



pix
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Pix Management Report

Conception and first years of operation
2020–2022



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Summary

SUMMARY

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PRESENTATION

This report addresses the reasons that motivated the development of Pix, shares the path taken to launch it and the challenges faced to provide society with a democratic, safe and innovative means of payment. In addition, as a way of ensuring transparency with regards to the actions of the Central Bank of Brazil (BCB) and accountability to society, the report describes how Pix is inserted in the context of the technological revolution and the strategic agenda of the BCB; presents its objectives and main deliverables; and consolidates and presents statistical data on Pix usage, from its launch until December 2022. The report also highlights the actions that will be developed over the next few years to improve the features and products now available and to create new features and new products that expand the use cases covered by Pix.

The Pix Management Report is structured according to four perspectives:

Idealization and Implementation

Chapter 1 reflects on the reasons that led the BCB to develop a payment solution that represents the achievement of several public objectives, promotes greater efficiency and greater competition in the Brazilian Payments System (SPB) and generates value for society. With this in mind, the chapter highlights the gaps present in the means of payment available in Brazil prior to the launch of Pix; how Pix is inserted in the context of technological transformation experienced by individuals, companies and governments; the influence of international experiences on the construction of the Brazilian solution; and the details on the design, implementation, and on the launching process of Pix.

Pix evolution in the 2021/2022 biennium

Chapter 2 dives into products, functionalities and initiatives that were developed and launched throughout 2021 and 2022. The chapter highlights some of the functionalities developed to enhance the user convenience, the future dated billing solution, the launch of Pix Withdrawal and Pix Change, the development of new security measures and the introduction of payment initiation service providers on Pix transactions, in addition to improvements to other rules.

Pix in Numbers

Chapter 3 presents data on Pix usage, including transaction statistics, Pix aliases, users, participants and the retail payments market. This chapter also presents some curiosities about Pix: would you guess the highest value of a Pix transfer ever made?

The Future of Pix

Chapter 4 brings a perspective on the Pix’s development agenda, describing aspects about new features and products that might be created to further simplify making payments, such as automatic recurring payments. The chapter also addresses the development of actions aimed at expanding the adherence of existing features and presents the Pix’s vision of the future, bringing some spoilers of what is yet to come.

Pix has already established itself as one of the main payment instruments in Brazil and has become part of the daily lives of Brazilians. This success is the result of the work from the BCB’s technical staff, as well as of collaborators from all the institutions involved, who built Pix with multiple hands and started this revolution that is just beginning.

Enjoy the reading!

1. From the Idealization to the Implementation of Pix

1.1 The retail payments market

Since the restructuring of the SPB in 2002, Brazil has been recognized for having a robust and efficient payment system, with the BCB playing an important role in this evolution. As of the publication of Law 12,865, of October 9, 2013, the BCB received the legal mandate to ensure the soundness, efficiency and regular functioning of payment schemes and payment institutions and to adopt measures to promote competition, financial inclusion and transparency in the provision of payment services.

To exercise this competence, guidelines were established through CMN Resolution 4,282, of November 4, 2013, which must be observed during the regulation, surveillance and supervision of payment institutions and payment schemes that are part of the SPB. Among the objectives established in the regulation regarding the action of the BCB, the following stand out: innovation in payment schemes, diversity of business models, non-discriminatory access to services and infrastructure, and lastly, meet the needs of end users.

In recent years, the financial and payment services sector has developed new business models and innovative solutions as a result of the increased adoption of new technologies by individuals, companies and the government, evidenced, for example, by the popularization of smartphones and applications, use of biometric recognition technologies (fingerprint, facial recognition, etc.), implementation of machine learning processes and an increase in the processing capacity of large data sets (big data).

However, in 2019, cash was still the most widely used means of payment by Brazilians. Research on the habits of using means of payment revealed that 77% of financial transactions in Brazil was carried out using cash¹ as a means of payment. Empirical evidence points out that cash is one of the means of payment with the highest social cost². Although people do not directly realize the costs, it is extremely expensive to produce, store, distribute and destroy coins and banknotes. In addition, there are still high costs associated with security and handling of cash by retailers who take cash as a form of payment. All these costs end up being incorporated into the prices of banking and payment services and, consequently, into the final prices of goods and

services. Cash also has other limitations, such as the impossibility of being used in electronic commerce, which is increasingly relevant in the country, as well as the unviability of installment payments.

Additionally, a diagnosis carried out by the BCB identified that other means of payment, including electronic means, had relevant flaws, mainly in terms of convenience and costs for end users.

The main flaws identified in each payment method are presented below:

- **Check:** inconvenience related to printing and transporting check sheets; receiving the amount depends on clearing and settlement times; high costs to the financial system in terms of processing; limited acceptance and user experience demands filling out a good deal of information.
- **Prepaid card:** high costs for payees (discount rates), limited use on person-to-person (P2P) transfers, acceptance in commercial establishments depends on a specific device (POS devices).
- **Debit card:** high costs for payees (discount rates), limited use on (P2P) transfers; acceptance in commercial establishments depends on a specific device (POS devices); limited acceptance in electronic commerce.
- **Credit card:** high cost for payers (annuity) and for payees (discount rates); delayed payment to merchants (within 28 days on average), resulting in financial costs (e.g. float and advance on receivables); limited use for P2P transfers; acceptance in commercial establishments depends on a specific device (POS devices).
- **Credit Document (DOC)**³: not an inherently purchasing instrument, not used in electronic commerce, high costs for payers (service fee), availability restricted to a specific period of the day, initiation requires typing a good deal of information, settlement takes place on the next business day following the completion of the transaction and transactions have a value limit of up to R\$4,999.99;

- **Electronic Funds Transfer (TED)**⁴: compared to DOC, has the advantages of not having a value limit and settlement occurs on the same day, but has all the other limitations listed as on DOC transfers.
- **Transfers within the same institution:** compared to the TED, has the advantage of being fully available (24 hours a day, every day of the year). However, unlike TED and DOC, both payers and payees need to be held account on the same institution in order to the transaction take place.
- **Boleto**⁵: settlement takes place on the next business day following the completion of the transaction, high cost for payees, not suitable for P2P transfers, difficulties in conciliation and inconvenient to use (typing or reading a bar code on a specific device).
- **Billing agreement:** has similar disadvantages to the *boleto*. However, depending on the negotiation between parties, the agreements may have a lower cost for payees and faster availability of resources. On the other hand, these agreements do not allow payments through any institution and the process of celebrating the agreement is expensive and time-consuming.
- **Automatic account debit:** possibility of making undue and unauthorized billing, mostly used only for payments related to public concession services (e.g. water, electricity, telephone, etc.), available only through the establishment of an agreement, high operational complexity for recipients, lack of standardization between different institutions, difficulty in offering the service by smaller institutions.

