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DIGITAL PAYMENT INDEX HUNGARY 2023

COMPASS IN THE HUNGARIAN ELECTRONIC PAYMENT MARKET

REPORT

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FOREWORD

DIGITALIZATION IN FINANCE: TECHNOLOGICAL DEVELOPMENT IS BOTH A CHALLENGE AND A DRIVING FORCE

In our digitalizing world, transformation and evolution are continuous, and everyone needs to adapt. While the digital transformation of the economy is forcing financial service providers and all players in the ecosystem of digital payments to change gear, we ourselves are acting as engines of this change and evolution as well. In this environment it is more important than ever to understand the processes behind the major market trends and quantify our progress and the challenges ahead of us.

Mastercard brought to life the Digital Payment Index (DPI) more than four years ago to address this need. Its goal was to make the development of the digital financial ecosystem transparent and traceable to market players, regulators, industry followers and all other stakeholders. Now, with the publication of the fourth edition of the DPI, it is worth recalling where we started from.

In 2020, the Hungarian card acceptance network consisted of about one-third as many physical terminals as it does today. The growth in the number of cards tokenized on smartphones was at an early stage, but today we believe it may be a serious driving force for the market. We mentioned the cybersecurity threats associated with digital payments only superficially.

> In retrospect we can conclude: the growth of the Infrastructure, Knowledge and Usage pillars and the subindexes measured from this starting point is almost continuous.

We have to say "almost" because the development trend of digital payments that has been present for years was accompanied by small stagnations of the DPI—all of which have their underlying reasons and significance. All market players should take the results into account so that the entire digital payment ecosystem can develop. As an example, we should focus for a moment on the Knowledge index, the value of which always follows the emergence of new technologies with a delay. However, when it takes root, the publicly and widely available information has a significant incentivizing effect on usage. It can be generally observed internationally that when new payment solutions appear, users need time to catch up with the possibilities in terms of knowledge. Without a doubt, we are in this phase in 2024: an increasingly complex payment infrastructure is at our disposal, but knowledge is still lacking in certain customer segments. Among the strategic tasks of the next period, development of knowledge will be just as important as cybersecurity education.

The pace of progress depends fundamentally on narrowing the gap between the possibilities and the available infrastructure, and how well they are known and used. I am convinced that if the market players and regulators will be able to achieve visible results in this area, it will set new development paths for the entire sector. All this would mean business opportunities for players in the payment ecosystem, faster, more convenient and secure services and transactions for the users, and accelerated growth for the economy. I am confident that the latest Digital Payment Index will contribute to this.

Márkus Gergely
Country Manager responsible for Hungary and Slovenia at Mastercard

INTRODUCTION

Hungarian consumers can choose from a variety of digital payment methods when shopping online and offline. Electronic means for payments have developed significantly and provide a simple and secure alternative to cash. Accelerating the digitalization of payments has been a top priority for both regulators and the industry. The development of more innovative payment solutions is also visible in the market, with room for further improvement. Even though card payments are becoming more common in the Hungarian market, cash remains a significant payment method.

While more and more innovative digital payment solutions have emerged in recent years, what remains most important to consumers are convenience and security.

This longstanding need should stimulate innovation within the industry toward even more secure and easy-to-use payment solutions and help drive their adoption. At the same time, both the European Union (EU) and the Hungarian authorities (e.g., MNB) are implementing policies that enable and promote the use of cashless payments for consumers and businesses. Changing macroeconomic factors and their impact on digital payments is another interesting development. To understand the dynamics of these and other changes and to capture the maturity of the Hungarian payment ecosystem, Mastercard developed a measurement approach in 2020 called the Digital Payment Index (DPI).

The DPI is an annually released index designed to serve as a navigator and to provide a holistic view of the digitalization of consumer payments in Hungary. Given the relative unavailability of such measurements, the Index helps to fill the gap by creating an integrated view across payment rails and enabling a yearly and comparable calculation. It serves as a reference point for the different stakeholders and supports their development and policy decisions by quantifying market development on a scale of 100 in three critical dimensions:

INFRASTRUCTURE

Readiness of the existing infrastructure and its ability to support cashless payments

KNOWLEDGE

Consumers' knowledge and understanding of digital payments, which is required for usage

USAGE

Pattern that shows the adoption of digital and its position against cash

The Index aims to support the local payments ecosystem with actionable insights by leveraging public sources (e.g., Hungarian Central Bank, Hungarian Central Statistical Office, Financial institutions' official websites, etc.), bespoke primary research and Mastercard market expertise.

This report summarizes and interprets the Index results from 2023, taking into account the results from the previous years to identify trends and changes impacting the local market currently and in the future.

THE STUDY IS STRUCTURED AS FOLLOWS:

- Review of Index results for 2023
- Individual pillars are discussed in-depth to provide additional context and insights on the key drivers contributing to the assessment
- Key aspects of the index methodology and the sources used

There is also a section on cybersecurity developments. Although not formally part of the DPI, this topic is highly relevant as digitalization and the attendant cyber risks keep evolving in the payments sector.

SUMMARY OF INDEX RESULTS

In 2023, Hungary's Digital Payment Index reached 62 out of 100 (maximum), marking a one-point increase from the previous year. The Index is composed of three pillars: Infrastructure scored 78 while Knowledge and Usage each scored 54. These sub-indices assess the growth of Hungary's payments market and illustrate the specific advancements in each pillar that contributed to the overall increase from 2022 to 2023 (Mastercard, 2024c).

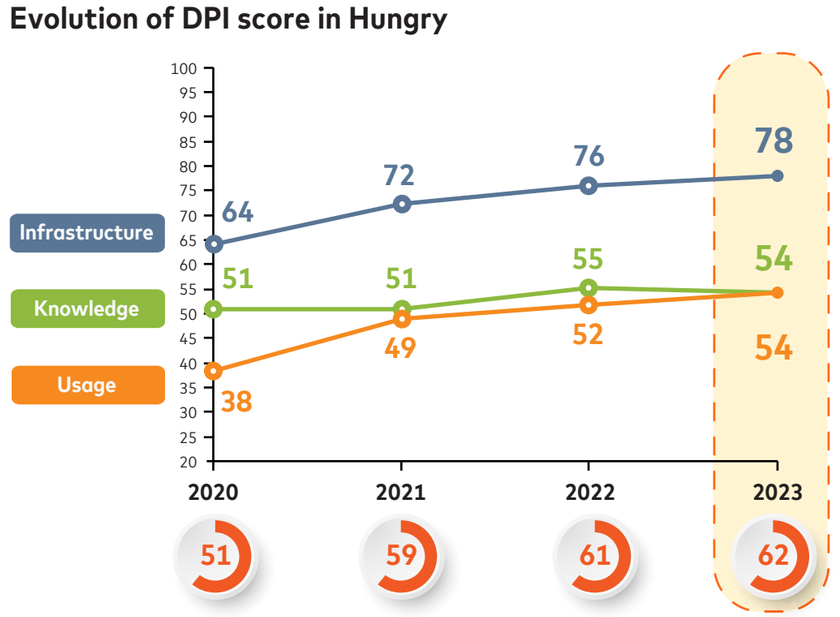


Figure 1: Digital Payment Index results from 2020 to 2023

Hungary's DPI score has risen by 11 points since 2020, as illustrated in Figure 1. This increase stems from advancements across various pillars of the overall index. Infrastructure growth, especially the expansion of acceptance networks and the enhancement of digital payment solutions, has strengthened the cashless infrastructure. There has also been notable growth in the Usage pillar, especially the adoption of digital payment solutions.

However, there remains a noticeable disparity between Hungary's infrastructure supporting digital payments and consumers' awareness of these capabilities. While the Infrastructure and Usage pillars have shown significant progress in recent years, the Knowledge pillar has stagnated; therefore, bridging this gap is crucial to raise consumer awareness and encourage wider adoption of these new solutions.

SUMMARY OF INDEX RESULTS

Infrastructure:
The Infrastructure score stands at 78, reflecting a solid basis for digital payments that has improved by 2 points compared to the previous year. Hungary's cashless infrastructure is already well-developed, but there is further opportunity in terminalization as roughly 50% of merchants in scope still do not accept card payments. These merchants are primarily outside of the retail sector, such as beauty salons or independent professionals (micro-segment). There has been a notable increase in the availability of payment solutions in 2023 (e.g., QR code payments and payment requests), but there is still room to improve certain methods, such as network tokenization.

Knowledge:
The Knowledge pillar score of 54 slightly decreased compared to 2022. The gap between available infrastructure and consumer knowledge has increased over the past years, and willingness to use more innovative methods is still modest. While cash remains the preferred payment method for many, consumer attitudes toward digital payments are gradually evolving. For example, perceptions of the security and convenience of stored credentials and mobile payments have notably increased. However, consumers are generally more cautious about innovative solutions, presumably due to rising fraud cases. To enhance user awareness, comprehensive educational campaigns are necessary. A particular emphasis could be placed on reaching underserved segments of the population, including those at lower education and income levels.

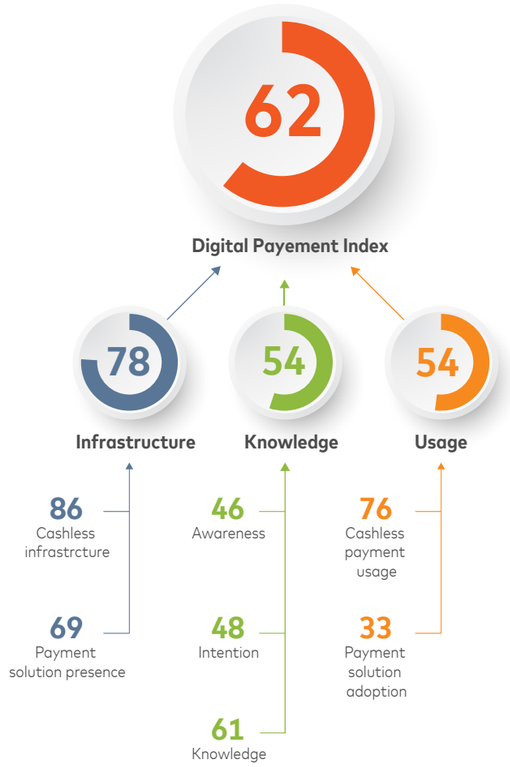
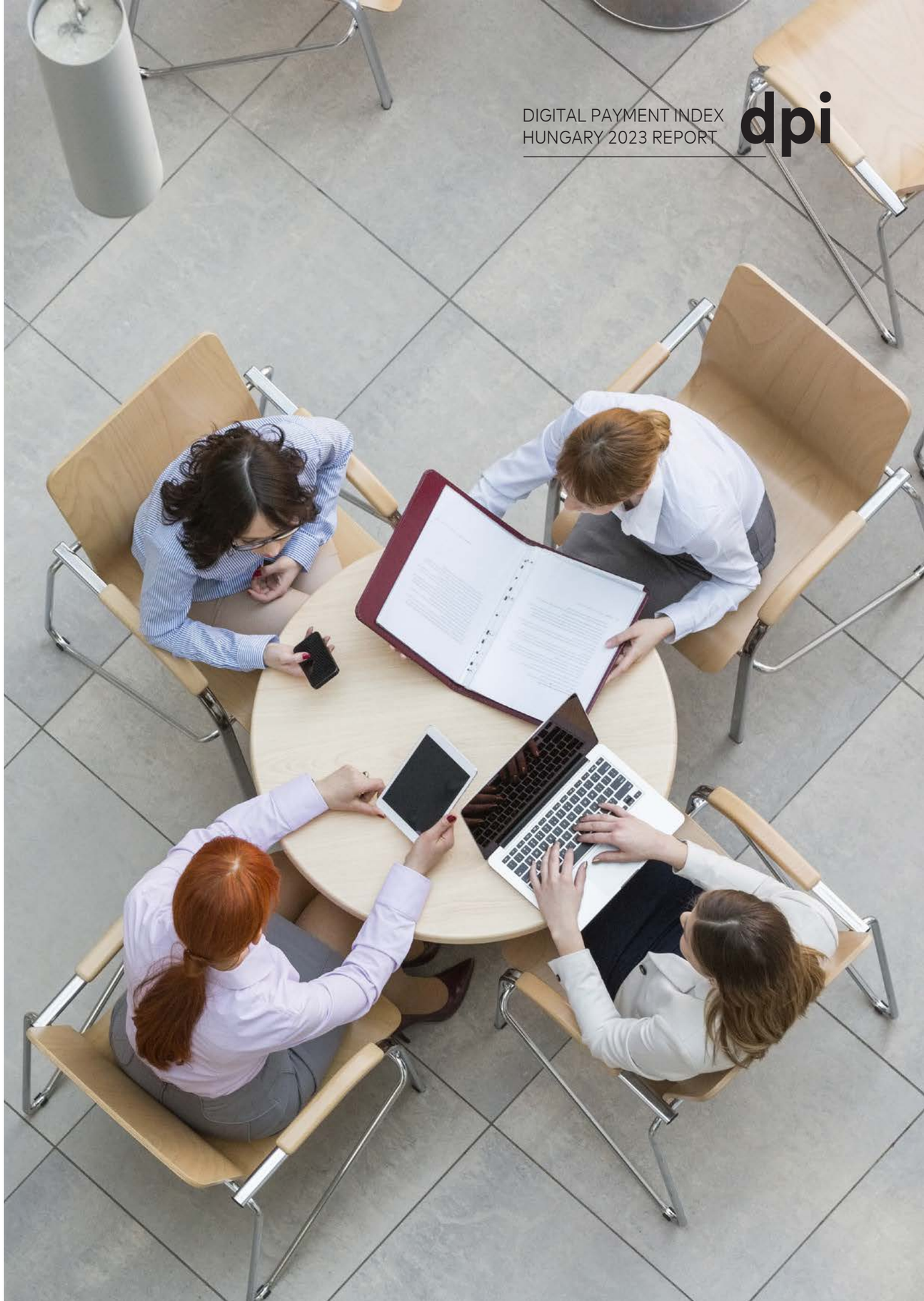


Figure 2:
Summary of Index structure and 2023 results

Usage:
The Usage pillar increased by 2 points from 2022 to 2023, reaching 54. Several factors have positively influenced Usage, including the increasing adoption of digital payment solutions like mobile wallets and stored credentials. Card purchases have overtaken ATM withdrawals, but cash payments remain highly significant (MNB, 2024). Approximately 20% of the population still get some of their income in cash, and 10% receive all of it in cash. Among those who receive some or all of their income digitally, 80% withdraw portion of their income. Consequently, only 20% of adults currently rely exclusively on digital payment. Despite the significant growth potential, the rise in fraud cases and attempts can potentially hinder the further adoption of digital payments.

