

Integration of e-payment in the tourism sector: Current situation in Algeria

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Summary: This article investigates the importance of integrating electronic payment systems to boost the development of countries' tourism sectors, with a particular emphasis on Algeria. The research is structured around two main goals. First, it provides a conceptual framework for electronic payment methods and their evolution. Second, it explores the adoption of e-payment systems in Algeria with a special focus on their integration in tourism sector. To this end, statistical analysis is used to describe the current state of e-payment use in Algeria, with a focus on its uptake among tourism businesses. Furthermore, a survey of 132 Algerian tourists was conducted to assess the prevalence of electronic payment methods in domestic tourism. The statistical data and survey results indicate that, despite the best efforts of financial institutions, the adoption of electronic payment methods among Algerian tourists and operators remains significantly low.

Keywords: tourism, domestic tourist, e-payment, Algeria, contactless

JEL Classification : L 83, Z 30, G20, O55, E 42

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I- Introduction :

Contemporary consumer behaviour is undergoing rapid transformation within an increasingly digital landscape. Electronic payment systems have emerged as a pivotal force driving innovation across numerous industries.

The tourism sector, characterised by its dynamic nature and pursuit of digital growth, is no exception. To enhance digital conversion and expansion, the integration of electronic payment solutions has become imperative.

Globally, the proliferation of payment methods has significantly transformed traveller behaviour, facilitating the seamless purchase of tickets, accommodation, and attractions. This has mitigated the need for travellers to carry substantial amounts of cash or manage their funds meticulously. (Werapun and al., 2023) emphasize that e-payment in tourism enhances financial transparency and transaction efficiency, allowing instant payments for bookings and services. It simplifies cross-border transactions, improves customer experiences, and supports a cashless future, ultimately boosting tourism revenue and operational effectiveness.

What about Algeria?

The Algerian government has taken a number of initiatives to modernise payment systems, including the introduction of the interbank electronic payment system in 2016. The aim of this initiative was to generalise the use of electronic payment cards (CIB) in commercial transactions. Since then, the Algerian government has extended its e-payment initiatives by introducing electronic payment terminals (TPE) in several economic sectors, with the aim of modernising the national payment system. The 2018 finance Act and the 2022 supplementary finance Act have strengthened this momentum by requiring businesses to adopt electronic means of payment.

The tourism sector is no exception to the government's initiatives to modernise payment methods. The relevant authorities are calling for the widespread adoption of electronic means of payment in the tourism industry, both by tourism operators and establishments and, by customers with the aim of improving the services and reducing cash transactions.

Did they really succeed?

In exploring the academic research on the integration of electronic payment methods in the tourism sector in Algeria, we unfortunately found only one article at the national level addressing

this subject. (Chetibi and Kamel, 2024) studied the adoption of electronic payment technology by Algerian tourists in tourist destinations using PLS-SEM analysis. The study aimed to highlight the role of electronic payment in improving tourist satisfaction and their intention to return in Algerian destinations.

The authors used the following variables: expected ease of use, perceived of usefulness, perceived service quality, tourist satisfaction, intention to re-visit, to verify the relationships below:

- impact of the expected ease of use of the electronic payment system on the perceived of usefulness for tourists from using the electronic payment system;
- impact of the expected ease of use of the electronic payment system on the perceived service quality of the payment system;
- impact of the perceived of usefulness for tourists from using the electronic payment system on the perceived service quality;
- impact of the perceived service quality on the satisfaction of Algerian tourists using electronic payment system;
- impact of Algerian tourists' satisfaction using electronic payment system on their intention to re-visit destinations

However, the study lacks data regarding the use of electronic payment methods by domestic tourists. Notably, it does not specify the geographical scope of the research or identify the targeted tourist demographic. Additionally, it fails to disclose details about the channels employed to distribute the questionnaire. The authors state only that ‘‘The study community was represented by e-payment tourists in the tourism sector, where the study was limited to a random sample of 300 tourists’’.

The same research objective was investigated two years earlier by (Susanto and al., 2022). Their study aimed to examine the adoption of digital payment technology by tourists at travel destinations, focusing on its relationship with tourists' attitudes towards perceived service quality and their interest in return visits.

All the other contributions (national studies) we reviewed focused exclusively on the adoption of e-payment in Algeria.

The table below presents a (non-exhaustive) list of academic publications released at the national level.

Table. 1: non-exhaustive list of national academic contributions on the use of e-payment in Algeria

Authors	Variables
Boussouf and Belkaid , 2021	-COVID-19 pandemic - online payment -electronic payment terminals
Fadel , Zerouti and Rouaski, 2021	- traditional payment - electronic payment (new Naftal card payment solution) - quality of services offered by ‘NAFTAL CARD’. - network coverage (GPRS), - transaction security, - customer habits
Boukrouh, 2022	-digital transformation -e-payment -Algerian banking sector
Guidoum and Saadi, 2023	-payment application quality - customer satisfaction and loyalty

Source: elaborated by author

Among international academic contributions, the following studies can be highlighted:

(Peng , Xiong and Yang, 2012), explored the tourist adoption of mobile payment. The research aimed to identify the factors determining tourists' acceptance of tourism m-payment.

(Almeida and Mota, 2019) intended to identify the main dimensions that characterise each of the payment methods and, for each of them, seeks to characterise the tourists' perception of the main advantages and limitations associated with them.

(Kuisma and al., 2007) examined the factors contributing to customers' reluctance to adopt internet banking, even when these services are readily available to them.

(Alazbekov, 2023), focused his research on the capacity of cryptocurrencies as a viable alternative to traditional payment methods in the travel and tourism industry. The study aims to determine whether cryptocurrencies can be a safe and practical payment option for the travel and tourism industry.

