

THE LEVEL OF USING PAYMENT INSTRUMENTS IN THE TRANSFER OF DIGITAL CURRENCY

Nicoleta PANAIT*

Mădălina RĂDOI**

Abstract

Globally, in recent years there has been a significant decrease in the number of cash transactions, followed by a decrease in the use of credit cards. Digital payments and e-commerce have undergone tremendous changes, revolutionising the way we buy and pay for various goods and services. E-commerce has ushered in a new era of online shopping, while digital payments have made transactions more convenient, fast and secure. The study analyses the evolution and changes regarding currency transfer, highlighting the importance of cardless digital payments. The convenience, security and cost efficiency they offer have led to their widespread adoption in various industries. The world of digital payments and e-commerce is undergoing rapid transformation, with technological advances and changing consumer behaviour driving the industry's evolution. Recently, especially after the pandemic, there has been a major change in the way people make payments, indicating a clear preference for electronic means, to the detriment of cash. Electronic payments provide full visibility and transparency throughout the entire payment process for both the customer and merchants. It is certain that digital payments and e-commerce will continue to be major drivers of global economic growth and innovation, and the main purpose of digital payments is to increase the convenience, speed and security of conducting financial transactions.

Keywords: digital currency, card, money transfer, online payments, virtual wallet, augmented reality.

1. Introduction

Over the years, technology has become more and more part of people's lives. With implications in all areas, it proves its usefulness on a daily basis, precisely because of the speed with which you can perform certain services. One of the most well-known implications of technology in recent years among people everywhere has turned out to be the online payment method.

Online payment has become everyone's preferred method to pay off their debts, especially when they want to purchase things from various online marketing platforms, pay bills, fees, taxes and more.

Electronic payments consist of the transfer of financial values through online transactions. These are represented as any type of payment that is not made using cash, when we swipe a debit or credit card in a store's card terminal. Being much more efficient than the classic cash payment method, online payment is now in continuous evolution, precisely because it has become part of people's habits. Customers can now buy and shop from their smartphone.

A digital payment is thus the transfer of money or digital currency from one account to another using digital payment technologies such as mobile wallets or mobile payment applications¹. Digital payments are identified with electronic payments.

With the advent of electronic banking and the Internet in the 1990s, the first digital payment systems emerged. The company First Virtual Holdings created in 1994 the first online payment system. Customers could use credit cards for online payments by accessing this technique.

All transactions, regardless of whether they involve the purchase of goods, financial assets or services, have two settlement components: the delivery of goods or services and the transfer of funds - payments. Globally,

* Lecturer, PhD, Faculty of Economics and Business Administration, „Nicolae Titulescu” University of Bucharest (e-mail: npanait@univnt.ro).

** Associate Professor, PhD, Faculty of Economics and Business Administration, „Nicolae Titulescu” University of Bucharest (e-mail: radoimadalina@univnt.ro).

¹ A. Kwilinski, *E-Commerce and Sustainable Development in the European Union: A Comprehensive Analysis of SDG2, SDG12, and SDG13*, Forum Sci, Oeconomia 2023, 11, pp. 87-107.

payment systems include a complete set of instruments, intermediaries, rules, procedures and interbank funds transfer systems that facilitate the circulation of money within a country or currency area. In this sense, a payment system comprises the following main elements or processes: payment instruments, which are a means of authorising and sending a payment (the means by which the payer gives the bank authorization for the funds to be transferred or of the means whereby the payee instructs his bank for the funds to be collected from the payer); processing (including clearing), which involves the payment instruction to be exchanged between the banks (accounts) in question; an agreement between the banks involved (for example, the payer's bank must compensate the beneficiary's bank, either bilaterally or through the accounts the two banks hold with a third-party settlement agent).

