the study reached the following conclusions:

- ✓ Given the tremendous technological advancements in financial technologies, digital payment has become an absolute necessity for facilitating and expediting financial operations, as well as imparting transparency and efficiency to the financial system as a whole.
- ✓ Financial technology has made significant contributions to modernizing and emphasizing the importance of digital payments.
- ✓ Digital payments are an essential solution to get out and avoid the effects of the Covid-19 pandemic crisis. This crisis confirmed the value of digital payments and increased their use at extremely high rates, proving that they are the best way to overcome social isolation and lead a normal economic life. As a result, we validate the study's first hypothesis.
- ✓ In recent years, the digital payments sector has seen relatively limited development, owing primarily to a lack of legal and institutional coverage that regulates transactions and protects customers, as well as a lack of a digital infrastructure that encourages its development. As a result, we validate the study's second hypothesis.
- ✓ Providing an appropriate environment for the practice of digital payment and thus, financial technology, is one of the most important requirements for the localization and modernization of these two latter in Algeria. As this environment necessitates the availability of a set of requirements ranging from technological requirements, legislative, legal and institutional requirements, financial requirements, as well as social and cultural requirements. We validate the study's third hypothesis.

**In light of the preceding findings, we propose:**

- ✓ The need to accelerate the pace of digital transformation in all fields and join the technological progression, through the introduction of information and communication technology and its dissemination to all economic sectors, as well as intensifying its use, in order to achieve what is known as "economic recovery" based on digitization.
- ✓ Providing qualified cadres to practice digital work in Algeria, as well as appropriate digital payment equipment.
- ✓ Strengthening the legal environment to ensure protection and security when using digital payment, as well as keeping up with the latest cyber security developments.
- ✓ In addition to the necessity of activating the banking system at the national and international levels, providing the appropriate financial environment for the emergence of financial technology institutions and accompanying them financially and managerially.
- ✓ Raising awareness of the importance of using electronic payment will help to eliminate financial illiteracy and establish a culture of digital payment.

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