Our motivation for exploring this field is justified by the limited national research on the integration of electronic payments within the tourism sector. This study seeks to assess the use of payment methods by domestic tourists in Algeria. Accordingly, the research addresses the following question:

To what extent do Algerian domestic tourists utilise electronic payment methods when travelling within Algeria?

The following sub-questions branch out from the main question:

Q1: What are the payment methods most used by national tourists during their tourist trips in Algeria?

Q2: Do Algerian tourists use electronic payment more often abroad than in Algeria?

Q3: In which tourist services do domestic tourists make the most use of electronic payment?

Q4: To what extent do domestic tourists trust electronic payment methods in Algeria?

This research is structured around two primary objectives. Firstly, it establishes a conceptual framework for electronic payments and their evolution. Secondly, it investigates the integration of electronic payment systems within Algeria's tourism sector. Statistical analysis is employed to characterise the current state of e-payment practices in Algeria, with a particular focus on adoption among tourism businesses. Furthermore, a survey was conducted among a sample of Algerian domestic tourists to evaluate the utilisation of electronic payment methods in domestic tourism.

1.1. Electronic payment:

For (Kalakota and Whinston, 1997, cited in Abrazhevich, 2004, p. 3) « Electronic payment is a form of a financial exchange that takes place between the buyer and seller facilitated by means of electronic communications». (Adeoti, Olugbade, and Osotimehin, 2012, p. 1) define it as « Electronic payment system refers to an electronic means of making payments for goods and services procured online or in supermarkets and shopping malls»

For (Agimo, 2004, cited in Kabir, Saidin and Ahmi, 2015, p. 113) « E-payment is also defined as payment by electronic transfer of credit card details, direct credit or other electronic means other than payment by check and cash», and for (Premchand and Choudhry, 2015, cited in Kabir Saidin, and Ahmi, 2015, p. 113) « Payment systems introduce diverse electronic payment modes through which financial institutions extend various e-payment services to customers, including credit cards, debit cards, online banking, and mobile banking».

1.2. Global Trends in Electronic Payments (2021 to 2025)

The evolution of electronic payment methods has been rapid and transformational in recent years. While credit cards were dominating the global payment landscape, the surge of e-commerce catalysed the emergence of diverse payment solutions tailored to the evolving preferences of consumers and travellers.

According to the Global Payment Report (2022), 2021 saw robust growth in global e-commerce, with a year-on-year increase of 14%. This growth was especially noteworthy as the global economy, including the travel sector, began its recovery from the initial impacts of the COVID-19 pandemic (FIS, 2022).

a. The use of credit/debit cards and cash

According to the Global Payment Report (2022), the use of credit/debit cards and cash in financial transactions exhibits the following trends: Representing 21% of global e-commerce in 2021, the share of credit card expenditures is anticipated to decrease to 18.8% by 2025.

Debit cards are expected to experience a slighter decline, from 13.2% of e-commerce transaction value in 2021 to 12.9% in 2025. Similarly, the use of cash is projected to decrease from 3% to 1% over the same period, with a significant drop observed in 2020 due to business closures resulting from the Covid-19 pandemic.

Regarding cash, while it remains a fundamental element of the point-of-sale (POS) landscape, with the ongoing rapid digitisation of the global economy, reliance on cash is set to decline to 9.8% by 2025.

In summary, a noticeable decline is observed in the use of credit cards, debit cards, and cash, with a corresponding rise in digital payment solutions, reflecting the ongoing transition towards an increasingly digitised economy.

Despite the declining trend in cash usage for payments, it remains the preferred payment method in numerous countries, like Nigeria, Germany, Japan, and India, with usage exceeding 60%. In contrast, Sweden exhibits the lowest cash use in Europe at 35%, with mobile payments even less popular at 28% (Gaudiaut, 2023).

b. Electronic wallets:

Electronic wallets are applications or websites that facilitate the process of making online payments by bank card. They consolidate an individual's bank cards and are accepted globally.

Several nations have developed their own electronic payment methods. China stands at the forefront of online transactions, with a preference for online shopping over travel among its citizens. The country offers two extensively used payment methods: AliPay and WechatPay.

The immense popularity of Alipay and WeChat Pay has led to a projected increase in the share of digital wallets in Asia Pacific (APAC) e-commerce, rising from 68.5% in 2021 to 72.4% in 2025. Similarly, using electronic wallets in European e-commerce is expected to grow from 26.7% in 2021 to 29% in 2025. For point-of-sale (POS) transactions, digital wallets accounted for 44% of the value in Asia Pacific in 2021, and it is projected that this share will increase to 56% by 2025. However, in Europe, the digital wallet share stood at only 8% in 2021, with an anticipated rise to 15% by 2025 (FIS, 2022).

c. Mobile payment:

Mobile payment encompasses a range of methods whereby monetary transactions are executed via mobile devices. These transactions can occur online, at the point of sale, or between individuals. Such payments may be initiated by scanning QR codes, transferring funds through e-wallets, banking applications, NFC (Near Field Communication) technology, or virtual currencies.

In 2021, Denmark recorded the highest rate of mobile payment adoption in Europe at 52%. Conversely, while Africa exhibited an internet penetration rate of only 23% in 2021, Kenya emerged as a leader in mobile payments, with 84% of internet users utilising their mobile phones for financial transactions (Gaudiaut, 2022). China stands alone as the only nation where mobile payments have surpassed all other payment methods. In 2022-2023, 67% of Chinese respondents reported using smartphones for purchases (Gaudiaut, 2023).

d. Cryptocurrencies

Despite widespread global scepticism and even outright prohibitions regarding the use of cryptocurrencies as a means of payment, virtual currencies continue to experience significant growth in adoption. Nigeria has emerged as a leading market for cryptocurrencies, according to a 2021 Global Consumer Survey. This survey revealed that 42% of Nigerian online respondents had owned or used cryptocurrencies in the previous year, representing the highest rate among all nations included in the study (Gaudiaut, 2021).