In the early 2000s, global online payment processor PayPal became an important pillar of online payments. PayPal allowed users to make online payments without providing merchants with their credit card information, which provided online shoppers with a high degree of security and convenience

In the late 2000s, the introduction of smartphones paved the way for mobile payments. Customers use their mobile phones to make payments using mobile payment applications such as Apple Pay, Google Wallet, Samsung Pay, etc.

Near Field Communication (NFC) technology is a wireless communication standard used to securely transmit payment information from the phone to the merchant's payment system.

Mobile payments have grown in popularity in recent years, with many consumers choosing to make payments using their mobile phones. The growing adoption of mobile payments has had a significant impact on the trends shaping digital payments.

Thus, mobile payments have become more secure as biometric authentication, facial recognition, and fingerprint recognition have been introduced to ensure that only the authorised user can order payments.

The growing adoption of mobile payments is having a major impact on shaping digital payments. As more and more people use smartphones and other mobile devices to conduct their daily lives, mobile payments are becoming preferred by consumers. This trend is expected to continue in the coming years, with predictions suggesting that mobile payments will account for a significant percentage of all digital payments by 2025.

A payment link is an electronic address generated by a platform that provides this service. The link contains information such as the product, the amount and the number of instalments, and the system creates the corresponding link.

This link can be shared via text message, social media or emails, sending the consumer to a page with all the details of the transaction, the customer enters the payment information, and after confirmation, the transaction is completed.

2. The evolution of online payments

Due to the fact that they operate both nationally and internationally, online payment processing companies manage to increase their number of users in an alert manner.

Thanks to the transformations implemented in banking procedures around the world, digital wallets have seen significant growth as users can create financial accounts within minutes and access them digitally. Another factor contributing to the development of digital wallets is the rapid growth of e-commerce, the integration of NFC technology - which allows cardless transactions via smartphones, and the use of QR codes at POS (especially in China).

Recent data indicates that globally, the most used digital wallet brands include Apple Pay, Google Pay, Alipay and PayPal. These global wallets have led to a fabulous growth in credit and debit card payments.

The share of direct credit card payments is decreasing, cards still fulfil an essential function, *i.e.*, payment instruments that are the basis of digital payments. After a brutal pandemic and a slowdown in global trade, consumers around the world still appreciate access to credit through credit cards². Credit cards accounted for 20% of e-commerce volume in 2022 and 26% at POS. What is interesting to note, according to Worldpay surveys, is that a significant percentage of 22% of consumers use their credit cards to fund their digital wallets. This may misrepresent the true power of credit cards as a payment method, as the wallet ends up being the tracked

² J. Baltgailis, A. Simakhova, *The Technological Innovations of Fintech Companies to Ensure the Stability of the Financial System in Pandemic Times*, Mark. Manag. Innov. 2022, pp. 55-65.

method of purchase instead of the credit card. Recent data indicates a downward trend in credit card transactions in the future³.

Debit cards remain the most used payment method, both in terms of number of transactions and volume. Cards are the perfect choice because of their ease of use - they only require a PIN or even a simple tap for contactless transactions. It is worth noting that the use of cards, both credit and debit, is the preferred tool for recurring payments. More recently, card payments have found a place in mobile wallets, as consumers can securely store their information for multiple card types or use a digital virtual card that works similarly.

According to a report by J.D. Power, the debit card remains the most used payment instrument at POS in the United States, with more than 77% of consumers indicating they use it. The use of debit cards for physical transactions is also prominent in the UK. According to data from UK Finance 3, 1 in 2 payments in 2023 were made with a debit card. For context, 95% of UK adults have a debit card (compared to the global average of 51% and 85% in Europe), and contactless technology has permeated everyday life in all spheres of activity. Card payments in the euro area increased by 15.6% to €36.5 billion in early 2023 compared to the first half of 2022. The total value of card payments increased by 14.1% to €1.5 trillion, which indicates an average value of around €40 per transaction. At the same time, the number of contactless card payments initiated at a physical terminal increased by 24.3%, up to 20.9 billion euros, compared to the first half of 2022, the total value increasing by 25.9%, up to 0.5 trillion euros.