In short, the context at the time (2019) was one of excessive use of cash in the country, leading to inefficiency in the retail payments market due to the high social costs derived from this use, as well as the flaws present in electronic means of payment that existed before Pix, muddling the desired reduction in cash usage. Additionally, the digital revolution was taking place, with the adoption of new technologies by the population, and the possibility of payment services acting as strong inducers for financial inclusion. In a

¹ The report with the main results of the survey is available at < https://www.bcb.gov.br/content/estabilidade/financeira/Publicacoes_SPB/Relatorio_Decem_2157_2021.pdf >.

² See, for example, Banco Central do Brasil. *Cost and efficiency of using retail payment instruments*, July 2007; Banco de Portugal. *Study on the social costs of retail payment instruments in Portugal*, October 2016; and Humphrey, D.; Willenson, M.; Lindblom, T.; Gerghendahl, G. *What does it cost to make a payment? Review of Network Economics*, vol. 2, no. 2, June 2003.

³ Electronic transfer mechanism created by the BCB and operating in Brazil since 1985.

⁴ A newer electronic transfer mechanism with more advanced functionalities than those on the DOC, launched by the BCB in 2002. TED is a real time transaction scheme allowing transfers between users of different financial or payment institutions. Although being a real time transaction, the settlement takes place during specific time windows throughout the day and are not available during weekends or holidays, while transfers on Pix are settled instantly and are available 24/7.

⁵ A standardized mean of payment created by the BCB. In order to be accepted by any payment or financial institution, the boleto must be issued following predefined standards and registered on a centralized database operated by the CIP (Interbank Payment Clearing House).

global perspective, the development and implementation of instant payment systems in different countries were speeding up. In terms of the domestic context, despite the BCB's signaling, there was a market immobility in the development of an interoperable instant payment solution. Thus, the BCB decided to take the lead role in creating a new electronic means of payment, with the aim of making the Brazilian retail payments market more efficient, secure, competitive, and inclusive.

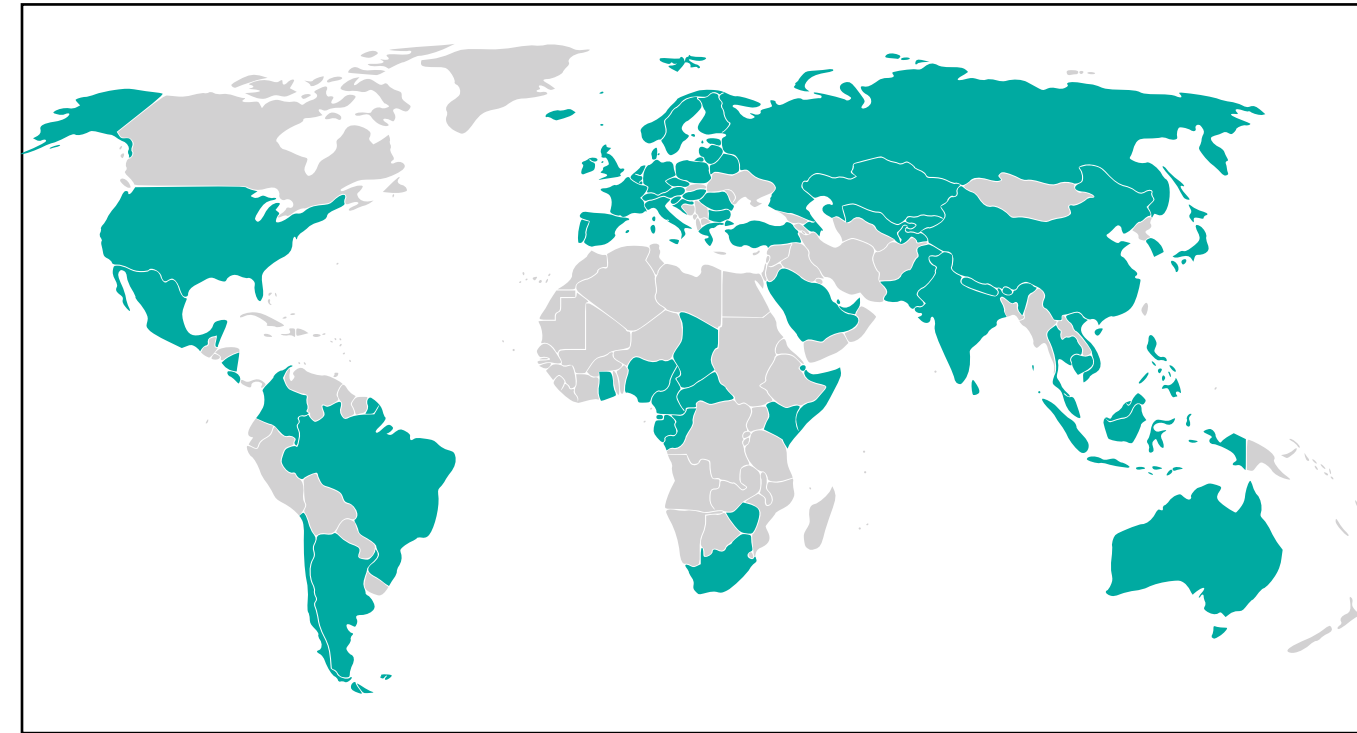
More specifically, Pix was created with the following objectives:

- reducing the use of cash and promoting greater digitization of the means of payment;
- fostering competition and promoting efficiency in the retail payments market;
- encouraging innovation and enabling new business models, not only in the financial and payments industry, but also in other activities in the real economy;
- democratizing the access to electronic means of payment and contributing to financial and digital inclusion;
- reducing the cost of electronic transactions;
- providing an experience, in the use of electronic means, that is simple, safe and without friction.

1.2 International benchmarking

Since the implementation of the first instant payment system in 2001, in South Korea, several other initiatives have proliferated around the world (Figure 1⁶). A publication of March 2023, points out that more than 60 jurisdictions already have instant payments services and new launches are expected in other jurisdictions in the coming years.

Figure 1 – More than 60 countries have instant payment systems in place



The BCB, by assuming the leadership of the project to implement the Brazilian instant payments ecosystem and through the study of international experiences, aimed at, , better understand the characteristics and profit from the lessons learned from the main instant payment solutions implemented around the world to support its decisions regarding the model to be established in Brazil.

Australia, Singapore, Denmark, India, the United Kingdom, Sweden, the European Union, the United States, Italy and Mexico were the selected jurisdictions to be studied among the main instant payment schemes already consolidated in the world at that time. Some authorities were selected to host a technical visit: Mexico, the United States, Australia, Denmark, Sweden and the United Kingdom. During the technical visits, some specific issues were treated such as the type of scheme operator (market or regulatory agency), implementation costs, use cases, forms of initiation, relevant characteristics for the end user and payment service providers, as well as the role of the regulatory authority with respect to the scheme. The main objective of the work was to analyze possible solutions that would fill the gaps in the existing payment schemes and capture opportunities for the improvement of the retail payments system in Brazil.

The knowledge acquired from the international experience allowed the identification of patterns and trends in the implemented solutions. The BCB sought to internalize the aspects of success and avoid incurring in the weaknesses identified, always adapting the characteristics of the studied solutions to the Brazilian reality. The different models of instant payment ecosystems are greatly influenced by the specific needs of each jurisdiction, and even by cultural aspects, so that there is no ideal model to be followed. Regardless, the study of the international experience was fundamental for the design and construction of the Brazilian ecosystem.