The Infrastructure pillar is anticipated to grow as the regulatory deadlines for Hungary's Instant Payment System approach (AFR 2.0) (Fintechzone.hu, 2023). Efforts by local regulators to address consumer perceptions of digital payments will be critical in driving the Knowledge pillar's development. Cash remains a major payment method in Hungary, but the use of digital payment methods is expected to rise as they become more widely available and established in coming years. However, significant adoption is contingent upon concurrent efforts to educate consumers about these methods (Mastercard, 2024c).



KEY TAKEAWAYS

INFRASTRUCTURE

The Infrastructure pillar has grown significantly in recent years, with its score rising from 64 in 2020 to **78 in 2023.** This year's growth was primarily driven by the wider accessibility of digital payment methods.

While there is still potential for further improvement, this positive performance has advanced Hungary's digital landscape by empowering consumers to leverage a broader range of digital payment solutions.

CASHLESS INFRASTRUCTURE

This component, which measures the spread of core cashless payment rails, scored 86, maintaining the high level achieved last year. The number of bank accounts in Hungary saw a slight increase, with Hungarian adults holding nearly 11 million accounts (MNB, 2024).

Both account and card numbers exceed the adult population, as nearly everyone has access to digital payments. On average every adult has 1.1 cards (MNB, 2024); however, this still lags the EU average of 2.8 cards per adult (Mastercard, 2024c).

Hungary's POS terminal network has witnessed impressive growth, expanding by 73% since 2018 (Mastercard, 2024c). However, this trend appears to be decelerating in recent years. The increase of the terminalization rate has also slowed, suggesting a potential saturation point among merchants actively seeking card acceptance capabilities. However, a terminalization rate of 46% indicates that roughly half of businesses in scope still lack the infrastructure to accept card payments. A significant untapped market exists among micro-merchants and self-employed professionals, such as beauty salons, private tutors and professionals (e.g., plumbers and electricians). SoftPOS — a solution that turns smartphones with NFC capability into a POS terminal — offers a convenient and cost-effective way for such merchants to access the digital payment ecosystem. Although most acquirers offer SoftPOS, overall adoption rates remain low. More extensive communication about its benefits can potentially increase adoption, especially among micro-merchants.

DIGITAL PAYMENT SOLUTION PRESENCE

The second component, the availability of payment solutions built on account-to-account and card-based rails, scored 69 in 2023, compared to 66 in 2022. The main growth drivers of the Infrastructure pillar were the increasing accessibility of QR code payment, payment request and wearable payments.

In response to the regulatory deadline of AFR 2.0 (April 1, 2024), all commercial banks implemented payment request functionality by the end of 2023. The market-wide availability of payment requests presents an opportunity to accelerate the digitalization of payments in traditionally paper-based industries (e.g. utility service providers). QR code payment enablement also increased as more acquirers started offering the solution.

A growing number of institutions leverage QR codes for account-to-account payments, and this is expected to accelerate further. Effective September 2024, all payment service providers in Hungary will be mandated to offer infrastructure for accepting QR code, NFC, and deep link payments, facilitating the nationwide growth of the Instant Payment System.

While all commercial banks already offered wallet payments in 2022, the integration of Google Pay by OTP Bank and MBH Bank further increased the wallet enablement, potentially driving broader consumer interest and usage. 2023 marked an expansion in wearable payment accessibility for cardholders as major issuers started to support Mi-Pay™, Fitbit Pay™ and Garmin Pay™. However, further expansion is necessary to fully unlock the potential of wearable payments.

Although stored credentials enablement increased notably in the past two years, network tokenization did not advance its market penetration. Both stored credentials and network tokenization offer the convenience of eliminating the need to enter card details repeatedly. However, network tokenization provides a critical security advantage. It replaces sensitive card data with an encrypted token, significantly reducing the risk of fraud. Given that all issuing banks already support network tokenization, the opportunity for improvement lies primarily with acquirer adoption.

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KEY TAKEAWAYS

KNOWLEDGE

This chapter is based on external consumer research focusing on the digital payment habits of Hungarian adults.

> The Knowledge pillar scored **54 in 2023,** presenting the greatest improvement challenge. The pillar's modest increase from 51 in 2020 suggests that progress in knowledge acquisition has stagnated in recent years (Mastercard, 2023a).

Awareness scored 46 in both 2022 and 2023, while intention dropped by 1 percentage point to 48. The objective knowledge component, measured through a quiz, slightly decreased from last year's score of 63 to 61 in 2023, which is insignificant statistically.

AWARENESS

Since the first Digital Payment Index in 2020, Hungarian consumers have maintained a decent level of awareness about payment alternatives. However, this awareness often does not translate into interest in using new solutions. In 2023, consumers' ability to link specific payment solutions with their providers did not increase.

This stagnation may be due to the introduction of new, innovative payment methods (e.g., direct pay with QR code or via provided link) and brands (K&H digital SZÉP card, zen.com, Budapest Pay&Go), making it difficult for consumers to differentiate between solutions in an increasingly crowded marketplace (Mastercard, 2024a). Awareness of digital payment methods is twice as high as awareness of the different brands offering these services, indicating a gap in brand recognition within the market.

Revolut's awareness has increased, which can be explained by the growing number of users. The number of retail customers surged by 45% in 2023, and this growth continues. By the end of 2023, Revolut had 1.2 million customers in Hungary, who, according to payment data, use their Revolut accounts for far more than just foreign travel. By the end of the year, the company expects to have 1.5 million customers in Hungary (Portfolio, 2024).

INTENTION

> While cash remained the frontrunner in perceived security and convenience, the gap between cash and digital payment methods has narrowed.

For example, physical card payments and digital wallet payments have shown significant progress in terms of user perception. Furthermore, the increased perceived security and convenience of mobile wallet payments and stored credentials have led to their growing use among Hungarian consumers, potentially presenting an alternative for traditional card payment methods.

Installments and cryptocurrency payments were among the least used methods, with low ratings for security and convenience. A potential explanation for the limited use of innovative methods could be a general resistance among Hungarian users to embrace new payment technologies (Mastercard, 2024a).

KEY TAKEAWAYS

KNOWLEDGE

OBJECTIVE KNOWLEDGE

As anticipated, adults with higher education and economic status performed better on the knowledge quiz, while those with lower education and below-average income levels demonstrated relatively low knowledge of digital payment methods. Respondents aged 30-49 achieved the highest scores on the quiz. Respondents showed the most knowledge about card-related questions, as these options have been available for a long time. There was an increase in respondents familiar with the specifics of instant payments, although an educational gap remains regarding its functionality. Consumers are significantly more comfortable handling lost or stolen cards than responding to fraudulent activities. Despite the slightly lower quiz scores compared to last year, consumers retain the necessary knowledge for the broader adoption of mobile payment solutions, such as mobile wallets (Mastercard, 2024a).

The gap between individuals with higher education and high incomes and those with below-average education and incomes is widening. It is important to pay attention to this growing disparity and consider launching educational campaigns targeted at the broader population. Such initiatives could help to address the differences in financial literacy and access to opportunities, ultimately contributing to a more equitable distribution of knowledge and resources. By focusing on education and supporting underprivileged groups, it is possible to bridge this gap and promote greater financial inclusion.

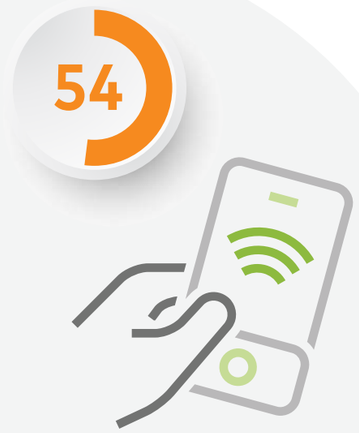
While existing infrastructure facilitates a variety of digital payment methods, user awareness lags. Educational initiatives are essential to bridge this gap; however it may take several years for public perception to align fully with the advancements in the payment infrastructure. Furthermore, current educational efforts often focus on students through schools and universities, neglecting a significant portion of the adult population. To ensure widespread awareness and accelerate adoption, more extensive education is needed, especially for individuals with less formal schooling.

KEY TAKEAWAYS

USAGE

In **2023**, the Usage pillar scored **54 points,** a 2-point increase from 2022. This result indicates a gradual evolution in the market while highlighting the substantial room for growth in usage.

However, the continuing popularity of cash among consumers affects the scalability of digital methods. There is a significant disparity between the two components of the pillar: while cashless payment adoption is strong at 76 points, the adoption rate of digital payment solutions, although increasing by 4 points compared to 2022, is still relatively low at 33 points.



CASHLESS PAYMENT ADOPTION

In 2023, the cashless payment adoption component maintained its score of 76, underscoring a robust and stable foundation in the local market for utilizing cashless payment solutions. Similarly to 2022, Hungarian cardholders predominantly used their payment cards for digital payments rather than cash withdrawals, highlighting a pivotal aspect of digital payment infrastructure. Specifically, card-cash volume penetration (proportion of total card payment volume compared to ATM withdrawal volume) reached 62%, up from 56% the previous year. However, ATM withdrawals still account for 38% of transactions (MNB, 2024).

An essential facilitator of digital payments is receiving income directly into bank accounts. According to the survey, 71% of participants receive their entire income via bank transfer, which enables direct utilization of digital payment options. However, a sizeable segment of people receive their total or partial income in cash. Furthermore, the percentage of those who exclusively spend through digital means decreased by 3 points to 20% in 2022, indicating that while nearly three out of four Hungarians receive their entire income via bank transfer, only one out of five of the respondents spend it entirely digitally (Mastercard, 2024a).

KEY TAKEAWAYS

USAGE

ADOPTION OF PAYMENT SOLUTIONS

This component achieved a score of 33 out of 100, a 4-point improvement compared to 2022. This component offers insights into the usage of digital payment solutions that leverage the cashless infrastructure described earlier. It sheds light on the current state and usage levels of innovative payment methods, providing an overview of their adoption.

Two critical components in the Hungarian market remain robust. The rate of digitalized bank transfers (the percentage of transfers initiated digitally) was 90%, and the adoption of contactless payments rose to 99%. Each registered a 1-point increase from 2022 (MNB, 2024). This indicates strong consumer demand for convenient digital payment solutions that are already well-established. Conversely, the adoption levels of innovative payment solutions like installment payments and QR code payments remain low and require enhancement.

The adoption of mobile wallets is on the rise, increasing by 6 percentage points over 2023, suggesting that consumers are becoming more aware of the solution's functionalities (Financial institutions' official websites, 2024; Mastercard, 2024c).

Installment payments, both online and offline, did not experience significant adoption growth in 2023, reaching 8%, only a 1-point increase from last year (Mastercard, 2024a).

Stored credentials remain widely utilized for online payments, with nearly four out of five cardholders storing their card details on merchant websites (Mastercard, 2024c). However, the usage of network tokenization, which offers enhanced security through encryption, remains limited. The low adoption rates are mainly due to the limited number of acquirers supporting this solution for their merchants. This underscores the importance of expanding support and accessibility for these solutions in the Hungarian market to enhance the safety and security of online payments.