Table no.1. The rate of use of payment instruments in euro area countries in the first half of 2023 compared to 2022

	Card payments		Credit transfers		Direct debits		E-money payments	
	2023-H1	Change from 2022-H1 (pp)	2023-H1	Change from 2022-H1 (pp)	2023-H1	Change from 2022-H1 (pp)	2023-H1	Change from 2022-H1 (pp)
Belgium	57.0	1.6	31.8	-0.7	8.9	-0.7	1.0	-0.4
Germany	40.5	4.5	25.8	-0.6	33.5	-3.9	0.1	0.0
Estonia	65.0	-0.3	33.9	-0.2	-	-	-	-
Ireland	60.8	-6.1	23.0	8.9	4.2	-1.1	9.6	-2.3
Greece	73.0	0.7	22.8	-0.4	1.2	-0.1	1.8	0.0
Spain	66.6	1.4	16.2	0.2	14.5	-1.6	1.3	0.0
France	62.8	2.9	18.3	0.5	15.4	-2.3	0.3	0.0
Croatia**	57.3	-	34.9	-	1.5	-	3.4	-
Italy	56.6	0.6	17.3	-1.6	5.6	1.0	17.1	0.5
Cyprus	70.1	2.4	16.5	0.1	5.6	-0.6	3.2	-0.1
Latvia	61.1	1.6	36.2	-2.4	0.0	0.0	2.4	0.9
Lithuania	78.1	11.7	15.4	1.5	0.0	0.0	4.9	-13.0
Luxembourg***	6.0	0.6	2.0	-0.2	0.6	0.3	91.2	-0.7
Malta	55.5	-2.2	10.1	-3.4	1.7	-0.7	26.6	6.9
Netherlands	49.1	0.8	32.3	-0.7	18.2	-0.1	0.1	0.0
Austria	54.2	2.5	25.9	-1.5	18.2	-0.9	0.2	0.0
Portugal	75.5	1.7	11.4	-0.3	7.6	-1.2	2.9	0.1
Slovenia	57.8	5.0	31.0	-1.0	7.5	-3.2	0.8	0.0
Slovakia	63.5	1.0	34.0	-0.6	2.3	-0.3	0.1	0.0
Finland	64.2	0.8	34.7	-1.0

Source: ECB⁴

³ L. Charfeddine, M. Umlai, *ICT sector, digitization and environmental sustainability: A systematic review of the literature from 2000 to 2022*, Renew. Sustain. Energy Rev. 2023, pp. 184.

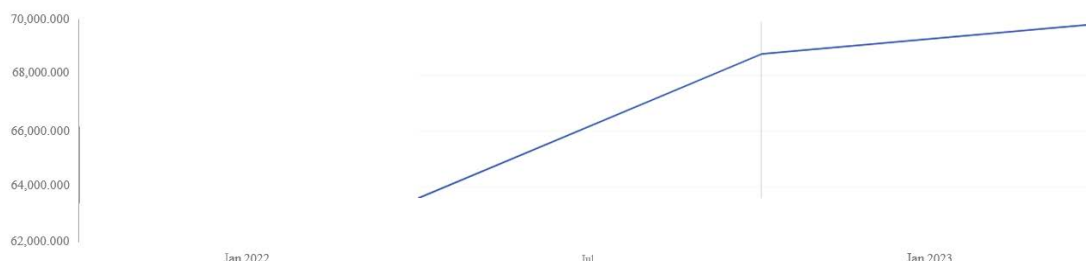
⁴ * Percentages may not add up to 100% as remaining payment services, being cheques, money remittances and other payment services, are not shown. A dash (-) indicates data are not available or not applicable, a dot (.) indicates that data are confidential.