1.3 The inception and launching of Pix

It could be said that the inception of Pix is part of the BCB's ongoing process of monitoring, exercising surveillance and regulating the SPB. Since the preparation and publication of the *Diagnosis of the Retail Payments System in Brazil*, in 2005, the BCB seeks to promote a competitive, efficient, secure and inclusive retail payments market. Since then, the BCB has actively participated in the main international discussion forums on payment systems, notably within the scope of the Committee on Payments and Market Infrastructures (CPMI) of the Bank for International Settlements (BIS), which is an international forum for central banks promoting, monitoring and making recommendations about the security and efficiency of payments and financial market infrastructures.

In 2014, shortly after the enactment of Law 12,865 of 2013, the BCB published the SPB Surveillance Report⁷ in 2013, which disclosed the surveillance policies that guided the BCB's actions in promoting efficiency and security in the SPB and in the search for both effective access and use by the users of financial services, suited to their needs. Among the policies outlined were the "expansion of mobile payment services, due to the high potential to promote financial inclusion" and the promotion of "solutions that allow, at low cost, real-time and uninterrupted retail payments, with the advantage of payees having the financial values received by counterparties immediately available in their account". It was the first time that the BCB publicly aired its view about "real-time and uninterrupted retail payments", which soon became known as "instant payments", encouraging the development of an open and interoperable solution by the industry. At that time, several solutions were already being designed and implemented in several countries, with extensive follow-up and discussions at the CPMI.

In 2016, the BCB acted again to encourage the development of an open instant payment solution in Brazil. An International Workshop on instant payments was promoted, within the scope of the forum for matters related to payment schemes and institutions, on which BCB experts shared with the Brazilian industry the experience of some countries in the implementation of solutions of the sort.

Although some innovations have emerged in the provision of payment services, which have enabled, for example, mobile payments by QR Code, these models have adopted a closed format, in which both users (payer and payee) need to be customers of the same institution. On the other hand, in 2018, the difficulty of coordination and the resulting lack of market mobilization made it clear that private agents would not be able to implement an open solution for instant payments by themselves. In this context, and considering

6 See BIS, *Project Nexus: Enabling instant cross-border payments*, 2023. Available from: [Nexus: enabling instant cross-border payments \(bis.org\)](https://www.bis.org/nexus/enabling-instant-cross-border-payments).

7 Available at <https://www.bcb.gov.br/content/estabilidadefinanceira/spb_docs/RELATORIO_DE_VIGILANCIA_SPB2013.pdf>.

the complexity of the payment industry coupled with its multitude of specific interests, the BCB, as a neutral institution, took the lead in the development of the instant payments and its respective technological infrastructure, leading to the group of payment schemes that we know today as Pix.

The first stage for the development of instant payments in Brazil began with the creation of the Working Group - Instant Payments (GT-PI), with the aim of maintaining a broad dialogue with the market on the subject. The GT-PI, opened to the participation by any interested institution or individual, had more than 130 participants. Dialogue was conducted in an open and transparent manner, in the form of interactive public consultations and the publication of the corresponding suggestions on the BCB website⁸.

As a result of the work of the GT-PI, the fundamental requirements of Pix were defined, approved by the Board of Governors of the BCB and disclosed through Communiqué 32,927, of December 21st, 2018. The communiqué established the basic characteristics of the instant payments ecosystem, including governance for defining rules, forms of participation, centralized settlement infrastructure, connectivity services and provision of liquidity. It was also through this communiqué that the BCB officially positioned itself as the leading institution in the Pix development and implementation process, defining its role as the creator of the scheme and operator of the centralized platforms.

Given the successful experience with the joint construction model adopted in the GT-PI, in March 2019 the Pix Forum was created⁹, a permanent advisory committee that meets regularly to discuss aspects related to the definition of rules, standards, products, technical, messaging and security requirements, with the aim of subsidizing the BCB in the role of defining the Pix rules. The Pix Forum is made up of four thematic working groups (GT)¹⁰ in which representatives of Pix participants, associations representing financial institutions, payment institutions and end users of Pix, as well as any other interested institution operating in the retail payments market. This open and collaborative environment provides transparency to the decisions taken by the BCB and representativeness to the various market agents and representatives of civil society, ensuring a broader vision in the definition of technical specifications and in the creation of new Pix functionalities.

In addition to positioning itself as the agent responsible for defining the Pix's rules, the BCB also decided to be the developer, operator and manager of the technological infrastructure that supports Pix, made up by the central

settlement platform, the Instant Payments System (SPI), and the Pix aliases centralized database, the Directory of Transactional Account Identifiers (DICT).

In October 2019, the BCB began the development of Pix's technological infrastructure. After a public consultation process, on August 12, 2020, the Pix Regulation, as well as the supporting documents that complements it, were published through the BCB Resolution no. 1. On October 5, 2020, one year after the initiation of the systems' development, and before Pix going live, the registration of Pix aliases by end users began, reaching more than 25 million aliases registrations in the first days of availability. On November 3rd, 2020, the restricted operation began, when the Pix participating institutions made available to a small number of their customers the option of making a Pix transfer, in order to start the ecosystem's operation gradually, allowing the final adjustments in both the BCB and in the participating institutions' systems. Finally, on November 16, 2020, Pix went into full operation, placing Brazil on the list of countries with a working instant payments system and starting a major change in the context of retail payments in the country.

Since November 2020, a Pix transaction can be carried out from a current account, savings account or prepaid payment account. Individuals, companies and government entities can make transfers or payments in a few seconds,

at any time or day, using an application either on cellphones or via internet banking of their relationship institution.

Therefore, the payer is included in the Pix ecosystem, who by, accessing his account provided by a financial institution or payment institution participating in Pix, initiates a transaction that is allowed to travel through the BCB infrastructure. The funds reach the receiving end through the institution holding the payer's account. There is also the special settlement agent, which exclusively provides settlement services to other Pix participants, who do not directly access the settlement infrastructure provided by the BCB (SPI), and the payment initiator service provider (PISP), which exclusively provides the transaction initiation service to the end user in an account held by another institution. Institutions that participate in Pix through the transactional account provider mode can access the BCB infrastructure (SPI and DICT) either directly or indirectly (through another participant that provides the service).