INFRASTRUCTURE

1.1 DEFINITIONS AND OBJECTIVES

Infrastructure, the first pillar of the Digital Payment Index, provides an assessment of the current state of the electronic payments system, including both payment methods and acceptance solutions.

First, the Infrastructure pillar introduces products and technologies available in the market — both well-established and innovative. Second, it explores the development of these solutions. For instance, payment cards, payment accounts, and traditional POS terminals are considered mainstream payment enablers. On the other hand, tokenized cards that are digitalized in mobile wallets, installment payments, peer-to-peer payments, account-based real-time payments, and software-based POS terminals are viewed as innovative solutions. The Infrastructure pillar also covers payment solutions that have yet to land on the market but may have considerable potential to promote digital payments upon their introduction. This overview utilized public statistics and reports (e.g., MNB, Eurostat), along with Mastercard data and insights.

The primary objective of this pillar is to demonstrate the infrastructural and technological basis that enables digital payments in the country. This section provides insights into such questions as:

- Which cashless payment enablers are present in Hungary?
- How developed are these payment rails within the country?
- How available are payment solutions in the market?

This pillar is composed of two main components: cashless infrastructure and payment solution presence. The former captures the breadth of core cashless payment rails, covering both account-to-account and card-based payments, while the latter introduces the various solutions that are built on top of this infrastructure.

INFRASTRUCTURE

1.2 SUB-INDEX RESULTS

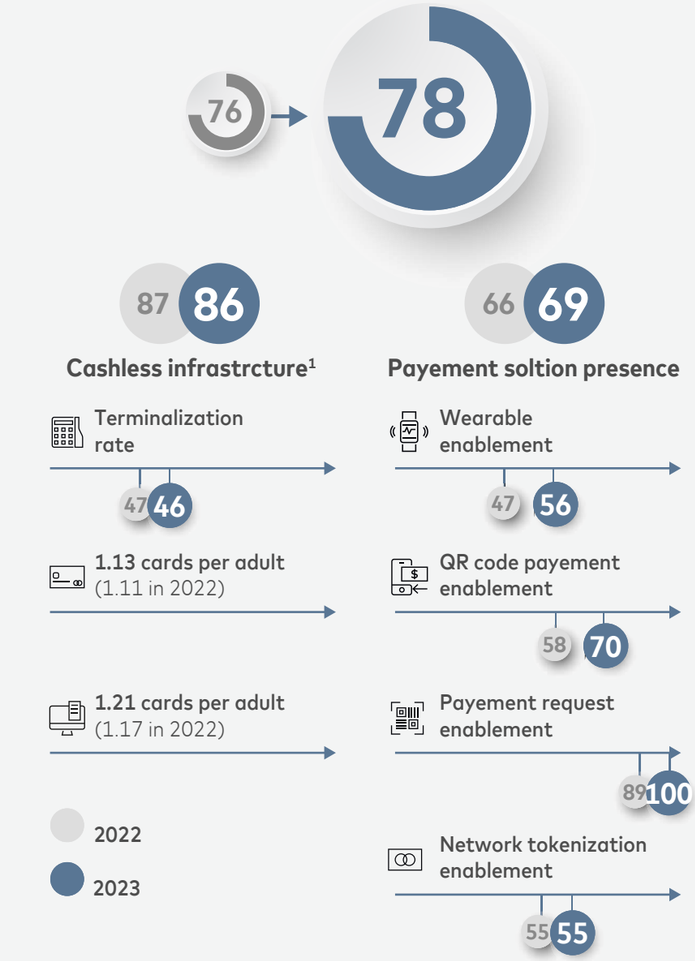


Figure 3: Overview of digital payment infrastructure, 2023

The Infrastructure pillar increased from 76 in 2022 to 78 in 2023, showing a continuous positive trend in Hungary's digital payment landscape (Figure 3.).

The improved infrastructure provides opportunities for wider adoption of digital payments among Hungarian consumers. The cashless infrastructure score of 86 remains positive, reflecting the continued strength of the existing account-to-account infrastructure and card payments network. Account penetration and card penetration have increased, with each adult in Hungary having more than one card and digital account on average (MNB, 2024). The minor, one-point decline from last year's score is attributed to a modest reduction in the terminalization rate (Mastercard, 2024c).

Payment solution presence, the second component of the Infrastructure pillar, increased from 66 in 2022 to 69 in 2023, exhibiting ongoing progress in the availability of payment methods as the component rose by 9 points since 2021. Regulatory efforts were among the main drivers of this year's advancement. Due to the regulation AFR 2.0, commercial banks have proactively made account-to-account solutions such as payment request and QR code payments available, broadening the Hungarian instant payment landscape.

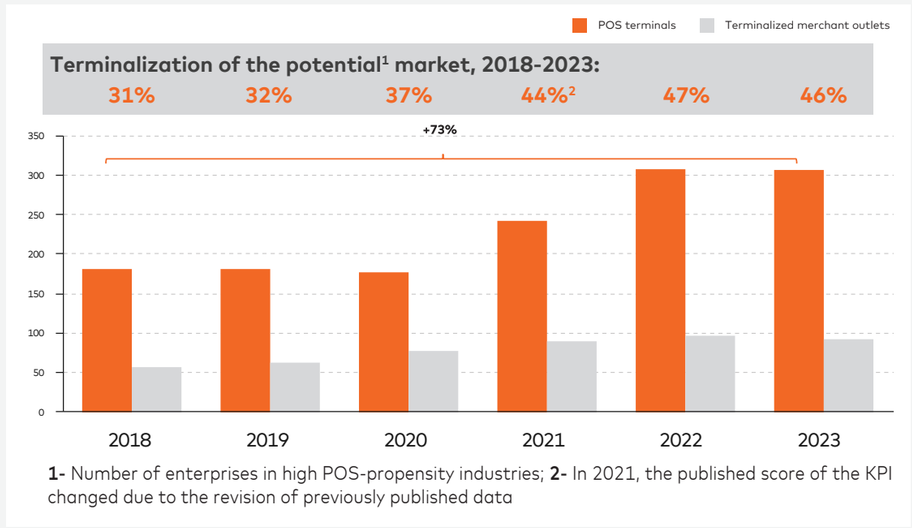
Wearable presence also accounted for the growth of the sub-index score. The inclusion of major wearable wallet service providers (e.g., Mi-Pay™, Garmin Pay™) by OTP and Erste Bank is anticipated to increase adoption. (Financial institutions' official websites, 2023).

The Hungarian digital payments infrastructure enables a wide range of market players to develop innovative solutions. With over 90% coverage of contactless cards, issuers and acquirers are well-positioned to streamline the payment experience (MNB, 2024). Furthermore, the supportive stance of governmental authorities creates fertile ground for the further scaling of account-to-account solutions.

INFRASTRUCTURE

CASHLESS INFRASTRUCTURE INSIGHTS

Both account penetration and card penetration increased slightly from 2022 to 2023. The number of cards and accounts has surpassed the adult population; nearly all adults have access to digital payments.



1- Number of enterprises in high POS-propensity industries; **2-** In 2021, the published score of the KPI changed due to the revision of previously published data

Figure 4. The number of POS terminals and terminalized merchants 2018-2023

The well-established infrastructure provides access to a wide range of payment methods for a broad customer base, enabling users to choose the most suitable method for their needs.

INFRASTRUCTURE

As Figure 4 shows, the number of POS terminals has grown impressively since 2018 to 73%, but this expansion has moderated in recent years. The growth of the terminalization rate slowed as the market for digital payment acceptance appears saturated among those actively seeking such capabilities

> The terminalization rate of 46% indicates room for improvement as approximately half of the merchants in scope are still unable to process card payments. Micro-merchants and self-employed professionals (e.g., beauty salons, private tutors, etc.) represent a significant untapped market (Mastercard, 2024c).

For merchants currently excluded from the digital payment space, mobile-based terminals such as mPOS and SoftPOS could serve as reasonable acceptance methods. SoftPOS, a technology that transforms smartphones into payment terminals, is now offered by most payment acquirers in Hungary; however, adoption rates remain low. While delivery services have shown the highest adoption, significant potential exists for micro-merchants as well. However, bridging the educational and communication gap is the crucial factor in driving wider adoption (Financial institutions' official websites, Mastercard, 2024c).

[1]Terminalization rate is measured by the number of merchants with POS terminals, including online merchants acquired by cross-border acquirers divided by the potential market.

INFRASTRUCTURE

SHARE OF LOCAL PLAYERS THAT MADE PAYMENT SOLUTIONS AVAILABLE

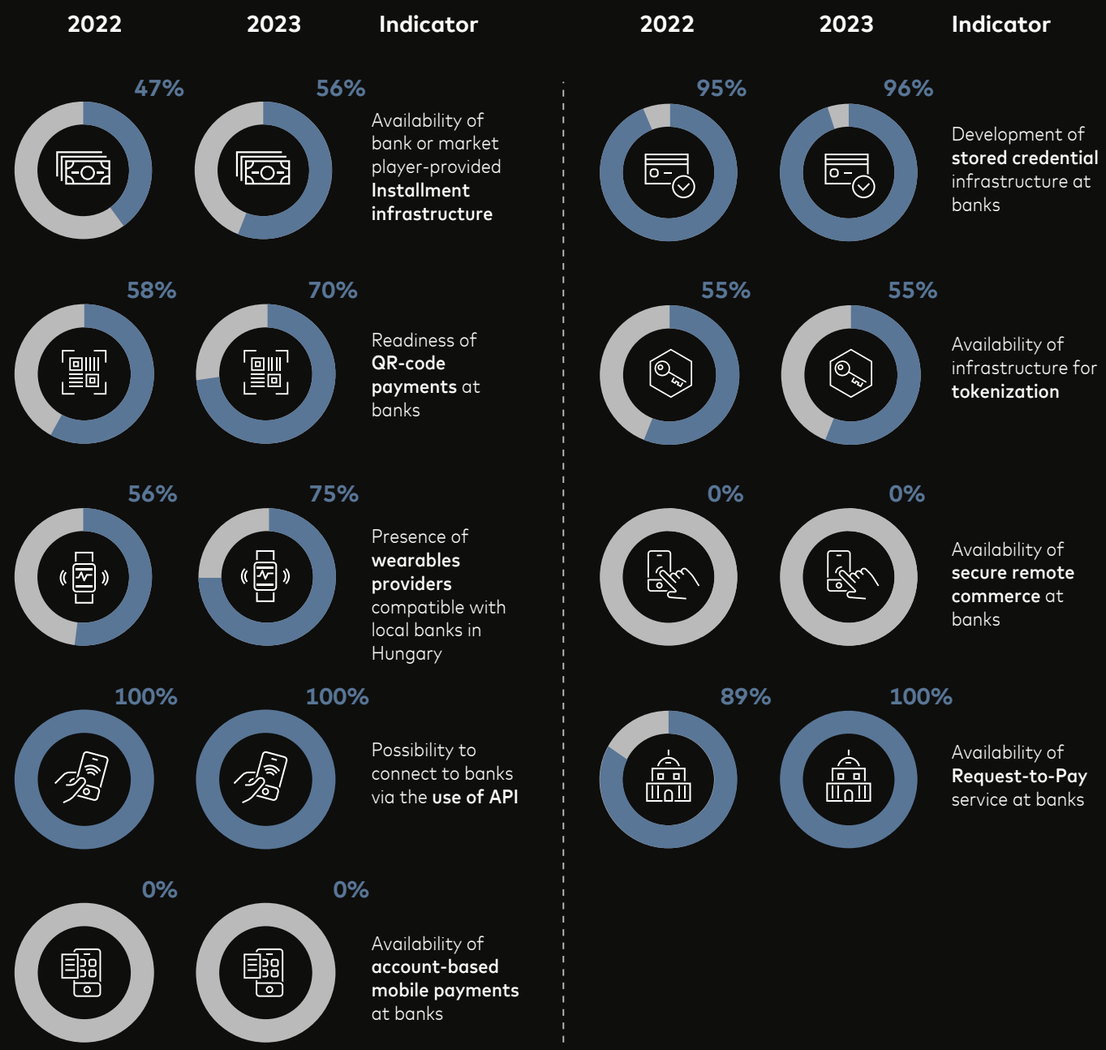


Figure 5: Summary of payment solution presence

INFRASTRUCTURE

The key trends in the evolution of Hungarian payment solutions are illustrated in Figure 5. The development reflects the dynamic evolution of the payments landscape, driven by technological advancements and the proactive efforts of local market players and regulators. For example, the Hungarian Central Bank's regulation package AFR 2.0, effective April 1, 2024, requires all commercial banks to offer payment request as an integrated feature within their instant payment services. The development of this initiative was driven by regulators, while the technical implementation is the responsibility of financial institutions (MNB, 2024).