** The changes in percentage points between 2023-H1 and 2022-H1 are not available, as at the time of publishing data for the first half of 2023, Croatia has not yet reported back data for 2022 under the requirements of the Regulation ECB/2020/59.

*** In the special case of Luxembourg, a very high number of e-money payments are executed on accounts held in their vast majority by non-residents but recorded in the In the special case of Luxembourg, a very high number of e-money payments are executed on accounts

In the first part of 2023, card payments accounted for 54% of total transactions, while credit transfers accounted for 22%, direct debits 15% and e-money payments 7%. The remaining 2% included checks, money orders and other payment services. In the first half of 2023 the total number of cashless payment transactions in the euro area increased by 10.1% to €67.0 billion compared to the first half of 2022, while the corresponding total value decreased by 4.5%, up to 111.4 trillion euros.

Number of total payment transactions - sent - from: Euro area changing composition, to: World, Euro area, half-yearly



Source: ECB <https://data.ecb.europa.eu>

E-commerce has transformed the way we shop, allowing consumers to buy goods and services from anywhere in the world just a few clicks away. Also, e-commerce has given companies the opportunity to reach a much larger number of customers at a much lower cost. However, some online merchants restrict online cross-border sales based on citizenship or nationality, domicile or location - geo-blocking. Such geo-blocking practices include: denying access to websites from other member states and/or situations where access to a site is allowed, but the foreign customer is prevented from completing the purchase process or is asked to pay with a card of debit or credit from a specific country.

E-commerce is constantly evolving as new technologies and trends emerge to shape the sector. Mobile commerce has grown due to the rise of mobile payments. Customers can now buy and shop from their smartphones, making shopping much more accessible. Platforms like Facebook, Instagram and Pinterest have evolved into new e-commerce channels - social commerce. Businesses can now sell their items directly through social media, making it easier for consumers to find and buy products. Data analytics and artificial intelligence are now being used by e-commerce companies to personalise the shopping experience for customers⁵. Personalization and personalised advertising are increasingly popular.

3. E-commerce and digital payments

Digital payments and e-commerce will continue to evolve. Cryptocurrencies such as Bitcoin and Ethereum are becoming more commonly accepted as a payment method. With the rise of voice assistants like Amazon Alexa and Google Assistant, new perspectives are emerging for voice commerce. Voice commands can now be used by customers to make purchases, check out various products, etc.

Augmented reality (AR) is gaining popularity in e-commerce. Before making a purchase, shoppers can use AR technology to examine how things will fit into their environment.

In the future, artificial intelligence will play a bigger role in digital payments and e-commerce. AI will be used to improve the consumer experience, personalise orders and secure systems.

While digital payments have made transactions more accessible, there are still many people who have access to digital payment systems. Those without access to banking institutions may face foreclosure.

As digital payments and e-commerce evolve, we face various ethical issues that need to be considered. The influence of digital payments on financial inclusion is one example.

held in their vast majority by non-residents but recorded in the Luxembourg data due to the methodology applied. Therefore, the relative importance of all the other payment instruments in Luxembourg, as presented in the table, appears to be lower than their actual domestic importance. When disregarding e-money, the relative importance of the main payment instruments in the first half of 2023 is as follows: card payments (68.4%), credit transfers (22.3%), direct debits (7%).

⁵ V. Lang, V. Lang, *Digitalisation and digital transformation*, in *Digital Fluency: Understanding the Basics of Artificial Intelligence, Blockchain Technology, Quantum Computing, and Their Applications for Digital Transformation*, Springer: Berlin/Heidelberg, Germany, 2021, pp. 1-50.

Personalised suggestions and targeted advertising can lead to the collection of significant amounts of personal data. There is a danger that this information could be misused or hacked, leading to privacy violations.

Blockchain technology is sure to play a major role in the future of digital payments and e-commerce⁶. This provides a secure and decentralised way to transfer value, making it an ideal solution for digital payments. Blockchain-based payment systems are already being developed and implemented by a growing number of companies and are likely to see widespread adoption in the coming years.