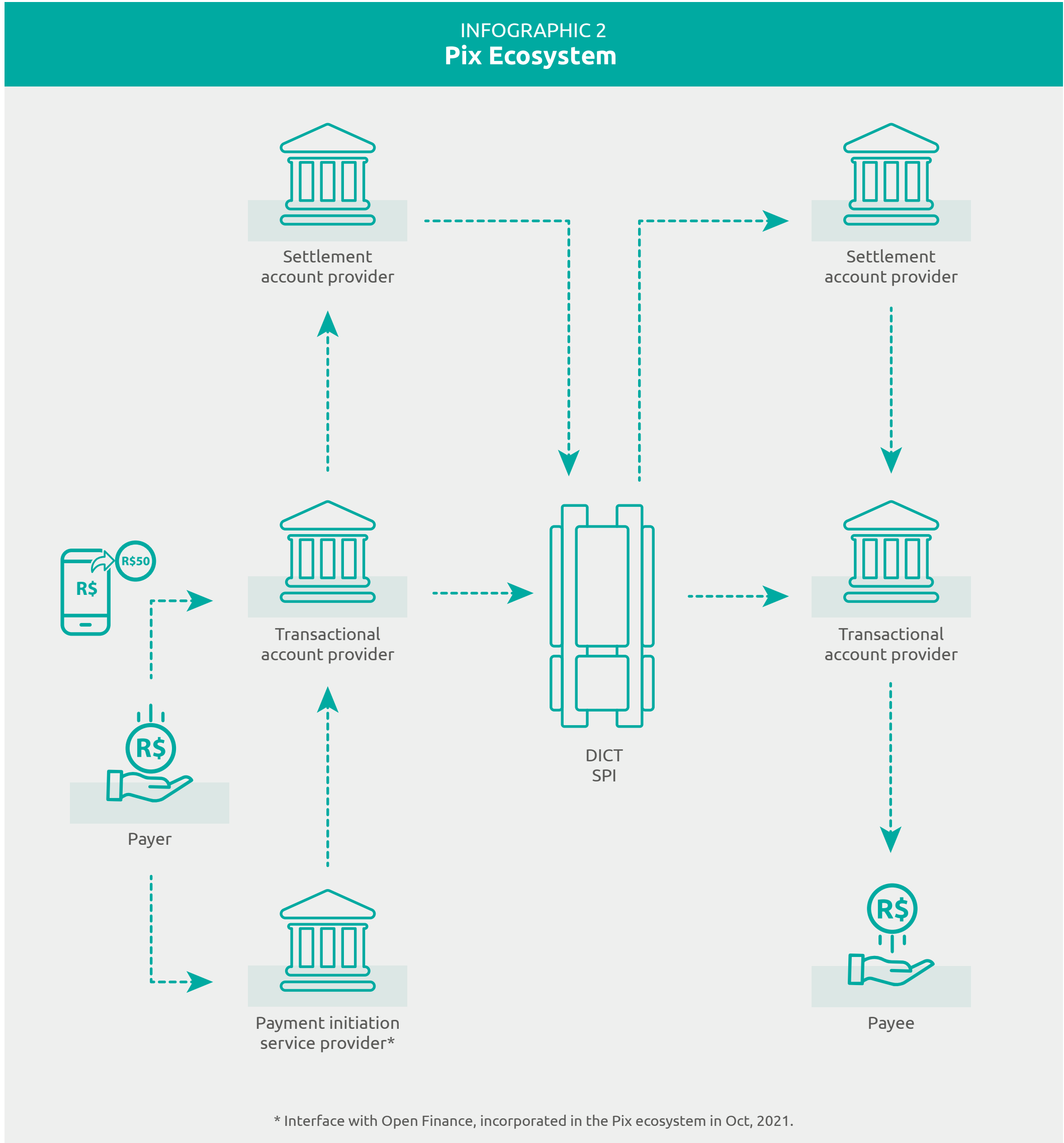
INFOGRAPHIC 1 Pix development timeline



⁸ See: Working Group - Instant Payments (bcb.gov.br).

⁹ Established through Ordinance 102,166, of March 19, 2019, available at < https://www.in.gov.br/materia/-/asset_publisher/Kujrw0TZC2Mb/content/id/67765121/do2-2019-03-20-ordinance-n-102-166-of-19-of-mar-2019-67764964 >.

¹⁰ The working groups within the scope of Pix Forum are: Business WG, Standardization and Technical Requirements WG, PI Messages WG and Strategic Security Group (GE-SEG).



In just a few months of operation, Pix became a success among Brazilians, gaining prominence in the media and breaking adoption records when compared to any other instant payment method implemented in the world.

INFOGRAPHIC 3

Why making Pix transfers became so popular in Brazil?

Pix is:

Fast
Money is available on payee’s account in just a few seconds.

Cheap
Free for individuals and cheaper to businesses.

Integrated
Transaction information go along with the payment order, facilitating the reconciliation, the processes automation and the integration between systems.

Open
Pix can be offered by a diverse range of institutions (traditional and digital banking, fintechs, credit cooperatives, etc), competitive environment and interoperable.

Versatile
Make payments feasible in multiple situations (“any use case” approach).

Available
24 hours a day, every day of the year, including on weekends and holidays.

Easy
Simple, intuitive, and focused on smartphones usage, either by phone number aliases or by QR codes scanning.

Safe
Transactions go through the National Financial System Network (RFSN) and are under robust mechanisms to ensure security.

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1.4 Pix and the strategic agenda of the BCB

The BCB’s current strategic agenda, the “*Agenda BCB#*”, was created with the aim of promoting financial democratization, through the definition of a work agenda centered on technological evolution as a way to improve structural issues of the financial and payments system. The Agenda BCB# is structured around six dimensions: inclusion, competitiveness, transparency, education, sustainability and excellence. Pix is part of the innovation actions that make up the competitiveness dimension, aiming to encourage competition both in the National Financial System (SFN) and in the SPB, in addition to reduce the cost of retail payments instruments.

The open environment, which allows the participation of any institution¹¹ that provides payment services (traditional banks, digital banks, fintechs, finance companies, credit cooperatives, among others), is a key feature of Pix, which stimulates more competition and, consequently, higher quality and lower price for the consumer. Evidence of this increased competition is the low concentration of transactions and financial volume among Pix participants, indicating the absence of participants with market power at both the paying and receiving end, as detailed in section 3.4.

Despite being included in the competitiveness dimension, Pix also contributes to the achievement of the objectives outlined within the scope of the inclusion dimension. From this perspective, the high degree of adoption of Pix in such a short life span demonstrates that the Brazilian population, in general, has been very receptive to the new manner of making payments and transfers. Another aspect worth mentioning is the large segment of the population that, in the 12 months prior to the launch of Pix, had not performed eletronic transfers (e.g. TED) and is now a Pix user¹². In this sense, Pix has been collaborating to facilitate access to the payment market, which is the gateway to the financial system, for Brazilian citizens and companies.

Pix, still in its early years, has already been able to fulfill the objectives pursued by the Agenda BCB#. The goal is to make Pix to evolve on an ongoing basis, hence providing new features, so that the retail payments market becomes increasingly competitive and inclusive.

¹¹ It is worth mentioning that there are minimum requirements, including operational requirements, that need to be met so that these institutions can become Pix participants.

¹² See Central Bank of Brazil. *Financial Citizenship Report, 2021*. Available at < https://www.bcb.gov.br/content/cidadaniafinanceira/documentos_cidadania/RIF/Relatorio_de_Cidadania_Financeira_2021.pdf >; and Central Bank of Brazil. *The use of TED and Pix by the Brazilian population, in Banking Economy Report, 2021*. Available at < <https://www.bcb.gov.br/publicacoes/relatorioeconomiabancaria> >.