The ratio of digital transfers has steadily grown, reaching 90% in 2023 (MNB, 2024). However, paper-based transfers still account for 10% of transactions, indicating the need for continued efforts to promote digital adoption. In September 2023, the Hungarian Central Bank doubled the maximum limit of instant transfers from 10 million HUF to 20 million HUF, providing greater convenience for businesses and individuals engaging in high-value transfers (Fintechzone.hu, 2023).

> Effective April 2024, the Hungarian Central Bank mandated that all commercial banks offer payment request functionality to their customers.

In 2022, 90% of Hungarian banks offered the solution, but in response to the regulatory deadline, all commercial banks made payment request available by the end of 2023 (MNB, 2024). While payment request has the potential to be a convenient alternative to current invoice issuance solutions for all businesses, it can also serve as powerful tool for streamlining transactions within the e-commerce landscape. Businesses can also leverage secondary customer identifiers (e.g., email, phone number) to facilitate secure payment requests. For instance, an online shop can send a payment request to the customer's registered email address upon checkout. This approach enhances the customer experience by eliminating the need for manual form completion and expediting the checkout process (Portfolio, 2024).

QR code enablement increased significantly, with 70% of institutions offering the solution in 2023. The increase was observed on the acceptance side, as a wider range of acquirers could receive payments with QR codes. In terms of account-to-account payments, OTP Bank (Simple app), Raiffeisen Bank (through Scan&Go) and Erste Bank (George app) are the sole providers of instant QR code payment acceptance (Financial institutions' official websites, 2024). However, this landscape is anticipated to shift with the implementation of the new AFR 2.0 standard, as all payment service providers have to provide the infrastructure to accept QR code, NFC, and deeplink payments (Fintechzone.hu, 2023). The regulation will necessitate adjustments to QR code generation protocols, so traditional banks may need to phase out their existing methods to ensure compliance with the upcoming regulations (Mastercard, 2024c).

INFRASTRUCTURE

> As of 2023, nearly all payment cards issued in the country were equipped for contactless transactions, enabling a smoother and faster checkout experience for a wide range of customers. The penetration of contactless terminals has reached 97%, laying the groundwork for the seamless integration of innovative solutions such as mobile wallets, wearables, SoftPOS and other NFC-based technologies (Mastercard, 2024c, Fintechzone.hu, 2023).

The Hungarian landscape for P2P payments is well-developed. A variety of solutions is offered by established international bank-agnostic providers such as Wise or PayPal. Bill splitting and instant money transfers are also available from players such as Revolut. The neobank has an established market presence in Hungary with the number of registered users exceeding 1.2 million as of December 2023 (Fintechzone.hu, 2024).

The Installment enablement score increased from 44 to 56 as a growing number of institutions offered the solution on both the issuing and acquiring sides. Consumer access to "buy now, pay later" (BNPL) options increased with the entry of Klarna, the fourth player alongside existing providers in the Hungarian market: IzzyPay, PastPay and InstaCash. BNPL services allow consumers to split their purchases into installments, often interest-free, as a convenient way to manage larger or unexpected expenses. In 2023, 8% of the Hungarian adult population used BNPL; the entry of major players like Klarna, coupled with increased consumer education, could boost domestic BNPL adoption (Portfolio, 2023, Mastercard Trends, 2023).

The Hungarian open banking landscape remained stable over the past year, with the number of available APIs exceeding 30 and API aggregators surpassing 40 (Open Banking Tracker, 2024). Open banking leverages Application Programming Interfaces (APIs) to securely share customer financial data with authorized third-party providers. This empowers customers with greater control and facilitates the development of innovative financial products and services (Mastercard, 2024). While the Payment Services Directive 2 (PSD2) mandates that banks within the EU provide APIs, their ability to fully serve user needs remains a topic of discussion. In recognition of areas for improvement, the EU has initiated a review of the PSD2 and started preparing a new directive (PSD3).

> A developed open banking market can streamline the online distribution of financial products, enhance risk assessment for BNPL solutions, and expedite the loan application process, among other benefits (Fintechzone.hu, 2023).

Mastercard Open Banking Connect helps third-party providers by reducing the complexity of connecting to multiple financial institutions. The platform provides access to a variety of APIs from more than 60 leading European banks, enabling third-party providers to bring alternative payment options to customers (Mastercard Open Banking Connect, 2024).

INFRASTRUCTURE

The number of solutions leveraging open banking technology is continuously increasing. For example, Mastercard Smart Subscriptions utilizes APIs to empower consumers with centralized subscription management, fostering both convenience and financial control. The platform aggregates data from various financial institutions, providing users with a holistic view of all their active subscriptions in a single hub. The service is currently available in the U.S. but is expected to arrive in other markets in 2024 (Fintechzone.hu, 2024).

> Both stored credentials and network tokenization enablement eliminate the need to enter card details repeatedly during purchases, increasing user convenience. However, network tokenization offers a significant security advantage.

During the initial transaction, sensitive information is replaced with a secure, encrypted token, eliminating the need to store actual card data within the system. This reduces the risk of exposure in the event of a data breach. Since security and convenience are the most important factors for customers when making payments, network tokenization offers a clear benefit by addressing these essential needs. Despite the widespread availability of stored credentials, network tokenization has lower market penetration, with roughly half of the institutions utilizing the solution. As all issuing banks currently support network tokenization, the opportunity for improvement lies with acquirer adoption (Financial institutions' official websites, 2024, Mastercard, 2024c).

> Mobile payments were among the main growth drivers of the Infrastructure pillar. As Figure 5 shows, wallet solutions are widely available in Hungary, with all issuer banks enabling at least one mobile wallet provider in 2023.

While Apple Pay® was already supported by all issuers in 2022, Google Pay™ gained significant presence in 2023 as major domestic issuers OTP Bank and MBH Bank started to support it. This expansion in Google Pay availability could be a critical step towards increased mobile wallet adoption. The wearable enablement index score also increased from 56 in 2022 to 75 in 2023, with cardholders experiencing a notable expansion in accessibility. The growing availability of alternative mobile wallets like Mi-Pay, Fitbit Pay and Garmin Pay by Hungarian banks reflects a response to consumer demand for convenient payment solutions (Financial institutions' official websites, 2024, Mastercard, 2024c).

Share of institutions offering wallet and wearable solutions

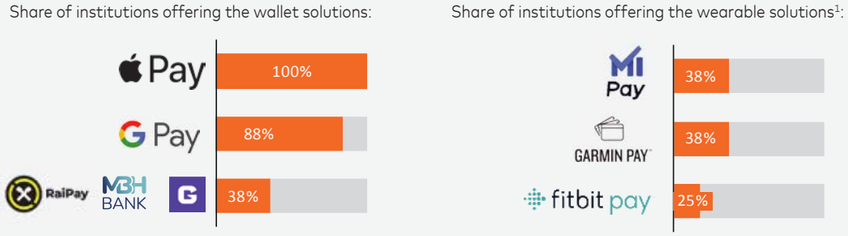


Figure 6. Share of Hungarian issuers offering wallet and wearable solutions

Source: Mastercard, Expert interviews
Note: 1. Google Pay and Apple Pay are also considered when looking at wearable enablement for the market

INFRASTRUCTURE

1.3 FUTURE OUTLOOK

> In 2023, the development of Hungary's payment infrastructure saw continued improvement. Innovative digital payments are becoming more widespread in numerous sectors, providing opportunities for further adoption of digital solutions.

Regarding physical acceptance, the network of next-generation POS terminals is expected to grow, with a trend towards specialization for specific industries. For example, the SoftPOS infrastructure has great growth potential, especially among micro-merchants (Fintechzone.hu, 2023). Online payment acceptance has seen a significant rise, with a 20% increase in merchants adopting online payment solutions. This trend is expected to continue in the coming years, reflecting the growth of e-commerce (MNB, 2024).

Consumers' growing demand for seamless payment experiences is driving the need for even more convenient solutions. Thus, industry players are likely to focus on expanding mobile wallet options, including wearable and digital card technologies. The landscape has seen a significant boost in wearable accessibility with the support of issuer banks. The anticipated expansion of wearable wallet payments, driven by a growing number of issuers enabling this functionality, could further increase the adoption rate. Mobile-based digital cards leverage tokenization technology, replacing sensitive card details with unique tokens. The widespread adoption of instant digital card issuance promises to enhance both convenience and security for consumers (Fintechzone.hu, 2023).

The Mastercard online checkout solution Click to Pay also addresses consumers' demand for security and convenience. Users only have to enter their card details once and this data is stored in a secure, tokenized form on the Mastercard central network. During subsequent purchases, users can pay by simply selecting the Click to Pay icon on several-e-commerce platforms, eliminating the need to repeatedly enter their card information.Click to Pay is available in various countries and will launch in Hungary in 2025 (Mastercard Click to pay, 2024).

AFR 2.0 has significant potential to transform digital payments in Hungary. As part of MNB's regulatory package, payment requests became mandatory from April 1, 2024 for all banks operating in Hungary.

> The market-wide availability of payment requests presents an opportunity to accelerate the digitalization of payments in traditionally paper-based industries, such as utility service providers (Fintechzone.hu, 2024).

By September 1, 2024, all customers can initiate instant transfers in multiple ways (QR code, deep links NFC). Instant payment services will operate under the Qvik brand name, and the MNB will launch an educational and branding campaign in 2024 to promote awareness. The Qvik payment solution will be available initially to users of SimplePay, a payment service of OTP Mobil (Portfolio, 2024). The extent to which Hungarian users embrace these instant payment solutions and their willingness to transition from card payments in everyday transactions remains to be seen (MNB, 2024).

While the implementation of the Second Payment Services Directive (PSD2) has brought about several positive changes in the European financial landscape, it has not fully met all the initial goals of the policymakers. Due to their conflicting interests, incumbent banks often impede third-party service providers' access to customer data, hindering the widespread adoption of open banking. The European Union plans to revise its directive and create PSD3, which will focus on three main areas: mitigation of customer harm resulting from fraudulent transactions, enhancing the security of electronic payments, and fostering competition by promoting open banking (MNB, 2024).

KNOWLEDGE

2.1 DEFINITION AND OBJECTIVES

The Knowledge Index pillar aims to assess consumers' inclination towards digital payments and provide insights into their awareness of available payment methods.

This chapter is based on external consumer research focusing on the digital payment habits of Hungarian adults (Mastercard, 2024a). The findings and conclusions drawn are valuable for a wide spectrum of industry stakeholders. Understanding current levels of consumer knowledge can assist stakeholders in effectively educating consumers and identifying strategies to enhance awareness and trust in various digital payment solutions and providers. Simultaneously, comprehending consumer attitudes towards digital payments enables financial services providers to innovate and introduce new solutions that align with consumer expectations.

> This pillar categorizes consumer knowledge into three key components: general awareness of digital payment methods, intention to use them, and objective knowledge of using cashless payments.

It evaluates consumers' understanding of diverse payment methods such as mobile, QR-code or instant payments. Additionally, it examines their familiarity with specific service providers, perceptions regarding the convenience and security of payment alternatives, and levels of trust in these systems.

KNOWLEDGE

2.2 SUB-INDEX RESULTS

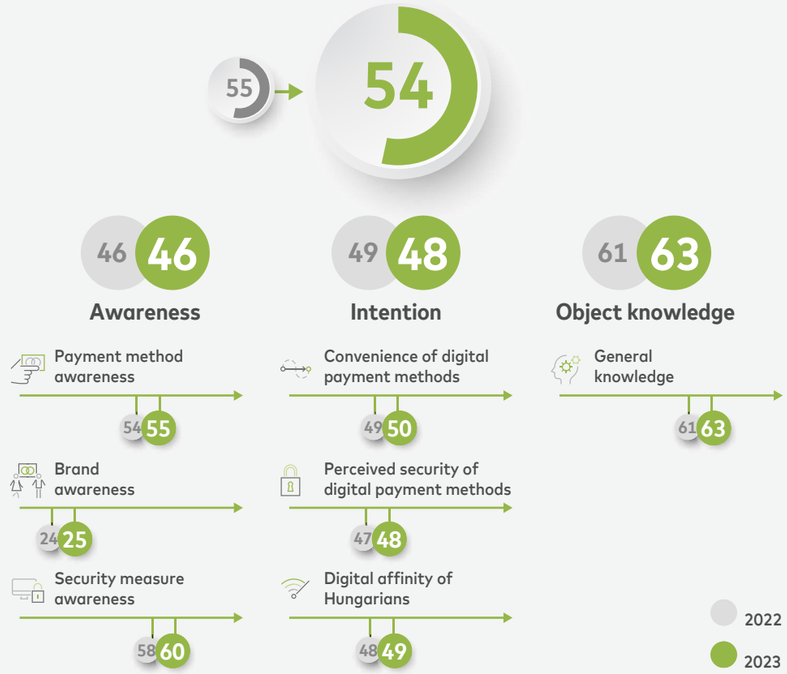


Figure 7: Overview of knowledge of digital payment methods, 2023

> The Knowledge pillar, scoring 54 in 2023, presents the greatest challenge for improvement (Figure 7). The pillar's modest increase from 51 since 2020 suggests that progress in knowledge acquisition has stagnated in recent years.