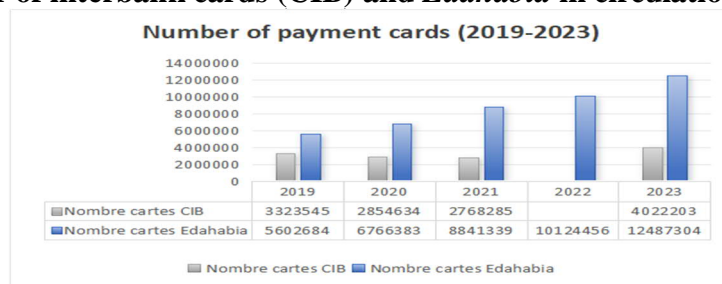
1.3. Electronic payments use: current situation in Algeria:

In Algeria, the adoption of electronic payment systems remains comparatively low despite concerted efforts by financial institutions to encourage their use. Although many countries are shifting from traditional bank cards to mobile and contactless payment technologies, Algeria encounters considerable challenges in encouraging the widespread adoption of cards and electronic payment terminals within the retail sector.

Official card payments via the internet began in Algeria in October 2016. As of 2023, the total number of interbank payment and Edahabia cards in circulation was 16,509,507 (GIE Monétique, n.d.), in contrast to 11,609,624 in 2021 and 9,621,017 in 2020 (R.E./APS, 2022).

Data published by the Monetics Economic Interest Group (GIE) and the Ministry of Post and Telecommunications highlight the growth in card circulation from 2019 to 2023, as shown in Figure 1.

Figure 1. Number of interbank cards (CIB) and Edahabia in circulation (2019/2022)

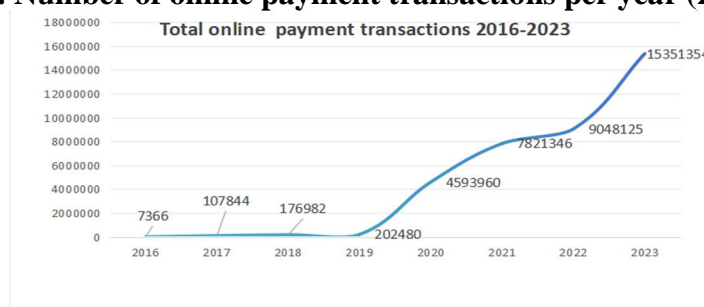


Source: created by the author, based on data from (GIE Monétique, n.d.); (Ministry of Tourism and Handicrafts, 2022); (R.E./APS, 2022)(no data on the number of CIB cards is available for 2022).

To stimulate the adoption of electronic payments in Algeria and facilitate the participation of online retailers, ‘GIE Monétique’ has launched a website offering free online certification for interested merchants, eliminating the need for in-person visits. As of May 2024, 510 merchant websites were enrolled in the Interbank Card Internet Payment System, compared to 153 and 71 in 2021 and 2020, respectively (Algeria Bank, 2022).

The fluctuations in the number of Internet payment transactions from 2016 to 2023, encompassing transactions conducted using both CIB cards and the Edahabia card, are depicted in Figure 2:

Figure 2. Number of online payment transactions per year (2016-2023)



Source: created by the author, based on data from (GIE Monétique, n.d.)

The government has faced challenges in securing widespread adoption of electronic payment terminals (EPTs) among retailers, although the number of operational terminals has risen significantly from 5,049 in 2016 to 53,191 in 2023 (Figure 3). This increase could be largely attributed to the onset of the COVID-19 pandemic.

Figure 3. Evolution of the number of electronic payment terminals in operation (2016-2023)



Source : created by the author, based on data from (GIE Monétique, n.d.)

1.4. The integration of electronic payments in the Algerian tourism sector:

Electronic payment methods present a valuable opportunity for tourism and leisure providers. By providing a variety of e-payment methods, such as credit cards, digital wallets, and mobile

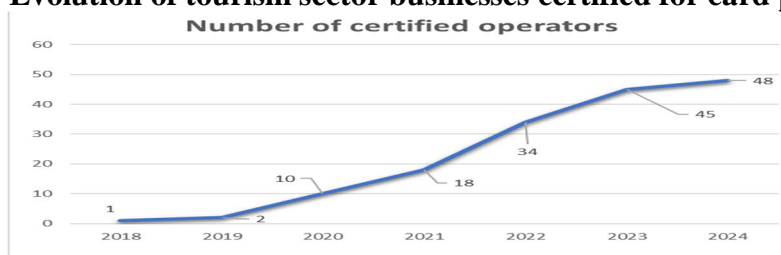
payments, caters to diverse customer preferences. This flexibility can attract a broader customer base, as individuals are more likely to engage with businesses that accept their preferred payment method.

For the Algerian case, in September 2020, the Algerian Minister of Tourism, Handicrafts, and Family Work issued a call to action for widespread adoption of electronic payment methods within the tourism industry. To this end, an agreement was signed between “Algérie Poste” and key sector stakeholders.

The integration of electronic payment systems aimed to enhance service quality within tourist establishments, such as complexes, promenades, and restaurants, by reducing cash transactions.

According to the most recent data from the GIE website (May 2024), only 48 tourism sector businesses, including hotels, resorts, travel agencies, and booking platforms, are certified for card payments, while at the end of 2022, the hotel sector comprised 1,567 establishments, and 4,722 travel agency- including branches- (Ministry of Tourism and Handicraft, 2022).

Figure 4. Evolution of tourism sector businesses certified for card payments.



Source: created by the author, based on data from (GIE Monétique n.d.)

II– Methods and Materials:

Methodology of the Study:

In the current paper, we adopt the descriptive analytical approach due to its suitability for the nature of this study.