4. Conclusions

Digital payments and e-commerce have seen continuous evolution. The development of electronic commerce and mobile payments had a decisive impact on the behaviour of paying and buying goods and services. As digital payments and e-commerce continue to evolve, we will witness the emergence of new technologies and trends.

The trend towards online shopping shows no signs of slowing down. In fact, e-commerce is expected to continue to grow at a rapid pace, driven by factors such as the convenience of online shopping, the increasing availability of high-speed Internet connections, and the growing number of digital payment options. As e-commerce continues to grow, we can expect more innovative business models to emerge, such as subscription-based services, on-demand delivery, and social commerce.

Another trend that is likely to shape the future of digital payments and e-commerce is the growing importance of artificial intelligence and machine learning. These technologies are already being used to improve fraud detection and prevention, as well as to personalise the shopping experience for consumers. In the future, we can expect to see even more sophisticated uses of AI and machine learning in the digital payments and e-commerce space, from predictive analytics that help retailers forecast demand to chatbots that provide real-time customer support.

However, as the world of digital payments and e-commerce continues to evolve, there are also challenges that need to be addressed. Cybersecurity is one of these challenges, as the growing use of digital payments and the increasing amount of personal and financial data exchanged online make the digital industry a prime target for cybercriminals. In addition, regulatory rules will need to evolve to keep pace with the rapidly changing digital payments and e-commerce landscape, ensuring that consumer rights are protected and businesses can operate within a clear and consistent legal framework.

Systems must be put in place to ensure that e-commerce does not exclude small businesses and that digital payments do not lead to financial exclusion. We must also ensure that data analytics and artificial intelligence are used in e-commerce in ways that preserve customer privacy and data security.

The future of digital payments and e-commerce is certain, and we can make it more inclusive and secure by adopting new technologies and ethical practices.

References

- Baltgailis, J., Simakhova, A., The Technological Innovations of Fintech Companies to Ensure the Stability of the Financial System in Pandemic Times, *Mark. Manag. Innov.*, 2022;
- Charfeddine, L., Umlai, M., ICT sector, digitization and environmental sustainability: A systematic review of the literature from 2000 to 2022, *Renew. Sustain. Energy Rev.*, 2023;
- Dzwigol, H., Kwilinski, A., Lyulyov, O., Piompenko, T., Digitalization and Energy in Attaining Sustainable Development: Impact on Energy Consumption, Energy Structure, and Energy Intensity, *MPDI, Energies*, 2024;
- Eurostat, The Digital Economy and Society Index (DESI), 2023, <https://digital-decade-desi.digital-strategy.ec.europa.eu/datasets/desi/charts>;
- Kwilinski, A., E-Commerce and Sustainable Development in the European Union: A Comprehensive Analysis of SDG2, SDG12, and SDG13, *Forum Sci. Oeconomia*, 2023, 11;
- Kwilinski, A., Implementation of Blockchain Technology in Accounting Sphere, *Acad. Account. Financ. Stud. J.*, 2019, 23;
- Kwilinski, A., Lyulyov, O., Pimonenko, T., The Impact of Digital Business on Energy Efficiency in EU Countries, *Information*, 2023, 14;

⁶ A. Kwilinski, *Implementation of Blockchain Technology in Accounting Sphere*, *Acad. Account. Financ. Stud. J.*, 2019, 23, pp. 1-6.

- Lang, V., Lang, V., Digitalisation and digital transformation, in Digital Fluency: Understanding the Basics of Artificial Intelligence, Blockchain Technology, Quantum Computing, and Their Applications for Digital Transformation; Springer: Berlin/Heidelberg, Germany, 2021;
- Rahmanov, F., Mursalov, M., Rosokhata, A., Consumer Behavior in Digital Era: Impact of COVID-19, Mark. Manag. Innov., 2021, 2.