KNOWLEDGE

A gap persists between the knowledge about digital solutions and infrastructural readiness in Hungary. There is room for improvement in consumer understanding of various digital payment solutions and brands with diverse offerings. Generally, affluent individuals with a university education exhibited more confident knowledge and performed above average in most dimensions of the Knowledge pillar. Conversely, older adults and those with lower education levels were less knowledgeable about digital payments. Additionally, Hungarians who receive a significant portion of their income in cash knew less about digital methods, whereas those who shop online more frequently scored significantly higher.

The result of the Awareness component remained unchanged from last year, scoring 46. This stagnation may be attributed to the inclusion of new and innovative payment options within the survey methods (e.g., direct pay with QR code, payment via provided link, Budapest Pay&Go service), making it challenging for consumers to differentiate between solutions (Mastercard, 2024a). Awareness of digital payment methods is nearly twice as high as that of different brands offering these services. Brand awareness scored only 25 points, a 1 percentage-point increase from last year.

The Intention component, reflecting consumer perception of digital payments, has shown a slight decline of 1 percentage point compared to last year.This may be linked to the reported rise in cybercrime incidents within Hungary. Notably, successful scam incidents in the country increased by 18% in 2023, which may have contributed to the small shift in perceived security (MNB, 2024). While cash remains the favored payment method, the gap in perceived security and convenience between digital payments and cash has narrowed in recent years. The younger generation views contactless card payments nearly as convenient and secure as cash transactions. Respondents aged 30-49 strongly favor digital payments due to their perceived security. In contrast, the older generation prefers established payment methods like physical card payments, digital transfers and cash (Mastercard, 2024a).

KNOWLEDGE

Despite a notable improvement from 51 in 2020 to 61 in 2023, the Objective Knowledge component score dipped slightly from last year's score of 63 (Mastercard, 2024a). The main reason is that those with lower incomes performed worse this year. However, a 2 percentage-point decrease in the digital payment quiz is statistically insignificant overall. Demographic groups with higher levels of education (such as those who have completed a university degree) scored notably higher, highlighting a positive correlation between education level and knowledge of payment products. Another significant factor influencing higher scores was monthly income; individuals earning at least 500,000 HUF (net) per month achieved significantly higher scores on the knowledge assessment. Therefore, younger individuals (aged 18-29) who are not currently enrolled in higher education and are earning relatively low salaries represent a vulnerable segment of the population and could benefit from targeted financial education initiatives. Similarly, older individuals with lower educational backgrounds also present another potential target group for such educational efforts.

In summary, there is a stagnation in knowledge and understanding of various digital payment options. Awareness regarding digital payments is lagging behind the existing infrastructure. While customer education initiatives are crucial for raising awareness, it is a long-term process. It may take several years before public perception fully catches up to the advancements in digital payment infrastructure. Furthermore, current educational campaigns primarily target students (e.g., through schools and universities), neglecting a significant portion of the population. To ensure better awareness and thus accelerate adoption, a nationwide, centralized educational campaign is needed. This campaign should target a broad audience, with a particular emphasis on individuals with lower levels of formal education.

KNOWLEDGE

AWARENESS COMPONENT INSIGHT

Awareness, which achieved a score of 46, indicates the level of understanding and familiarity users have with the payment landscape, including general awareness of various payment methods, specific providers and security measures related to payments (Mastercard, 2024a). There has been a slight downward trend since the initial DPI in 2020, reflecting the constantly evolving landscape of payment solutions and providers. It's natural that consumers initially do not recognize new brands or solutions.

The first KPI measured in this component was consumer awareness of various digital payment methods, which decreased slightly to 54 in 2023. This decrease could be due to the introduction of new, innovative options in the survey methodology (e.g., QR code payments, link-based payments, Budapest Pay&Go). Including these methods might have made it difficult for respondents to distinguish between solutions (Mastercard, 2024a). Bank transfers, tapping the card on a POS terminal, and online payment by entering card details are the most used payment methods in 2023. Familiarity with contactless payments on POS, online payment with stored credentials, peer-to-peer payments (13 percentage point increase), and virtual cards for e-commerce has increased significantly compared to 2022.

Recognition of other methods, such as mobile or e-wallet payment and tapping a smartphone or smartwatch to a terminal, did not change significantly compared to last year. Wallets and wearables saw the biggest increases in awareness of payment methods in 2022, but this growth stagnated in 2023. In almost all cases, more than 25% of the respondents already used the respective payment methods, except for cryptocurrencies, BNPL online installment, in-store installment, and Budapest Pay&Go service, which is only available in Budapest (Mastercard, 2024a).

In 2023, the digital payments awareness score was over twice as high as the familiarity with brands offering payment solutions, which stood at 25, mirroring trends seen in previous years. This indicates that consumers know more about various payment solutions than about specific providers of those solutions.

KNOWLEDGE

In terms of brand recognition and familiarity with payment solution providers, customers continued to exhibit lower confidence. However, a notable distinction was in the awareness of well-established brands in Hungary compared to newer entrants in the wearable technology sector. Revolut, PayPal and Bitcoin are the most recognized brands, even if customers do not use all of them regularly. For instance, Revolut has been used by 27% of the respondents, PayPal by 43% and Bitcoin by 6%. The most notable increase in brand awareness compared to last year was for Revolut, with a rise of 9 percentage points. Awareness of digital bill payment solutions like iCsekk and Számlázz.hu grew, as did that of the acceptance provider Barion. However, smartwatches and other wearables like Garmin Pay and Fitbit Pay still have low awareness and usage among respondents (Mastercard, 2024a).

Revolut is the largest neobank available in Hungary. By the end of 2023, Revolut had 1.2 million customers in Hungary — a 45% increase — and is expected to reach 1.5 million in 2024 (Portfolio, 2024). These customers use their Revolut accounts for more than foreign travel and the brand is increasingly luring customers away from traditional banks. This trend is expected to grow exponentially, especially as Revolut is likely to receive approval from the Magyar Nemzeti Bank (MNB) to facilitate salary payments directly to its accounts, further enhancing Revolut's appeal and accelerating its customer acquisition.

Awareness of existing security measures, including authentication methods, achieved the highest score (60, +2pp) among indicators within the Awareness component in 2023, suggesting that users' familiarity with certain security aspects remained relatively strong. Like last year, 85% of respondents were aware of the security examples mentioned. Nearly 76% claimed to be familiar with standard security measures such as transaction notifications via text messages, PIN codes, and changing passwords or PINs. However, confidence dropped for more advanced or less commonly used security features such as limiting account use abroad, biometric authentication, or restricting payment channels, with nearly 50% of adults indicating familiarity with these options. This underscores the critical need for consumer education on implementing security measures to effectively protect against increasing cybersecurity threats and fraudulent activities (Mastercard, 2024a).

KNOWLEDGE

INTENTION COMPONENT INSIGHT

Consumers' intention to use digital payments is assessed based on three main KPIs: perceived convenience and security of various payment methods, and overall openness to payment innovation.

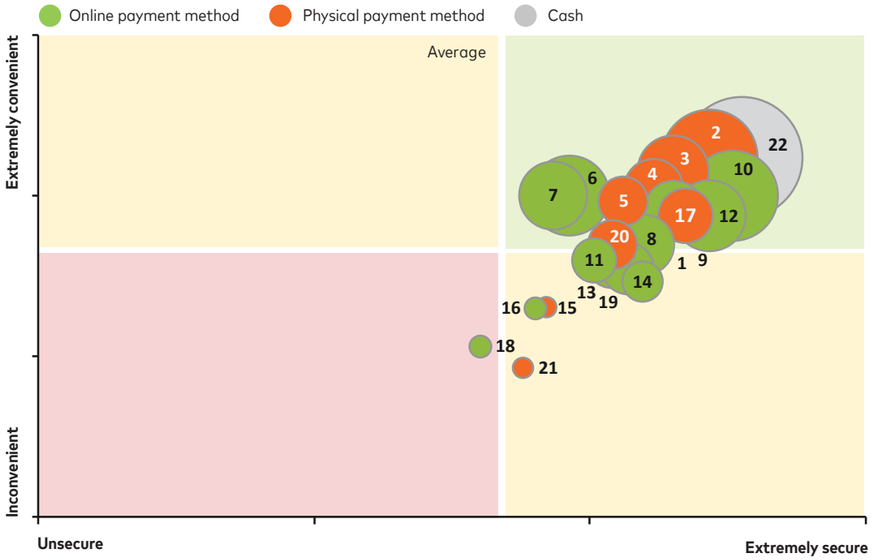


Figure 8: Different payment methods' perceived convenience, security, and usage frequency

Note: Size of bubbles represents usage frequency of payment methods:% of respondents who use them at least once a month.

1 Inserting payment card in a POS terminal
2 Tapping a payment card on a POS terminal
3 Tapping a payment card on a digital device (e.g. smartphone, tablet)
4 Payment with mobile wallet by tapping a terminal
5 Payment with smartwatch or other wearable by tapping a terminal
6 Online payment with payment card by entering card details manually
7 Online payment with previously saved payment card details
8 Payment with virtual card provided for e-commerce
9 Online payment with mobile wallet or e-wallet (e.g., PayPal)
10 Bank transfer by entering the recipient's bank account number
11 Payment by mobile with QR code
12 Complete payment through direct debit
13 Payment request for money transfer (peer-to-peer payments)
14 Request an open invoice payment at an online store
15 Request an installment payment immediately using a terminal (offline)
16 Request an installment payment when paying online (e.g. BNPL)
17 Payment with prepaid voucher cards
18 Online or in-store payment with a cryptocurrency (e.g., Bitcoin, Ethereum)
19 Bank transfer by entering the recipient's secondary identifier (email or phone number)
20 Instant payment (with QR code, NFC or deeplink)
21 Payment using Budapest GO (on M1 metro or 100E bus)

Figure 8 shows how consumers rank the different payment solutions based on convenience and security, while the size of the bubbles illustrates the share of respondents who use the methods at least monthly, according to the representative primary research conducted within the scope of this report (Mastercard, 2024a).

KNOWLEDGE

Selected Payment Methods

1 Insert card to POS terminal **2** Tap card on POS terminal
3 Mobile wallet payment offline
4 Online payment with saved card details
5 Bank transfer **6** Payment with cash

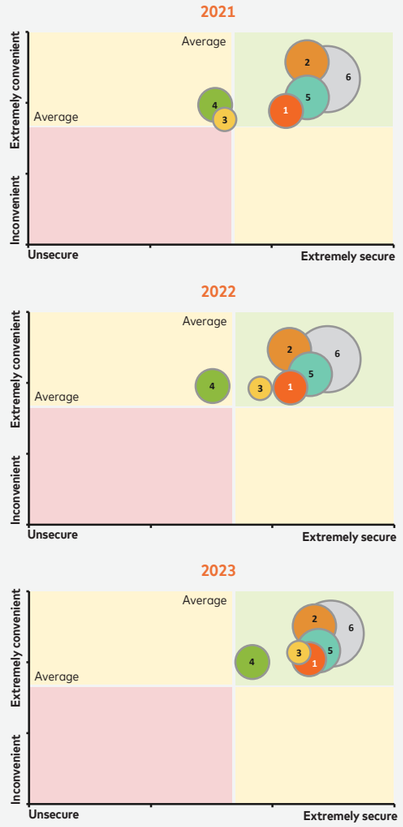


Figure 9: The usage, perceived convenience and security of payment methods, 2021-2023

A correlation emerges when examining consumer perceptions of convenience and security across various payment methods (Figure 9). Generally, payment methods perceived as more convenient are also perceived as more secure.

While cash remains the frontrunner in both perceived security and convenience, several digital payment methods are narrowing the gap. For example, methods such as physical card payments (both inserting card in a POS terminal and tapping card on a POS terminal), wallet payments and stored credentials have made good progress since 2021. However, the high preference for cash indicates the importance of educational initiatives that highlight the benefits associated with digital payments (Mastercard, 2024a).

Compared to last year, there has been a rise in the perceived security of innovative payment methods, such as installment payments and cryptocurrencies. The young segment (respondents aged 18-29) shows a higher adoption rate for innovative payment methods (e.g. installments, cryptocurrency, etc.) compared to the average respondent, but overall adoption of these methods remains low. The 30-49 age group exhibits a high level of openness towards digital payments based on perceived security. However, their usage frequency does not yet reflect this positive sentiment (Mastercard, 2024a).

The older generation (respondents aged 50-69) prefers cash payments the most among all demographics. When it comes to digital payments, they demonstrate a greater comfort level with established methods like physical cards and digital transfers. Conversely, they find newer and more innovative payment options less convenient (Mastercard, 2024a).