Descriptive analysis is used to describe the results obtained and to summarise the information by presenting it in the form of percentages. It provides an overview of the use of payment methods, particularly electronic payment, by Algerian domestic tourists.

Analytical statistical analysis is used to identify the existence of significant relationships between the following variables:

1. The types of tourist services (purchase of tickets, booking or payment for accommodation, etc.) and the frequency of use of electronic payment methods. The existence of a significant relationship between these two variables suggests that the frequency of use of a particular payment method may depend on the type of tourist service purchased;

2. The types of payment methods and the level of confidence tourists have in them. The existence of a significant relationship between these two variables suggests that some payment methods inspire more confidence than others.

To determine whether there is a statistically significant association between these variables, a chi-square test of independence is carried out. This choice is due to the nature of the variables (categorical variables).

Study Sample:

To address the questions raised in this study, a survey was conducted among resident Algerian tourists.

The survey was shared across various tourism-related groups (e.g., *Les Aventurières Algériennes*, *Tourisme en Algérie*, *Tourisme en Algérie*, *Corruption et Bureaucratie*, etc.) and distributed to individuals within our immediate network who belonged to the target population.

The survey was available from 20th May 2024 to 20th August 2024. At the end of this period, we were only able to collect 132 responses.

Study Tool:

The study employs a quantitative methodology, utilising a survey designed through the Google Forms platform. The questionnaire comprises 15 questions, organised into four sections: profile data, use of electronic payment methods, practicality, and trust and security.

Table 2. Structure of the questionnaire

Section	Description
Profile data	Information regarding the gender, age, socio-professional situation, type of travel destination (internal or foreign), reasons for travel, possession of a payment card.
Use of electronic payment by Algerian tourists.	Information on the use of electronic payment for tourism services in Algeria and abroad, the tourism services using electronic payment the most, and the reasons for non-use of electronic payment by Algerian domestic tourists.
Practicality of electronic payment methods	Information on the degree of preference, in terms of convenience, for the payment methods available and that they would like to see available in Algeria for their convenience.
Trust and Security	Information regarding the degree of trust placed in electronic payment methods for the payment of tourist services in Algeria.

Source: created by author

III- Results and discussion :

1. Results related to profile data : a total of 132 answers were collected and analysed. The collected data have the following distribution:

- ✓ **Sex:** 65 men and 67 women. We have approximately 51% of respondents from female sex;
- ✓ **Age:** 27 (18-25 years old), 33 (26-32 years old), 40 (33-41 years old), 18 (42-49 years old), and 14 (50 and over). Most of our respondents are under 50 years old (89,4 %);
- ✓ **Socio-professional situation:** 22 students, 81 employees, 06 retailers, 13 self-employed civil servant, 03 housewives, and 07 retired. Most of our respondents are employees (61%);
- ✓ **Type of travel destination (internal or foreign):** 30 respondents travel only to domestic destinations, 16 travel only to foreign destinations, and 86 travel both in Algeria and abroad, representing 65% of the total number of respondents;
- ✓ **Reasons for travel in Algeria:** 106 (leisure), 61 (family visits), 49 (business trips), 05 (medical tourism), others 03 (sport, discoveries, studies). Most of our respondents travel in Algeria for leisure (80%);
- ✓ **Possession of a payment card:** 93% of respondents claim to possess an electronic payment card. 74 of the answers indicate possession of the Edahabiya Card, 62 of the answers indicate possession of the (CIB card), and 94 indicate possession of the Visa/Master card issued both in Algeria and abroad, which represents 74% of the respondents to this question (128 respondents). A single answer concerns a Paypal account and not a card.

2. Results related to the use of electronic payment by Algerian tourists:

- Q.1: What are the payment methods most used by domestic tourists during their tourist trips in Algeria?

In a first phase, we analyse the use of electronic payment by Algerian tourists both in Algeria and abroad.

The results demonstrate that:

When travelling in Algeria, payment by cash represents the highest rate: 47% of respondents use this option often and very often and 45% always use it (or would use it for future trips), whereas for trips abroad these proportions represent, respectively 54% and 21% of respondents (113 respondents to this question). The proportion of respondents who never or rarely use payment by cash is therefore higher when travelling abroad 27% than in Algeria 7,6%. This mode of payment remains dominant, however, and this is confirmed by the other results, which indicate a negative trend in the use of electronic payment methods when travelling in Algeria: between 50% and 87% never use the following methods: payment by card on websites, payment at the point of sale by card (via electronic payment terminals), mobile payment (via payment application), mobile payment (via QR code), and ATM transfers.

- Q.2: Do Algerian tourists use electronic payment more often abroad than in Algeria?

Although this trend remains the same for tourist trips abroad, the results nevertheless indicate that Algerian tourists are turning more towards electronic payment methods when travelling abroad:

23,5% to 89% had never used the following methods: payment by card on websites, payment by card at the point of sale (by electronic payment terminals), mobile payment (NFC), payment by electronic wallet, payment by fingerprint, and cryptocurrency.

However, there was less use of cash and a higher proportion of electronic payment terminals and payment by card on websites. When travelling abroad, respondents also reported using electronic payment methods not available in Algeria: mobile payment by NFC, payment by electronic wallet (15% to 16%) and, to a lesser extent, payment by fingerprint and cryptocurrency.