BRAND AND COMMUNICATION STRATEGY

It was essential to create a unique name and a strong brand in order to the public easily recognize the new means of payment, associate it with its characteristics and thus facilitate its adoption. The Pix brand, launched in February 2020, is based on technology, transaction and pixel, and it represents the transposition of the limits of the financial system, communication between market agents and the solidity of Pixel.

In addition to the challenge of creating a simple, memorable and easily identifiable brand, it needed to be widely publicized. The BCB has been using the concept of “integrated communication strategy”, which encompasses communication planning, universal brand creation, public and press relations, promotion of events and social media and internal marketing campaigns.

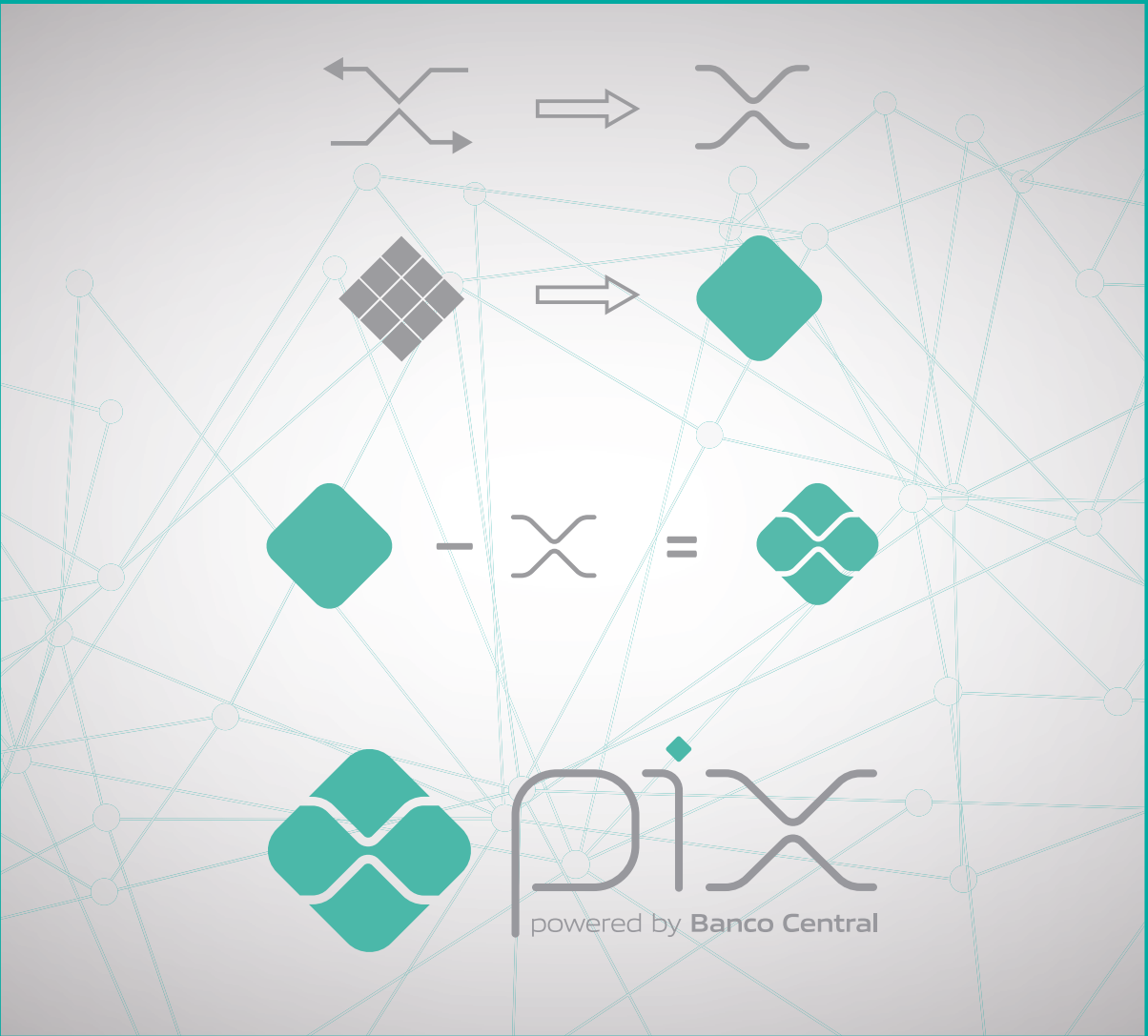
In this sense, the BCB has coordinated efforts with the Pix participating institutions that yielded good results for publicizing the brand through multiple channels, such as apps, websites, social networks, radio and TV ads and public events broadcast live, such as the ‘Conexão Pix’ (Pix Connection), which featured two series of webinars aimed at IT companies and startups, financial and payment institutions and retail agents, and ‘Circuito Pix’ (Pix Circuit), focusing on regulation, brands and specificities related to technology.

BCB specialists participated in outreaches with sectors of the payment and banking industries, broadcasts and podcasts promoted on social media channels, besides the establishment of partnerships with associations representing retail and other segments that could benefit from the use of Pix. Before the ecosystem launching, content directed to people with hearing impairment was produced in partnership with the Federal Government alongside with educational videos published on YouTube. During the launching period, the BCB team also mobilized to grant more than 50 interviews about Pix characteristics that echoed in more than 100 articles in national newspapers, radio and TV. The BCB also made use of organic social media campaigns and digital influencers engagement, in

addition to maintaining a specific web page on the BCB website dedicated to Pix and FAQs, which are constantly updated with relevant information.¹³

The Pix’s communication initiatives also aimed at a closer relationship with digital influencers, who could potentially reach more than 20 million users focused on technology, innovation, financial education and finance. The BCB streaming events ‘Pix & Tech’ and ‘Pix & Finance’ were attended by 30 digital influencers and allowed for the dissemination of content related to Pix in various media.

The results of these combined efforts helped in the rapid public adoption of Pix and brand awareness success. In 2021, the third most searched topic in the Google Trends “How to” category was “How to make a Pix transfer?”. The Pix brand has achieved such success that it occupies the 22nd position among the top popular brands in Brazil, according to a survey carried out in 2022 by the advertising agency VMLY&R, which analyzed 1,600 brands in the country.¹⁴



¹³ The Pix page is available at < https://www.bcb.gov.br/en/financialstability/pix_en > and the Q&A page at < <https://www.bcb.gov.br/en/financialstability/pix/fagen> >.

¹⁴ See < <https://www.estadao.com.br/economia/pix-marca-supera-nubank/> > (only in Portuguese).