A potential contributing factor to the limited use of innovative payment methods could be a general resistance among Hungarian users to embrace new payment technologies. The study revealed that only 35% of respondents expressed interest in news related to these solutions, meaning the majority would prefer to stay with their current methods. Only 20% said they would try out innovative solutions ahead of their friends, presenting a significant challenge for local institutions aiming to promote wider adoption (Mastercard, 2024a).

KNOWLEDGE

OBJECTIVE KNOWLEDGE COMPONENT INSIGHT

Respondents' understanding in various areas did not show improvement, as their objective knowledge about digital payments decreased by 2 points from 2022 to 61 points (Mastercard, 2024a). This decrease is driven mainly by respondents in lower-income groups. While this group achieved a lower score on the test this year, a 2 percentage-point decrease in the digital payment quiz is statistically insignificant overall.

This component score was assessed using an objective test, unlike the previous two components that captured the subjective views of consumers. Figure 10 depicts the distribution of respondents based on their scores.

When analyzing the separate scores of different age groups, no substantial improvements were observed compared to last year. Despite showing the largest improvement in 2022 (+10 points), respondents aged 30-49 experienced a 2-point decline in their scores in 2023. This year's survey reaffirms that respondents aged 30-49 remain the most knowledgeable group.

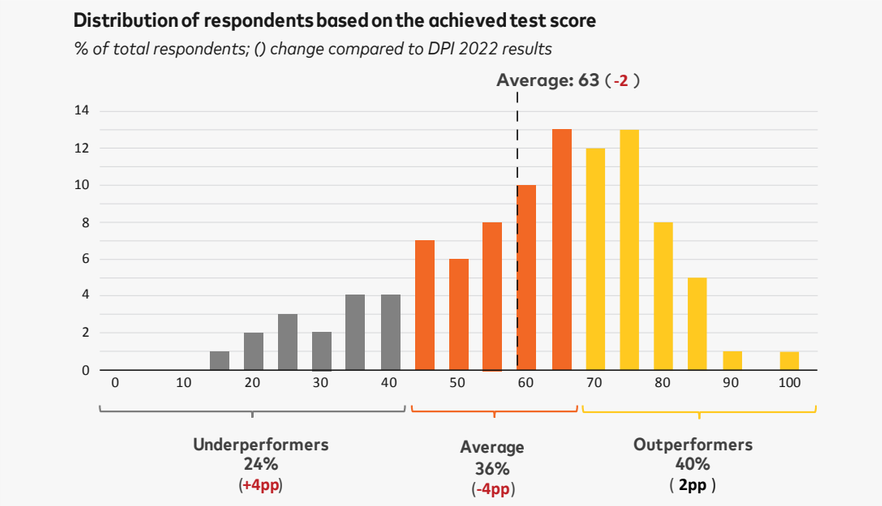


Figure 10: Distribution of respondents according to quiz scores

KNOWLEDGE

However, their level of knowledge did not show further improvement. In contrast, respondents aged 18-29 demonstrated a slight increase in knowledge of digital payments, particularly among those achieving outstanding quiz results, resulting in a 1-point overall increase in their scores. Conversely, respondents aged 50-69 saw a 2-point decrease in their quiz results, indicating fewer individuals achieved outstanding results than the previous year (Mastercard, 2024a).

When examining the impact of income levels, we found that individuals with incomes below 500,000 HUF had an average performance score of 63 last year, which dropped to 60 this year. In contrast, those with incomes above 500,000 HUF had an average performance score of 65 in 2022, which stagnated in 2023. Overall, the trend highlights a widening performance gap between lower and higher-income individuals, suggesting that economic disparities may impact performance outcomes more significantly for those with lower incomes.

> The proportion of average performers decreased by 4 percentage points, while the proportion of underperformers increased by the same margin.

In the quiz, card-related questions received the highest number of correct answers, which is unsurprising since cards are widespread, have a long market history, and are well-understood by Hungarian consumers. For example, most participants know how to block cards, adjust card limits, and understand a CVC code. Also, respondents were generally familiar with mobile wallet payments, indicating a market ready for wider adoption (Mastercard, 2024a).

Compared to the questionnaire last year, knowledge about Open Banking also rose, with approximately one out of two adults knowing what Open Banking provides for customers.

KNOWLEDGE

Consumers showed greater confidence in managing lost or stolen card situations than in dealing with fraudulent activities (Figure 11). They generally understood the necessary security measures for protecting their physical cards if they are lost or stolen.

However, while 65% of respondents knew the correct process to respond to fraudulent transactions, they still had misconceptions.For example, nearly 15% of respondents believed they needed to contact the card scheme directly instead of blocking the card, reporting the fraudulent activity to the bank and starting the chargeback process. Familiarity with security measures becomes increasingly crucial as consumers encounter various types of fraud. Those with lower educational attainment or income levels were less likely to be familiar with these security protocols, highlighting the influence of education and income on digital payment security knowledge.

Overall, respondents aged 30-49 provided more correct responses on security measures than respondents from every other age group (Mastercard, 2024a).

Survey results indicate a low awareness level of installment payments, with approximately 75% of respondents not clearly understanding how this payment method functions. This finding highlights a general knowledge gap regarding this solution within the Hungarian market (Mastercard, 2024a).

The gap between individuals with higher education and high incomes and those with below-average education and incomes is widening. It is important to pay attention to this growing disparity and consider launching educational campaigns targeted at the broader population. Such initiatives could help address the differences in financial literacy and access to opportunities, ultimately contributing to a more equitable distribution of knowledge and resources. By focusing on education and supporting underprivileged groups, it is possible to bridge this gap and promote greater financial inclusion.

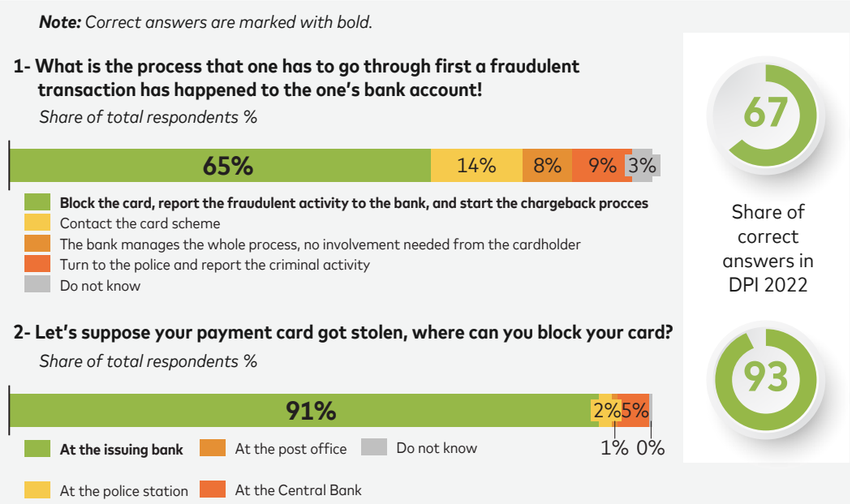


Figure 11: Objective Knowledge, selected examples from the quiz, 2022-2023

KNOWLEDGE

2.3 FUTURE OUTLOOK

Consumer perception of cash convenience has grown compared to last year, possibly due to a rise in reported fraudulent activities involving digital payments. To address this trend, financial institutions need to implement more robust security measures that inspire user confidence. The Hungarian Central Bank aims to improve cybersecurity in several ways, including raising user awareness through the KiberPajzs initiative or implementing the Central Fraud Prevention System (Központi Visszaélésszűrő Rendszer). The system will leverage artificial intelligence to conduct real-time assessments of the fraud risk associated with each transaction. The results will be communicated to commercial banks instantaneously, to support them in preventing cybercrime (MNB, 2024).

The survey revealed a significant knowledge gap in digital payments, with university graduates demonstrating the highest understanding.

This highlights the critical need to prioritize educational initiatives that empower less educated segments. Targeted education can unlock the potential for a broad segment of the population to access a wider range of financial services and opportunities.

The overall awareness of digital payment methods in Hungary remains stagnant. As new account-to-account payment methods enter the market in 2024 with AFR 2.0, a renewed focus on educational initiatives is crucial to ensure user understanding and adoption. The Hungarian Central Bank will launch an extensive educational campaign about Qvik in 2024. The campaign aims to reach a broad audience across multiple channels, ensuring that customers are well-informed about both existing functionalities, like payment requests, and the upcoming rollout of QR code, NFC, and deep link payment methods (MNB, 2024).

USAGE

3.1 DEFINITION AND OBJECTIVES

In addition to outlining the payment infrastructure and consumer knowledge landscape, the Digital Payment Index analyzes how digital payments are used in Hungary. This includes understanding which digital payment solutions consumers prefer and why, as well as identifying the factors driving the shift away from cash. The Usage pillar assesses the adoption of various digital payment methods in the local market and evaluates how effectively these methods are displacing cash transactions.

> To complement existing public data, which offers a broad perspective on digital payment methods, Mastercard has calculated sub-index values using its own data and primary research.

The primary objective of this pillar is to assess the performance of digital payments relative to cash and pinpoint the primary drivers behind this trend. The findings presented in this section aim to address questions such as:

- Overall, how do digital payment methods perform relative to cash?"
- Which digital payment rails are the most widely used in Hungary?
- What is the adoption of the payment solutions currently in the market?

Similar to the Infrastructure pillar, the Usage pillar comprises two main components: cashless payment usage and payment solution adoption. The former evaluates the overall effectiveness of digital payments compared to cash, while the latter assesses the adoption rates of existing payment solutions within the country.

DIGITAL PAYMENT INDEX
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USAGE

3.2 SUB-INDEX RESULTS

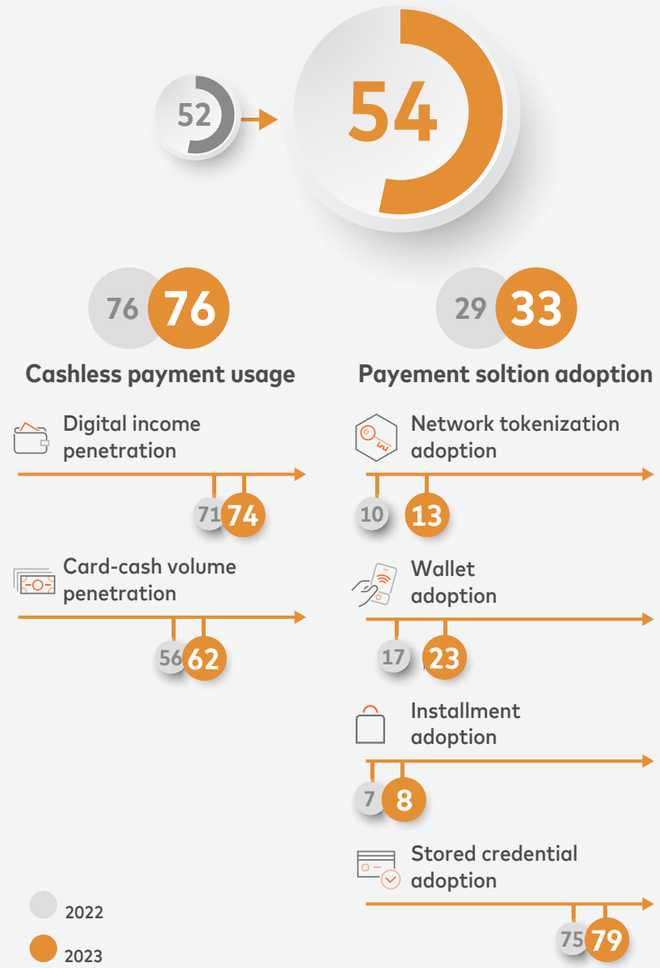


Figure 12: Overview of usage of digital payment methods, 2023

USAGE

In 2023, the Usage pillar scored 54 out of 100, a modest increase from 52 in 2022 (Figure 12.). This improvement suggests that although more consumers in Hungary are adopting digital payment methods, there remains substantial potential for further growth.

Cash payments are still prevalent due to their perceived convenience and security, highlighting the need to continue promoting digital payment alternatives. The Usage pillar consists of two components: cashless payment usage and payment solution adoption. The first component, Cashless payment usage scored 76 out of 100, indicating that Hungarian consumers are fairly well-prepared for adopting cashless payments, with many already opting for digital payment methods. However, compared to 2022 this score has remained stagnant. Even though card payments have taken over ATM withdrawals, a high share of the population still receives at least part of their income in cash.

The second component, payment solution adoption, measures how effectively Hungarian consumers have adapted to and are using various digital payment solutions. In 2023, this component scored 33, reflecting an improvement of 4 points over 2022. While this is a positive trend, local consumers have yet to fully utilize Hungary's available digital payment infrastructure.

USAGE

CASHLESS PAYMENT USAGE INSIGHTS

The cashless payment usage component assesses the usage of the cashless infrastructure, already introduced within the Infrastructure sub-index.