Table 3. Ranking of payment's types according to their degree of use by Algerian tourists in Algeria and abroad:

Payment methods	In Algeria			Abroad		
	Always/ very often/ often	Rarely and never	Rank	Alway/ very often/ often	Rarely/ never	Rank
Cash	92%	7.6%	1 st	72.6%	27%	1 st
Web site payment by card	21%	78.8%	3rd	47%	53%	3 rd
On-site payment by electronic payment terminals	26%	74%	2 nd	53%	47%	2 nd
Payment application	18%	82%	4th	/	/	/
Payment by NFC	Unavailable in Algeria	/	/	16%	84%	4th
QR code	2%	98%	8th	/	/	/
Transfer to automated teller machines	12%	88%	5th	/	/	/
Electronic wallet payment	Unavailable in Algeria	/	/	15%	85%	5th
Fingerprint payment	Unavailable in Algeria	/	/	5.3%	94.7%	6th
Cryptocurrency	Unavailable in Algeria	/	/	2.6%	97.3%	7th
Check payment	6%	94%	7th	/	/	/

Source: by author, based on survey results

3. Relation between tourist services and using electronic payment:

Q.3. In which tourist services do domestic tourists make the most use of electronic payment?

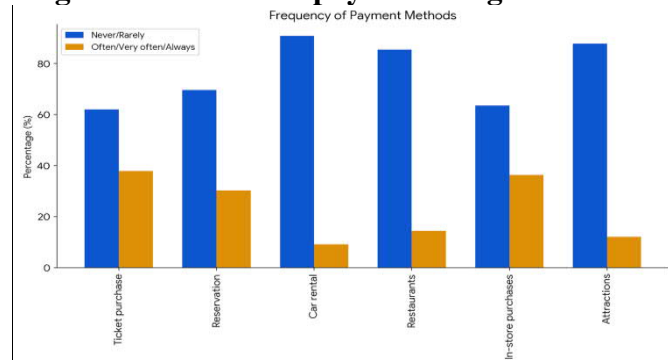
The findings reveal a downward trend in the adoption of electronic payment methods within the Algerian tourism sector; for most tourism services, the "never/rarely" category has a higher percentage compared to the "often/very often/always" category. This suggests that many people still prefer traditional payment methods for these services.

The "never/rarely" category exhibited the highest proportion for car hire, suggesting that a substantial proportion of individuals either infrequently rent vehicles or prefer traditional payment methods.

Attractions and catering occupy the second and third positions, respectively. While the "never/rarely" category maintain dominance in these sectors, the disparity between the two categories is comparatively smaller than for car hire and other transportation services, indicative of a marginally higher adoption of electronic payment methods.

Ticket purchases, reservations, and in-store purchases: These categories show a moderate use for electronic payments. While the "never/rarely" category remains in the majority 62% to 70%, the "often/very often/always" category is moderately present 30% to 38%, indicating a growing trend in favour of electronic payments in these areas. This could be due to factors like the availability of electronic payment options for these services, unlike the three others.

Figure 5. Electronic payment usage in tourism



Source: by author, based on survey results

To determine whether there is a statistically significant association between tourism services and the frequency of use of electronic payment methods, a chi-square test of independence was performed (categorical data for both payment methods and confidence levels).

Two hypotheses are therefore put forward:

H0: There is no association between types of tourism services and the frequency of use of electronic payment methods;

H1: There is a statistically significant association between types of tourism services and the frequency of use of electronic payment methods.

The Chi-square test of independence gave the following results:

Table 4. Chi-square test of independence

Mesure	Value
Chi-square value	96.73
(P) value	4.81×10^{-12}
Degree of freedom (dof)	20

Source: phyton results

Table 5. Expected values

Payment methods	Never	Rarely	Often	Very often	Always
Ticket purchase	81	20.17	21.17	4.5	5.17
Reservation or payment of accommodation	81	20.17	21.17	4.5	5.17
Car rental or other modes of transport	81	20.17	21.17	4.5	5.17
Restaurants	81	20.17	21.17	4.5	5.17
In-store purchases	81	20.17	21.17	4.5	5.17
Payment for attractions (games, cinema, museums)	81	20.17	21.17	4.5	5.17

Source: phyton results

The Chi-square value measures the difference between the observed frequencies and the expected frequencies under the null hypothesis. The higher this value, the more evidence there is against the null hypothesis. In this case, a value of 96.73 is quite high.

With such a low p-value ($p\text{-value} = 4.81 \times 10^{-12} < 0.05$), the null hypothesis of independence is rejected. In other words, there is a statistically significant relationship between tourism services and the frequency of use of electronic payment methods. The differences observed in the frequency of use of the different payment methods are not due to chance.

This test shows that there is an association between the types of tourism services (ticket purchase, reservation or payment of accommodation, etc.) and the frequency of use of electronic payment methods (never, rarely, often, very often, and always). For example, for some services, payment methods may be used more frequently than for others.

The frequency of using a particular payment method depends on the type of tourism service being purchased; this could be due to preferences or to the availability of certain electronic payment methods more for some tourism services than for others.

✧ ***The reasons for non-use or infrequent use of electronic payment by Algerian domestic tourists:***

The results show that the main reason for the low or non-use of electronic payment in domestic tourism is the fact that few tourism providers offer this option (79% of respondents), and this is confirmed by the figures we presented in Figure.4 according to which the number of web merchants in the tourism sector certified for card payments stands at 48 (May, 2024), encompassing hotels, resorts, travel agencies, booking platforms, and others. However, this number remains significantly low compared to the total number of establishments across all types (1567 establishments in the hotel sector and 4722 travel agencies (including branches) at the end of 2022.

One of the responses indicated that "merchants generally don't want to join the electronic system, for reasons of traceability".

The second reason is a lack of confidence in electronic payment systems, cited by slightly more than a quarter of respondents. One participant stated, *"I have no knowledge or confidence in the payment methods available in Algeria because no one informed me about them. I was unaware of their existence and only know about the EDDHABIA card."* Thus, beyond the issue of confidence, a secondary factor, albeit reported by a minority, is the lack of information regarding the availability of electronic payment methods.

In 3rd place, 14% of respondents indicated that electronic payment methods are complicated to use. A certain amount of awareness and information on their use would be beneficial to simplify these systems, encourage and generalise their adoption by a larger part of the population.