PIX'S NATIONAL AND INTERNATIONAL AWARDS

The innovations brought by Pix have been recognized in several national and international awards:

Fintech & Regtech Global Awards 2021: Winner in the Payments Innovation category, where payment initiatives controlled or supervised by a central bank or other financial regulator were assessed and, based on the use of a new technology, resulted in efficiency gains, both in terms of cost and speed;

Mobile Time Selection Award: hors-concours initiative of the 2021 edition, awarded exceptionally, for its innovative character and immense impact on society;

iBest Brazil Academy: Brazil's best initiative with regards to digital government actions in 2021, according to the expert jury's vote. In 2022, Pix won the prize in the same category, being chosen by the popular jury and the Academy;

Innovation in the Public Sector Competition: winner in the category "Innovation in Services or Public Policies in the Federal Executive Branch", which encourages the implementation of innovative initiatives in the Executive Branch contributing to the improvement of public services.

Central Banking Awards 2022: awarded in the Central Banking's category payments and Market Infrastructure Development – Retail, with recognition of the essential role played in the implementation of better payment practices for retail or similar market structures.

BandNews 2022 Award: 1st place in the ranking of the most admired brands in Brazil in the payments sector.

Faz Diferença (It makes a difference) Award: sponsored by the newspaper O Globo in partnership with the Federation of Industries of the State of Rio de Janeiro (Firjan), this award honors personalities whose merits are an example to the entire Brazilian society. The Governor of the BCB received the award in the "Economy for work" category developed with Pix.



2. Pix Evolution During the 2021/2022 Biennium

Pix went live in November 2020, with an agenda of functionalities already planned for 2021, in addition to other features to be prioritized and developed over time. Since its release, Pix offered the possibility of making an immediate Pix transfer using a Pix alias (phone number, email, Tax ID (for either individuals or merchants) or a random string)¹⁵, by scanning a QR Code or the action of copying and pasting the string from a QR Code (Pix Copy and Paste). These forms of initiation made it possible, since the beginning of Pix, the regular transfer of funds between individuals and making and receiving payments between individuals, merchants and government entities. I was also possible to schedule a Pix for settlement at a future date, but the offering of this service by participants was optional. From the side of payees, the Pix API (standardized by the BCB) has also been made available since the launch of Pix. It was created to facilitate and automate the interaction between the systems of participating institutions and systems of end users, covering the functionalities of creating and managing billing, verification of settlements, reconciliation and support for return processes. It is through this standardized API that commercial establishments are able to instantly identify, through integration with their commercial automation systems, that the funds arising from a sale are credited in their account, allowing consumers to quickly check the transaction and improving the acceptance experience of Pix by merchants. In addition, with the standardization of the Pix API, users who want to change accounts do not need to change their management systems to different APIs, making it easier to move from one participating institution in the Pix ecosystem to another, which encourages competition.

In addition to the functionalities made available to the population since its launch, the BCB anticipated the development of new products and solutions for years to come, in order to make new use cases possible for the Pix ecosystem. The objective is to ensure that any payment or transfer made in Brazil, regardless of its value, its purpose and the agents involved, can be carried out through Pix. This set of new products and solutions has been named as the "Evolutionary Pix Agenda".

¹⁵ A randomly generated alphanumeric string that can be used by users who do not want to link their personal data to their transactional account information.

In addition to this evolving agenda, the continuous monitoring of Pix usage patterns and the diagnosis of users’ needs provide relevant information for the development of new functionalities and for the improvement of policies and rules, with the aim of increasing competitiveness and ensuring

Pix’s high operating and safety standards. The combination of these two movements meant that Pix had relevant deliveries and improvements in its initial years of operation.

2.1 Features to increase user convenience

2.1.1 Phonebook integration

Since March 2021, institutions participating in Pix have been able to develop solutions to integrate the applications used to carry out Pix operations to the customers’ cell phonebook. This integration aims to facilitate the identification of users who register the phone number or email as a Pix alias, further simplifying payment experience, as it eliminates the need to manually enter a payee’s Pix alias stored as a contact in the phonebook .

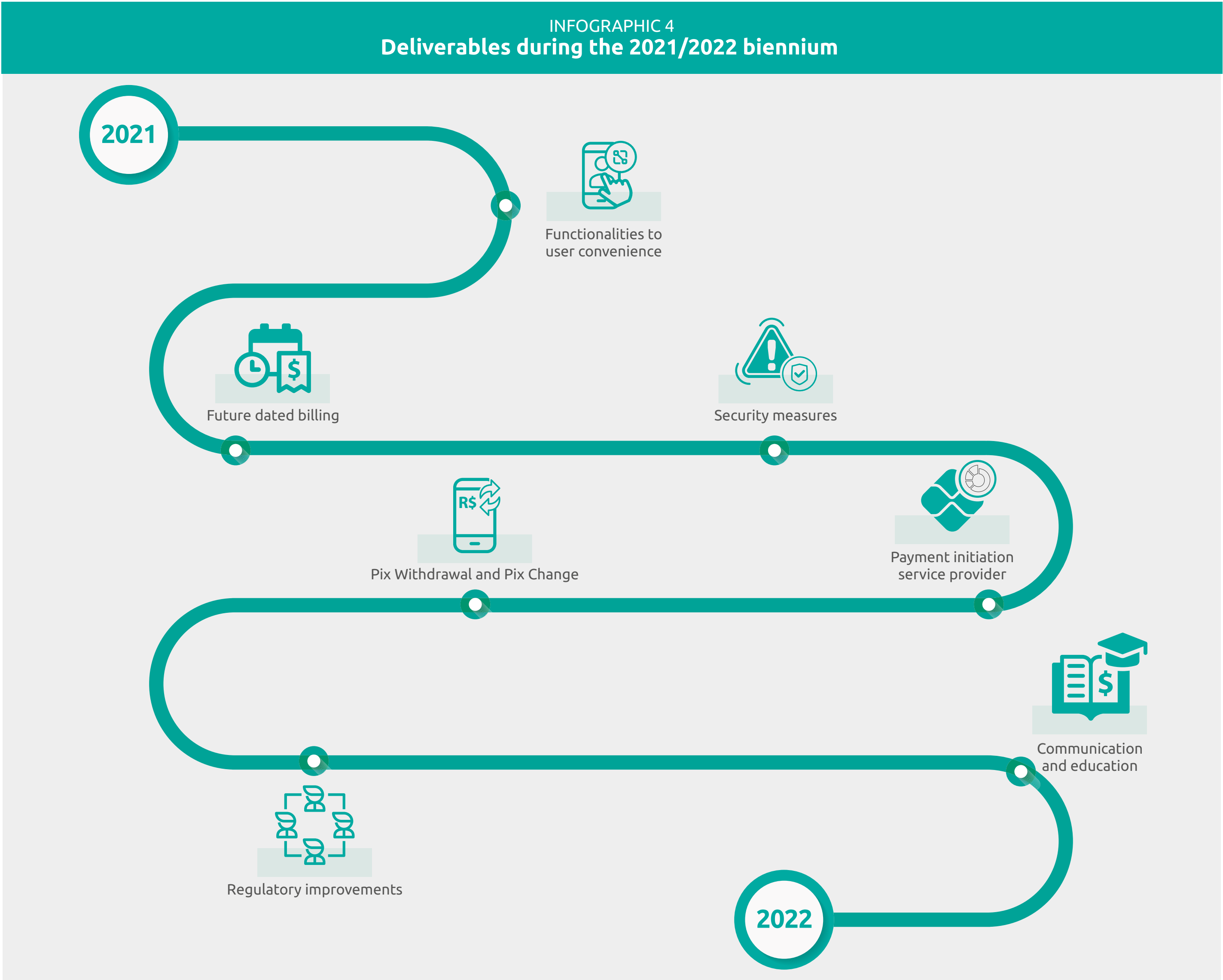
2.1.2 Mandatory transaction scheduling

The possibility of scheduling Pix future transactions, which has been an optional feature since the beginning of the ecosystem, became mandatory as of September 2021. Pix scheduling works similarly to the scheduling procedure of other existing eletronic transfers in Brazil (TED or DOC), allowing users to choose a future date for the transaction settlement and cancelling the transaction until the settlement’s eve. The BCB recommends that institutions also make available the option of scheduling recurring payments. This functionality, however, remains optional.