The fact that only 71% of survey respondents reported receiving their monthly recurring income directly into their bank accounts impacted the cashless payment usage negatively. This lowered the score by 3 percentage points from the previous year. This suggests there is still room for improvement, as a significant portion (10%) of adults do not receive any part of their income in a digital format. Additionally, individuals with a lower level of education (completed only primary school) and those with relatively low incomes (below net 150k HUF monthly) predominantly receive their income in cash (Mastercard, 2024a).

USAGE

Moreover, only 20% of those who receive their income digitally do not withdraw any cash, choosing instead to spend their funds digitally. This is a 3 percentage-point decrease from 2022. Although changes in consumer behavior are crucial for promoting digital payment usage, there is still significant potential to increase the inclination to spend digitally. Notably, 8% of Hungarians now withdraw their entire income in cash, a figure that has remained unchanged since last year (Mastercard, 2024a).

> Overall, digital income penetration slightly decreased. Those who scored lower on objective knowledge tests (i.e. lower income segments) are most likely to withdraw most of their income in cash, suggesting that improved financial education could encourage the adoption of cashless payments by making people feel more secure and comfortable with digital options (Mastercard, 2024a).

DIGITAL PAYMENT INDEX
HUNGARY 2023 REPORT dpi

USAGE

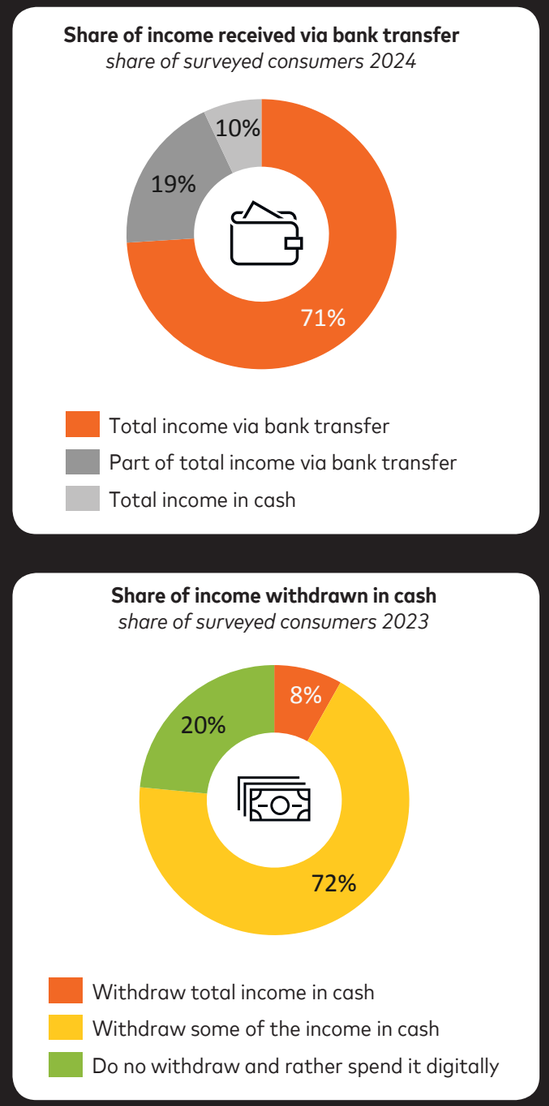


Figure 13. Share of respondents who receive their income via bank transfer, and those who withdraw it in cash

USAGE

The number of card transactions at POS terminals rose by 11% in 2023 compared to 2022, while the volume of transactions (spend in HUF) at terminals surged even more significantly, with a 25% increase from the previous year. This disparity suggests an increase in the average ticket size of card transactions, possibly due to the higher inflation rate in Hungary in 2023 (MNB, 2024).

Shifting our focus to the split between cash and card usage, the Hungarian Central Bank has observed a steady increase in card payment volume over the years. This trend has been particularly notable since 2020 when regulations mandating the acceptance of digital payments at most retailers came into effect. However, according to the data of the Hungarian Central Bank, approximately 62 out of 100 payment transactions are still made in cash in the retail segment. The share of electronic payments has increased by 5 percentage points since 2022, reaching 38%, but it still represents just over a third of total transactions in shops and at vending machines (MNB, 2024). This indicates that cash payments remained the most widely used payment method in stores in 2023. Despite that, both the Hungarian Central Bank and Mastercard have strategic plans to shift the majority of purchases in Hungary to digital means.

Over recent years, there has been a notable rise in card payment volume. The growth in ATM withdrawal volumes has been slowing since 2020, and last year withdrawals started to decrease in volume (Figure 14). The proportion of card payments compared to total transactions (ATM withdrawals and card payments) surged from 41% in 2018 to 62% in 2023, marking a significant 21-percentage-point increase over five years (MNB, 2024). This ratio has steadily climbed, with card usage surpassing cash withdrawals for the first time in 2021 and continuing to expand through 2022 and 2023. This transition mirrors consumers' increasing preference for digital transactions rather than withdrawing cash from their accounts.

> The reduced share of withdrawal volume aligns with reports from the Hungarian Central Bank indicating a decline in cash payments at stores (MNB, 2024). Efforts to digitize incomes could potentially boost the adoption of digital payments.

In summary, there has been no improvement in the cashless payments usage subindex compared to last year, and the existing market infrastructure is still underutilized by consumers. Even though the volume of ATM withdrawals and the share of cash payments in stores have decreased, cash remains significant. On an individual level, there was a slight growth in respondents who receive their income in cash and those who withdraw part of their income in cash. The overall trend indicates that digital payment methods are likely to gain more traction in the coming years, driven by digitalization and the increasing demand for convenience and safety among local consumers.

USAGE

Volume of domestic card payments and withdrawals
billion HUF, 2012-2021

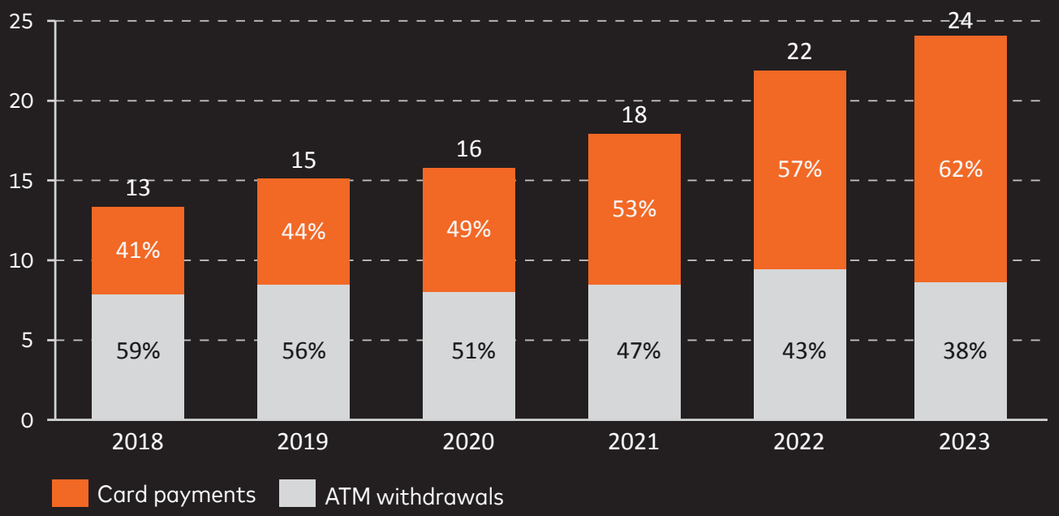


Figure 14: Prevalence of payments and withdrawals in card volumes (MNB, 2024)

USAGE

PAYMENT SOLUTION ADOPTION INSIGHTS

The next aspect of the Usage sub-index offers insights into the adoption of advanced digital payment solutions leveraging the cashless infrastructure. It examines the status of innovative payment methods and their level of adoption.

In 2023, the digitalization rate for local currency credit transfers (representing the share initiated through digital channels) reached 90%, a slight increase from the previous year. Hungarian consumers have widely embraced digital channels, and this rate is expected to stabilize at this level (MNB, 2024).

Contactless POS adoption achieved nearly complete market coverage in 2023, showing a slight uptick from 2022 (MNB, 2024). This indicates a well-established infrastructure that supports the increased usage, as almost all Hungarian adults made a contactless card payment at least once in 2023. Even though the contactless ATM infrastructure is still being developed, its adoption has risen significantly in 2023 as well, meaning that more and more adults tap their card to withdraw cash, instead of inserting it. This is an important trend for the future adoption of digital first cards.

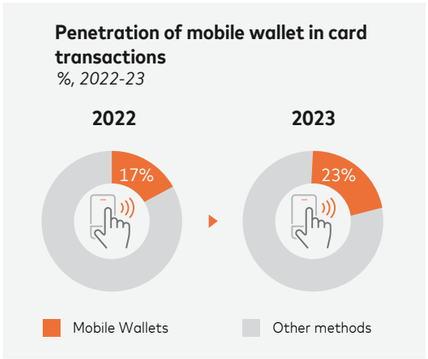


Figure 15: Penetration of mobile wallet in card transactions, 2022-2023

As shown in Figure 15, the adoption of digital wallets has increased since 2022, with a 6-percentage-point rise (17% vs. 23%) in wallet tokenized transactions due to the increased presence of Google Pay among issuers (Mastercard, 2024c).

In 2023, both the value (Mastercard, 2024c) and frequency of wallet transactions nearly doubled (Mastercard, 2024a). The number of newly registered cards to digital wallets also saw a notable 48% increase (Mastercard, 2024c). This suggests growing consumer trust in using this payment method, as well as increased usage among existing users. Survey results indicate a growing trend in peer-to-peer payment request adoption, with providers such as Revolut contributing significantly to this increase.

However, despite an increasing number of banks supporting wearables such as Fitbit Pay, Garmin Pay, and Mi Pay, the adoption of wearable payment methods remained nearly unchanged from the previous year, hovering around 1% (Mastercard, 2024c). Wearable payment solutions are relatively new in Hungary and have not yet been widely adopted. The infrastructure is well-established and an increasing number of issuers offer wearables to customers, so there needs to be a greater focus on raising awareness and usage of this technology.

USAGE

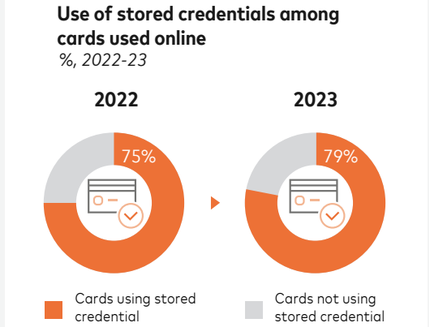


Figure 16: Use of stored credentials among cards used online, 2022-2023

Highlighting the emphasis on convenience and security in digital payments, nearly 80% of local cardholders stored their card details online in 2023, marking a 4 percentage-point increase from 2022 (Mastercard, 2024c) (Figure 16.).

Consumer adoption of network tokenization saw a notable increase of 3 percentage points from last year, yet the total adoption remained at approximately 13% (Mastercard, 2024c). To improve the security of online payments, it is essential for acquirers to provide better support for network tokenization, which encrypts and stores card details centrally instead of distributing them across multiple online merchants. There is a clear consumer demand for convenience, evident in the rise of e-commerce transactions and the prevalence of transactions with stored credentials. As consumers increasingly trust these innovative solutions, their usage is poised to grow, driven by the necessary infrastructure improvements from acquirers.

Installment adoption remained relatively unchanged, which is unsurprising given the slow development of the BNPL infrastructure. Approximately 8% of the surveyed population used either an online or offline installment solution in 2023, a 1 percentage-point increase from the previous year (Mastercard, 2024a). To increase adoption rates, it will be crucial to enhance customer awareness and trust in these solutions. Even fewer respondents (1-2%) have used the services of BNPL provider fintechs (Klarna, PastPay, IzzyPay, InstaCash) that have recently appeared in Hungarian market. The most commonly used providers are PastPay (for B2B merchants) and Klarna (B2C). Additionally, brand awareness is relatively low, with approximately 5% of respondents familiar with each BNPL provider, underscoring the need for greater awareness and education about these services (Mastercard, 2024a).