Table 6. Reasons for non-use or infrequent use of electronic payment by Algerian domestic tourists

Reasons for non-use or infrequent use of electronic payment	%
I don't trust electronic payment in Algeria	26.5%
I don't have a payment card	10.6%
They are complicated to use	13.6%
Few tourism service providers (e.g. hotels, restaurants, retailers, travel agencies) offer electronic payment.	78.8%
Others	3.3%
Total	132,8%

Source: by author, based on survey results

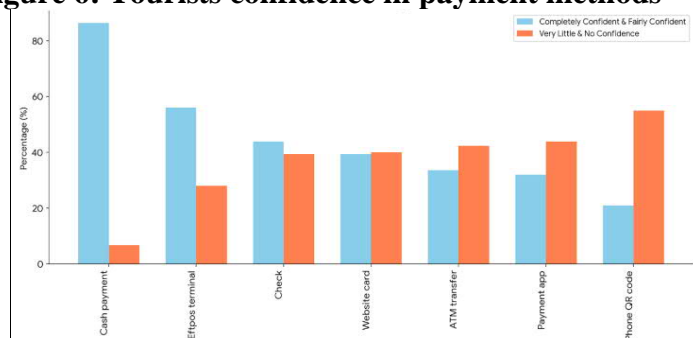
4. Results related to Trust and Security.

Q.4. To what extent do domestic tourists trust electronic payment methods in Algeria?

Among the available means of payment, cash remains the most reliable, with 86% of respondents expressing total or significant confidence. Payment via electronic payment terminals comes second, as the only electronic means in which a majority (56%) of respondents express total or significant confidence. This may reflect the growing adoption of this method in Algeria, with an increasing number of retailers integrating ATM terminals into their points of sale. Conversely, more than half (55%) of respondents express mistrust of payments by QR code, placing it in last place, preceded by transfers to ATMs and payment via applications, for which 42% and 44% of respondents respectively express little or no confidence.

In third place, 44% of respondents express total or significant trust in check payments, ranking it higher than other electronic payment methods, such as website payments by card, transfers to automated teller machines, payment applications, and QR code payments. When focusing exclusively on electronic payment methods, the top two most trusted methods are on-site payments via electronic payment terminals and payments made through websites.

Figure 6: Tourists confidence in payment methods



Source: by author, based on survey results

To determine whether there is a statistically significant association between payment method and level of confidence, a chi-square test of independence was performed (categorical data for both payment methods and confidence levels).

Two hypotheses are therefore put forward:

H₀: There is no association between payment methods and confidence level;

H₁: There is a statistically significant association between payment methods and confidence level.

Table 7. Chi-square test of independence

Mesure	value
Chi-square value	227.81
(P) Value	3.95×10^{-35}
Degree of freedom (Dof)	24

Source: phyton results

Table 8. Expected values

Payment methods	Completely confident	fairly confident	Very Little confident	No confidence	Neither trust nor no trust
Cash payment	33.29	25.57	22.29	26.0	24.86
Website payment by card	33.29	25.57	22.29	26.0	24.86
Payment application	33.29	25.57	22.29	26.0	24.86
On-site payment by Electronic payment terminals	33.29	25.57	22.29	26.0	24.86
Transfer to automated teller machine	33.29	25.57	22.29	26.0	24.86
Mobile payment (by scanning a QR code)	33.29	25.57	22.29	26.0	24.86
Payment by check	33.29	25.57	22.29	26.0	24.86

Source: phyton results

A Chi-square value of 227.81 is very high, indicating a large difference between the observed frequencies and the frequencies expected under the null hypothesis. A p-value of 3.95×10^{-35} is extremely low (<0.05). With such a low p-value, the null hypothesis of independence is rejected; there is a statistically significant relationship between payment methods and user confidence. The observed differences in trust levels for different payment methods are not due to chance, suggesting that some payment methods inspire more trust than others.

5. Practicality of electronic payment methods.

When asking respondents which electronic payment method(s), other than those currently available in Algeria, are the most practical to use, and would they like them to be available in Algeria, the answers tended most towards:

1/ The use of cards (although this method is already available in Algeria, but not totally widespread). International cards (Visa, Master Card) are also considered as a convenient option. However, this may reflect a preference for people travelling abroad or shopping online on

international sites, as using them for internal payment generates charges due to the current exchange rate, adding that this method of payment may not be accepted.

2/ Payment by electronic payment terminal remains an option that almost a quarter would opt for;

3/ Mobile application/mobile payment/QR code could indicate moderate adoption in the future (10.5%);

4/ 16% of respondents indicate they are unaware of the issue, highlighting a lack of information and knowledge among domestic tourists regarding electronic payment methods. It is also worth noting that, despite the practicality of contactless payments and e-wallets, a very small proportion of respondents express interest in their availability in Algeria, suggesting a limited awareness of these payment methods. Additionally, the relatively low proportion of respondents who consider cash as a practical payment option, despite it being the most widely used method, may indicate a potential decline in cash usage in favour of alternative payment methods in the future.

Table 9. The most practical electronic payment for domestic Algerian tourists

Payment methods	%
Payment Card	22.8%
International cards: visa card, master card	17%
Electronic payment terminals	14.8%
Mobile application/mobile payment/QR code	10.5%
Contactless	8.6%
Check	4.8%
Cash	4.8%
Electronic wallet: PayPal /Apple Pay/Google Pay/Samsung Pay/cryptomonnaies/Revolut/N26/ WeChat Pay/Alipay et Square/Stripe	2.8%
No idea	15.7%
Total	101,8%

Source: by author, based on survey results

Summary and discussion of results

Although the results obtained from this survey are not representative of all national tourists, they do provide an overview of the current trend in terms of the use of electronic means of payment in tourist services in Algeria.

The results show that:

a) prevalence of cash payment, followed by online card payment and payment by Electronic payment terminals.