2.1.3 Accessibility – Pix is for everyone

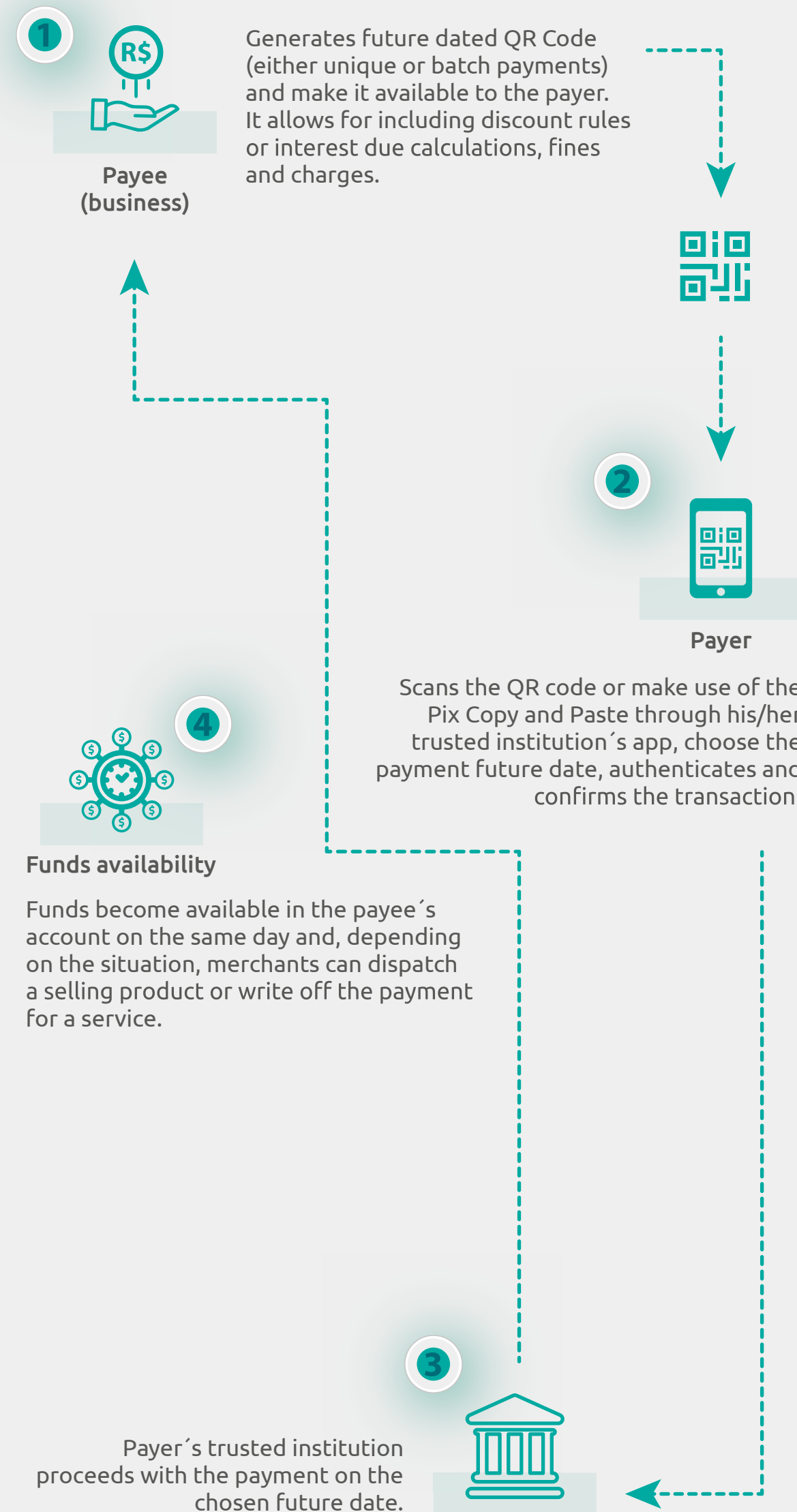
A common guideline for all actions involving Pix is the democratization of access for the entire Brazilian population to digital means of payment. For this purpose to be achieved, it is necessary to ensure that the use of Pix is accessible to all citizens, including those with specific needs, such as people with disabilities or reduced mobility.

The BCB defined in July 2021 accessibility guidelines for the user experience, which needed to be observed by institutions that offer Pix to their customers. Additionally, the BCB acts as a promoter for the adoption of inclusive solutions, encouraging the implementation of mechanisms so that those customers can use Pix autonomously. The BCB discloses, on a specific webpage with a sign language version, the solutions developed by the institutions to serve people with visual impairment, hearing impairment, physical disability or reduced mobility.



INFOGRAPHIC 5

Future dated payments



2.2 Future dated billing

Since July 2021, it is possible to generate billing charges with future due dates on Pix, also allowing for the automatic calculation of any additional amounts (such as interest, fines, discounts and rebates) applicable on the actual payment date.

Payment of past due charges are initiated by scanning a QR Code or by entering the corresponding code through Pix Copy and Paste. After this action, the billing data is instantly available to the user, who can choose whether to make the payment instantly or by scheduling the payment for a future date. If the latter option is chosen, the payer receives information on any interest, fines, discounts and rebates, depending on the chosen date.

The payee's benefits in using Pix for receiving payments, relative to the traditional billing procedure, are the fees charged (typically lower) and the elimination of deadlines for receiving funds. For payers, the main benefit is the payment experience, which is easily initiated by scanning a QR Code or Pix Copy and Paste, without the need to scan or type the barcode.

2.3 Security measures

Even before the beginning of Pix's development, the issue of security had been already a fundamental pillar. With a specific thematic working group dedicated to the topic, which brings together several experts from Brazil in financial transaction security, Pix was built with a robust security framework. In addition to innovating in user experience, speed and availability, Pix features exclusive layers of protection, such as fraud markers, and solutions that are already present in other means of payment.