USAGE

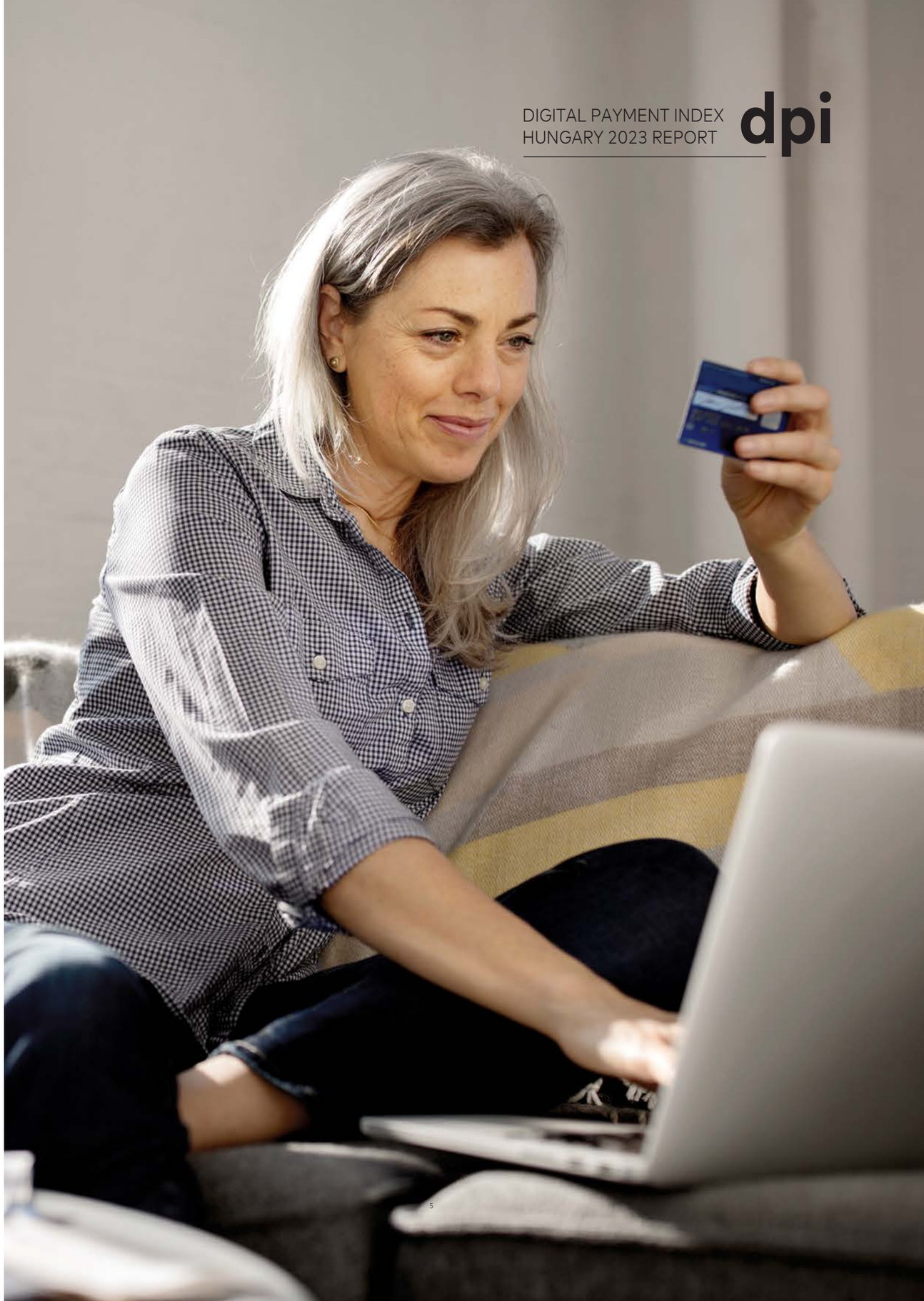
3.3 FUTURE OUTLOOK

Despite cash withdrawals still accounting for 38% of domestic card transaction volume, the ratio of card purchases is expected to continue rising (MNB, 2024). Presently, 62% of payments at domestic retailers are made in cash, but this figure is steadily declining. The Hungarian Central Bank has set an ambitious goal to reduce the proportion of cash payments to 40% by 2030. This initiative reflects a broader effort to encourage the use of digital payment methods, enhancing convenience and security for consumers while also streamlining transaction processes for retailers.

More innovative solutions, such as account-based mobile payments or secure remote payment options like Click to Pay or Secure Remote Commerce, are expected to become available soon in the Hungarian market. These consumer use cases could drive broader adoption of digital payment methods. A growing number of BNPL service providers are entering the market to provide installment payment options for both B2B and B2C transactions. This trend signifies a substantial potential for expansion, fueled by the ongoing development of supportive infrastructure and intensified marketing efforts. The growth of adoption depends on how well the service's benefits are communicated to customers.

There remains considerable potential to raise consumer awareness of and interest in security measures to accelerate the adoption of digital payment methods. Enhancing knowledge about these security features can play a crucial role in building trust and confidence among users. By actively promoting and educating consumers about the benefits and safety of innovative payment methods, stakeholders can foster greater acceptance and use of digital transactions. This proactive approach could address existing concerns and misconceptions, ultimately leading to a more widespread embrace of digital payment solutions. As consumers become more informed and comfortable with these technologies, the transition to digital payments is likely to gain momentum, supporting broader and more secure financial practices.

DIGITAL PAYMENT INDEX
HUNGARY 2023 REPORT



METHODOLOGY

The Digital Payment Index is a metric built to capture the development of a country's digital payments. Digital payments in this report refer to any electronic means of payment that provide consumers with an alternative to cash purchases.

The study focuses on local consumer payments and is limited to the analysis of transactions with local payment methods (i.e., traffic with accounts and cards), including domestic and cross-border. Since cross-border providers are increasingly relevant across Europe, those active in the local market are also included when discussing the readiness of the infrastructure to provide a more complete picture.

The Index provides a holistic, annual view of payments with both quantitative and qualitative insights. Therefore, it combines statistical data from public sources and Mastercard covering 2023 with bespoke primary research findings from the beginning of 2023. The Index is structured with three levels: 1) indicator, 2) component, and 3) sub-index. An indicator, the most granular element of the model, is a measure that captures a specific angle of payments performance.

All indicators were indexed on a scale of 100 and then aggregated into components to condense information from individual KPIs. Components were weighted to form three sub-indices, which were considered important to the same extent and thus weighted equally in the overall index calculation. The consistency of the Index results was checked across the countries to ensure reliability. Over 40 indicators were included in the index of each country.

An important phase of the Index development process was the choice of indicators. KPIs were shortlisted based on the availability and quality of data, as well as the sustainability of the data source. Metrics were reviewed with industry experts and those measures that capture distinctly different aspects of payments were prioritized to ensure relevance of individual indicators selected. Survey data was used as a substitute proxy when statistical data was poor or unavailable.

Finally, the Index was designed and structured in a way to be able to flexibly handle market evolution that may occur in the future (e.g., the introduction of new payment solutions).

The Index provides a holistic, annual view of payments with both quantitative and qualitative insights. Therefore, it combines statistical data from public sources and Mastercard covering 2023 with bespoke primary research findings from the beginning of 2023. The Index is structured with three levels: 1) indicator, 2) component, and 3) sub-index. An indicator, the most granular element of the model, is a measure that captures a specific angle of payments performance.

METHODOLOGY

4.1 DATA COMPONENTS

To construct this report three types of data sources have been leveraged:

- **Public sources:** Official payment system statistics that are published on a regular basis by the local central banks were inputs for infrastructure and usage indicators, while data from the local statistical agencies provided population and enterprise statistics for index calculations.

- **Mastercard data:** Aggregated statistics were used to construct ratios for payment solutions that are not reported by public sources, while inputs from expert interviews were included to enrich the study with qualitative insights.

- **Primary research:** Survey results were used to proxy poor or unavailable data points and add complementary insights to key findings. In addition to the primary research conducted on each market, insights from prior local research by Mastercard were also used.

4.2 SCOPE OF PRIMARY RESEARCH

The Knowledge sub-index and Usage sub-index are based on inputs from external consumer research focusing on the digital payment habits of Hungarian adults, commissioned by Mastercard and conducted by local research agencies. The methodology followed the same approach across the countries: It had a hybrid research design, which combined online (CAWI) and personally assisted (CAPI) data collection methods. Fieldwork was conducted in June 2023.

The survey was designed collaboratively with research agencies to form a 20-25-minute questionnaire. It combined a series of self-assessment questions related to consumers' awareness of and attitudes to digital payments and objective test questions related to the use of digital payments. In each country, 1,000 consumers ages 18-69 were surveyed in the sample. Results were representative and weighted by gender, location type, and region.

CYBERSECURITY INSIGHTS

Insights from the Mastercard survey conducted on Hungary's cybersecurity landscape reveal that most Hungarians are exposed to the threat of cybercrime. The majority of survey respondents reported that they have encountered fraudulent or suspicious activities. Phishing emerged as the dominant form of cybercrime in Hungary, with fraudsters primarily exploiting SMS and email channels. Phone scams were also prevalent. Nearly 40% of respondents were targeted via phone calls in attempts to extract sensitive information (Mastercard, 2024b).

The survey results align with the observations of the Hungarian Central Bank, which reported a substantial year-on-year rise of cybercrime incidents during 2023. Notably, there was an increase in fraudulent transactions where customers bear financial responsibility, with nearly half of fraudulent transactions initiated by the victims themselves (MNB, 2024).

Our survey revealed a large segment with a personal connection to cybercrime: 30% of respondents had a family member or close friend who fell victim to fraud, while 18% were victims themselves. This result emphasizes the urgency for more comprehensive cybersecurity education initiatives, particularly considering the rising number of reported fraud attempts (Mastercard, 2024b). Educational initiatives are already underway with the KiberPajzs initiative serving as an example. A joint project of the Hungarian Central Bank and the Hungarian Banking Association, this initiative aims to improve cybersecurity awareness among Hungarian consumers and businesses. In 2023, the project conducted several targeted campaigns across various channels (television, radio, online, and social media), with plans for continued implementation. (MNB, 2024).

While education is crucial in mitigating cybercrime, a comprehensive approach necessitates centralized fraud-fighting initiatives. Real-time fraud prevention systems offer the potential to significantly reduce the number of fraudulent transactions. In an effort to combat cybercrime, the Hungarian Central Bank and GIRO Zrt. are developing the Central Fraud Prevention System (Központi Visszaélésszűrő Rendszer). Leveraging artificial intelligence, the system will conduct real-time assessments of the fraud risk associated with each transaction. The results will be instantaneously communicated to financial service providers, empowering them to take swift actions to safeguard their customers. The system's projected launch is July 2025 (MNB, 2024).

Overall, Hungary faces a rising tide of cybercrime, with a large portion of the population already impacted. There is significant room to improve public awareness, as only 22% of respondents believe they are fully prepared to avoid cybercrime. While public education initiatives are crucial to raising digital awareness and building individual resilience against cybercrime, centralized fraud-fighting efforts are also necessary to enhance cybersecurity.

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DEFINITIONS

Credential on File
Solution that enables consumers to store their card credentials online with merchants for future use (e.g., recurring transactions).

Digital payment
Any electronic means for payment that provides an alternative to cash for purchases.

Installment
By selecting pay with installment (i.e., buy-now/pay-later option) at a POS terminal or during online checkout, cardholders get the flexibility to divide the cost of a purchase into smaller amounts and pay for the goods incrementally over a pre-defined period of time.

mPOS
Solution that leverages dongles or mobile hardware to turn Android devices into POS terminals..

NFC payments
Contactless payments that use near-field communication technology for the exchange of data between devices (e.g. smartphone and terminal).

Terminalization rate
Share of domestic merchants equipped with POS terminals (including online merchants acquired by cross-border acquirers) vs. potential market.

OEM wallets
Mobile wallets that are provided by Original Equipment Manufacturers (e.g., Apple Pay, Google Pay) and are native to the device.

PSD2
Payment Services Directive 2 is an EU legislation with two main objectives: to improve online payment security through Strong Customer Authentication (SCA) and enable third-party access to consumers' specified banking information to provide new payment and account services.

Request-to-pay
A standardized payment message that enables the payee to initiate an account-to-account payment request to the payer.

Secondary account identifier
An identifier that is uniquely linked to a consumer's payment account and can be used to facilitate account-to-account payments (e.g. e-mail address, phone number, tax number).

SoftPOS
Solution that enables acceptance of NFC payments on Android devices using only software (i.e. without terminal hardware).

Strong Customer Authentication (SCA)
Requirement for payment service providers, introduced by the EU's PSD2 regulation. This regulatory measure is intended to further enhance the security of electronic payments and limit fraud by applying an enhanced, multi-factor customer authentication process.

Tokenization
Replacement of meaningful payment data with secure tokens that cannot otherwise be used for payments.

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Mastercard is a global technology company in the payments industry. Our mission is to connect and power an inclusive, digital economy that benefits everyone, everywhere by making transactions safe, simple, smart and accessible. Using secure data and networks, partnerships and passion, our innovations and solutions help individuals, financial institutions, governments and businesses realize their greatest potential. Our decency quotient, or DQ, drives our culture and everything we do inside and outside of our company. With connections across more than 210 countries and territories, we are building a sustainable world that unlocks priceless possibilities for all.

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DIGITAL PAYMENT INDEX HUNGARY 2023

COMPASS IN THE HUNGARIAN
ELECTRONIC PAYMENT MARKET

REPORT