Beyond the use of traditional payment methods (cash, credit/debit card), nowadays, in many countries, the current trend of payment is towards Alternative Payment Methods (APMs).

(APMs) are payment options other than cash and cards (Stripe, 2023). They include payment methods such as digital wallets (e.g. PayPal, AliPay, ApplePay, etc.), bank transfers, mobile payments, prepaid cards, domestic cards, Buy Now, Pay Later (BNPL) and even cryptocurrencies.

Alternative payment methods (APMs) have gained in importance, particularly following COVID-19, as businesses have adapted to online transactions (Blazhekoviki and al., 2022).

In the tourism sector, the increasing access to booking websites using mobile devices has led to changes in payment methods. An increasing number of travellers around the world are using mobile devices to pay for travel-related services, and a growing number of service providers are introducing (APMs) to facilitate travellers' payment for products and services. Some of these methods only work in some markets, such as Alipay in China, payU in India, or the Postepay in Italy (Almeida and Mota, 2019).

However, in Algeria, most of these methods are still not available.

For mobile payment, the only options available are payment applications, and QR code (used by a minority according to the results of the survey).

Low usage of mobile payments among domestic tourists in Algeria may be explained by factors such as limited trust in this payment method, its unavailability across all tourism services, and a general lack of awareness about it.

(Peng and al., 2012) studied the factors influencing tourists' acceptance of mobile payments in tourism in China. The research identifies key determinants such as perceived security, perceived compatibility, and destination m-payment knowledge.

For (Uwamariya and al. 2021), the adoption of m-payment services in emerging markets remains limited, which hampers the development of the tourism sector. Their findings highlight the potential of m-payment services to act as catalysts for growth and welfare in the tourism sector of emerging countries.

Contactless payment also remains unavailable, while this method has gained significant traction within the travel and tourism sector.

For (Stankov and Vasiljević, 2018), contactless technologies enable travel without paper, making the mobile phone all that tourist need at the destination, also for those travelling to certain technologically advanced destinations. Contactless technologies like RFID, NFC, and Bluetooth Beacon can be used for contactless payment, access control, toll collection, sharing important information data exchange, and sharing information in tourism.

(Wulandari and Andilolo, 2017) suggest that cashless payments can enhance the vacation experience and serve as a differential marketing value for destinations.

Contactless payment can extend beyond smartphones or card including NFC technology, to others alternative devices like NFC wristbands or even fingerprint recognition technology.

In the tourism industry, NFC wristband payments have been adopted by select operators, enabling seamless transactions through a connected wristband interface. These wristbands facilitate purchases through a straightforward swiping action. The payment system can operate either on a post-billing basis, where users settle all charges at the conclusion of their consumption, or on a prepaid basis, where users preload credit onto the wristband for subsequent purchases. The wristband is integrated with a statistical interface that tracks sales and transactions per outlet, while also gathering customer data such as dining times, preferred products, and services availed. This data serves to personalise offerings, enhance the overall customer experience, and foster customer loyalty (Luczak-Rougeaux, 2015).

Fingerprint payment represents a more advanced form of contactless payment, with Japan pioneering trials of this innovative technology in 2018.

Ushuaia Ibiza Beach Hotel has implemented a biometric payment system known as PayTouch technology, enabling guests to forego carrying physical cards or wallets during their stay. Recognition devices across the hotel's facilities allow guests to make payments, reservations, and access events solely through fingerprint authentication, linking their credit card details to their unique fingerprint profile (Hallé, 2012).

The inherent security of such a payment system is notably advantageous, leveraging the distinctiveness of fingerprints to mitigate risks associated with lost or stolen cards during a guest's stay.

For cryptocurrencies, this payment method is increasingly integrated into the daily lives of internet users. Within the tourism and leisure sector, a growing number of companies are embracing virtual currencies as a payment option. The neologism of "cryptotourism" has emerged to signify the trend of tourism professionals incorporating cryptocurrencies into their services. These specialised offerings cater specifically to cryptocurrency enthusiasts and holders, offering exclusive travel programs with exceptional services, potentially including educational sessions on cryptocurrencies, all payable using virtual currencies.

In 2013, CheapAir made history as the first online travel agency to accept bitcoin payments for airline tickets, hotel accommodations, and train bookings (Luczak-Rougeaux, 2023).

Governments are likewise recognising the potential of cryptocurrencies in boosting tourism. Thailand has shown a favourable stance towards cryptocurrency payments, announcing plans in 2021 to leverage virtual currencies to revitalise its tourism sector (Prim, 2021).

For (Aiazbekov, 2023) "Using cryptocurrencies in the tourism business has the potential to improve the security, efficiency, and convenience of tourism transactions". However, despite the potential benefits of employing cryptocurrency in the tourism business, there are a number of issues that must be solved:

- lack of widespread adoption of cryptocurrencies by travellers and tourism firms, due to a lack of knowledge and comprehension;
- concerns about the stability and security of the currency;

- legal and regulatory issues: many nations do not currently regulate cryptocurrencies, making it difficult for tourism enterprises to use them legally.

Although cash remains the most widely used payment method by Algerian domestic tourists, it is regarded as one of the least practical, alongside checks and electronic wallets. The factors underlying the dominance of cash over electronic payments in Algeria warrant further investigation.

b/ a very high proportion of respondents rarely (never) use electronic payment methods for tourist services. Ticket purchases, reservations, and in-store purchases show a moderate preference for electronic payments, while car hire, restaurants, and attractions show a low use (less than 20%).

Efforts should be made to diversify payment options, optimise the payment experience in moderate use services, and further encourage the use of electronic payments. For categories where usage is predominantly low, initiatives could be put in place to promote the use of electronic payments, such as strengthening electronic payment infrastructures and raising users' awareness of their availability.

c/there are (03) main reasons for the rare or non-use of electronic payment for tourism services in Algeria: **1/** few tourism service providers (e.g., hotels, restaurants, retailers, travel agencies) offer electronic payment, **2/** the mistrust and security, and **3/** complexity of using electronic payments.

(Kuisma and al., 2007) examined the factors contributing to customers' reluctance to adopt internet banking. They identified key barriers such as distrust in online platforms, the perceived complexity of using internet banking systems, and concerns about the safety of online transactions. Through detailed interviews with thirty Finnish banking clients, the research reveals that while internet banking provides convenience, many users perceive it as less reliable and difficult to use compared to traditional banking methods. Additionally, psychological factors, including privacy concerns and the fear of making errors during online transactions, significantly influence customers' hesitation to engage with these digital services.

(Nguyen and Huynh, 2018) indicated that perceived risk and trust have the principal roles of the structural model of e-payment adoption. The research model accounts for 38% of e-payment adoption.

Potential users of electronic payment systems frequently express concerns about the security and privacy of their personal information. This perception can hinder their willingness to adopt such technologies. Conversely, increased trust, which is built upon the perceived security of the system and the reputation of the payment provider, serves as a significant factor encouraging the use of online payments. By addressing these concerns and fostering trust, the adoption of e-payment systems can be significantly enhanced.

These results indicate that, despite the efforts of public authorities to promote the widespread adoption of electronic payments, along with the set deadline of December 31, 2023, and the penalties imposed, this objective has not yet been fully realised, although some progress has been made.

Since 2017, the implementation of the law requiring merchants to adopt electronic payment instruments for consumer transactions has been subject to multiple delays. Specifically, Article 111 of Law No. 17-11, dated December 27, 2017, and the 2018 Finance Act, mandated that merchants provide electronic payment terminals to enable consumers to opt for electronic payments. Initially, economic operators were given a deadline of December 31, 2018, which was later extended to December 31, 2021, and subsequently to June 30, 2022, to comply with this regulation. However, due to persistent non-compliance and delays, a new deadline has been set, requiring the extension of electronic payment methods to all commercial transactions by the end of 2023, as stipulated in the draft ordinance of the 2022 LFC (Ordinance N° 22-01 2022, p. 10).

The second and third reasons for the non-use or infrequent use of electronic payments in Algeria may reflect a concern about the security of transactions or a lack of familiarity with the technology. These reasons suggest that education and awareness-raising efforts, as well as measures to improve perceived security, are needed to increase adoption.

Turning to the issue of trust, the results revealed that traditional cash payments remain the payment method that inspires the greatest trust among respondents. This result contrasts with the findings of (Almeida and Mota, 2019), who concluded that cash payment is considered the least secure among the payment methods examined, even they provide the highest levels of availability and convenience.

Among the electronic payment methods, electronic payment terminal inspires the most confidence for Algerian resident tourists, probably because the customer is present at the point of sale and can monitor the payment process and react quickly in the event of a problem, unlike other electronic payment methods.

Payment by card comes third in terms of trust, with levels of trust and distrust relatively balanced. For (Almeida and Mota, 2019), debit cards are viewed as the safest payment option.

Other payment methods, such as ATM transfers, mobile applications, and QR code payments, elicit more distrust than trust. This suggests that these technologies have not yet been fully adopted by tourists, likely due to concerns regarding their limited availability or a lack of familiarity.

Furthermore, there is a notable gap in knowledge about available payment options, with a significant proportion of the population unaware of the various methods on offer. This indicates a need for greater education or awareness-raising. This is reflected in respondents' preferences for more practical payment methods than traditional physical card payments; a minority mentioning options such as contactless payments and electronic wallets.

Education and awareness are crucial in promoting the adoption of e-payment systems, as highlighted in Sharma's (2017) study. They enable individuals to understand how e-payment systems function and appreciate their convenience, thereby increasing users' confidence and willingness to adopt these technologies.

IV- Conclusion:

In conclusion, the adoption of electronic payment solutions marks a new era of flexibility, convenience, efficiency, and security within the tourism industry, facilitating seamless transactions for travellers while enhancing operational efficiency for businesses.

The tourism sector stands to gain substantially from rapid technological advancements and the diverse range of electronic payment methods available to operators. These innovations enable businesses to meet travellers' needs, align with their preferences, optimise their travel experiences, and increase customer conversion rates.

In the Algerian context, despite significant efforts by relevant institutions and notable advancements in e-payment, particularly following the COVID-19 crisis, progress remains insufficient across all sectors, including tourism.

In response to the initial question—*to what extent do Algerian domestic tourists utilise electronic payment methods when travelling within Algeria?*—it can be argued that, while many countries are experiencing a shift away from traditional bank cards towards mobile and cashless payments, Algeria continues to face challenges in encouraging card usage among consumers and the adoption of electronic payment terminals by merchants across sectors, including tourism.

Although the results of our survey cannot be generalised to all Algerian domestic tourists, as the sample size was not sufficiently representative, they can nonetheless serve as a valuable starting point for more comprehensive studies involving a broader target group of domestic tourists.

Finally, the following recommendations can be made:

1. Promoting the increased use of existing electronic payment methods for tourism services.
2. Adopting a proactive approach by diversifying and integrating innovative payment solutions to address current demand and improve the overall experience of domestic tourists.
3. The widespread adoption of electronic payment in Algeria requires coordinated efforts, not only to address technological gaps—such as the lack of local electronic wallets, NFC payments, sufficient mobile payment applications, and fingerprint payment systems—but also to tackle the low adoption rates among tourism operators. It is crucial to intensify awareness-raising initiatives and, where necessary, mandate the adoption of electronic payment systems across all tourism establishments.
4. Education and promotion of modern payment methods: Launching targeted information campaigns could help educate tourists on the secure use of modern payment methods, particularly focusing on segments hesitant to adopt these technologies due to trust issues.

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