Given that new types of fraud and scams frequently emerge, the BCB sees security as a dynamic and a continuous discipline. As a result, the BCB acts permanently to ensure the maintenance of Pix's high level of security. Action takes place on multiple fronts, including extensive dialogue with agents involved and with specialists in security; timely monitoring and updating of Pix regulation and infrastructure; and user education and awareness on cybersecurity and measures for the safe use of Pix.

Thus, in these first years of operation, new mechanisms and functionalities were incorporated, aiming to expand the protection of the ecosystem. These mechanisms and functionalities are detailed in the subsections below.

2.3.1 Limits on transaction values

Institutions that provide Pix must offer their customers functionalities that allow them to consult and manage the value limits of Pix transactions. Throughout the 2021/2022 biennium, functionalities and rules were created aiming at improving the user experience in managing limits through applications. The main measures are listed below:

- mandatory availability of the Pix limit management functionality in the apps and digital channels of participants, allowing the limits increase and reduction requests to be available by period (during the day or night), including for Pix Withdrawal or Pix Change transactions;
- definition of a minimum period of 24 hours for attending requests to increase limits;
- registration of specific counterparty's accounts with pre-defined limits;
- establishment of a standard limit of R\$1,000.00 for transactions between individuals during the night (between 8pm and 6am), with the option of offering an additional functionality that allows the Pix user to set the night limit beginning at 10pm, according to the user's choice;
- limits for individuals and merchants payees became independent from limits on transactions with the purpose of withdrawal or change;
- increase in limits for Pix Withdrawal and Pix Change, at the discretion of each withdrawing agent, with the aim of adapting them to the limits usually available at ATMs for traditional withdrawals; and
- removal of merchants from the scope of the rules, since competition already resolves the definition of limits for companies.

2.3.2 Precautionary blocking

Launched in November 2021, precautionary blocking allows the institution where the individual payer maintains his account to pre-emptively block the funds received for up to 72 hours from the credited time, in the event of a suspected fraud, in order to carry out a more robust anti-fraud analysis. The funds are set free only after the institution assures that the transaction is accredited. If the fraud is confirmed, the payee's institution must return the funds to the paying user who was the victim of the fraud.

2.3.3 Special Return Mechanism (MED)

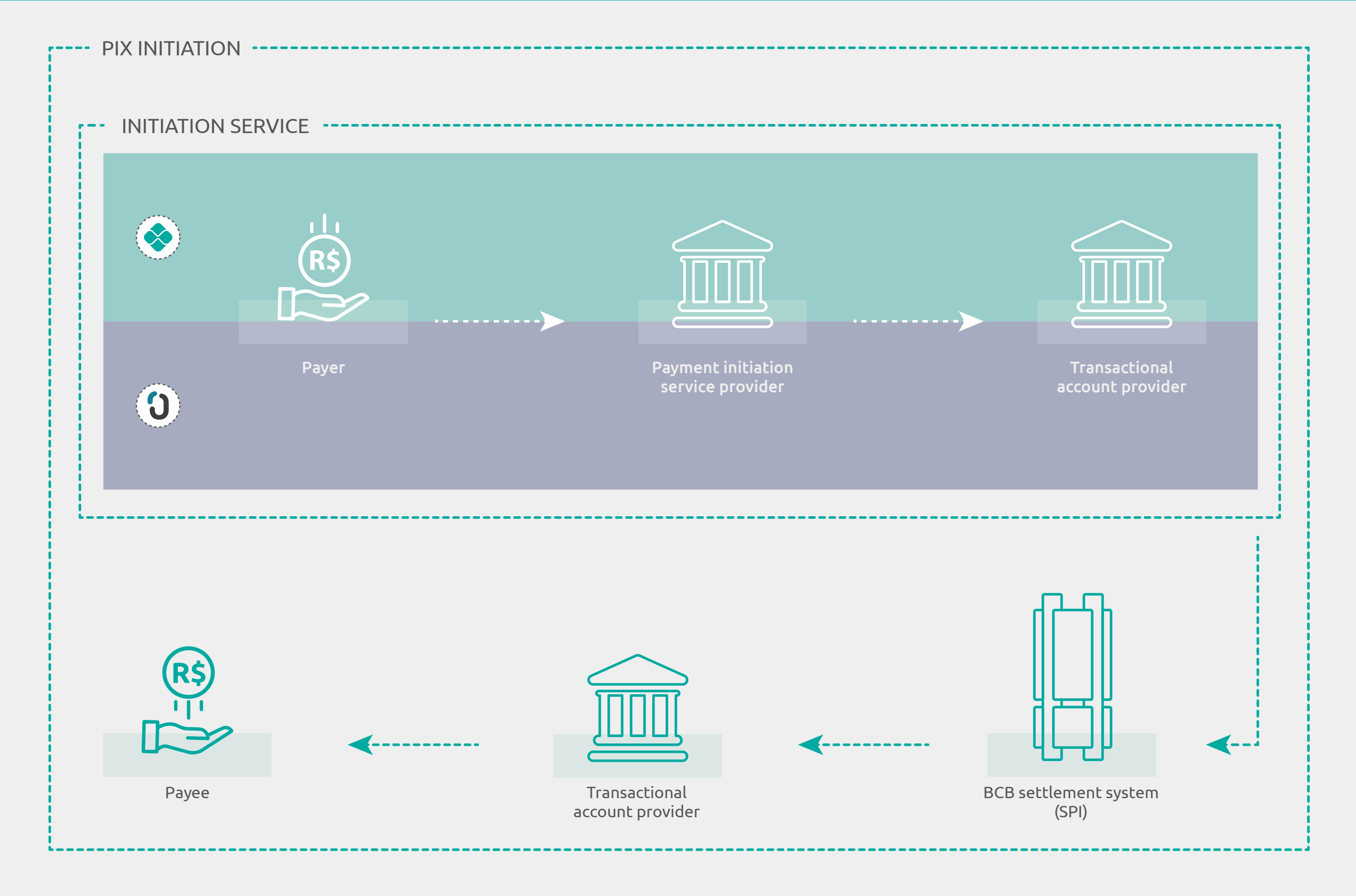
With the purpose of expanding the user protection measures, the BCB has established since November 2021 a structured process aimed at speeding up the return of funds to the payer in case of operational failures or a well-founded fraud suspicion.

The MED allows funds to be quickly blocked in the fraudster/scammer/criminal’s account, after a victim’s claim, and to be returned to the payer account after the analysis process is completed, when deemed appropriate. It can also be triggered if there is an undue credit in consequence of an operational failure in the payer institution’s systems. The mechanism does not apply to cases of typing errors (e.g.wrong payee’s Pix alias), commercial disputes between users and transactions with well-founded suspicion of fraud in which the funds are destined to the account of a *bona fide* third party. In other words, the MED is not a *chargeback* mechanism (reversal of payment), as is the case with payment card arrangements. With the MED, institutions must follow standardized procedures within the deadlines established by the BCB and must use the infrastructure provided by the BCB to facilitate communication between the parties, providing greater agility and efficiency to the process and, thus, increasing the chances of the victim recovering the funds.

2.3.4 Anti-fraud and data protection rules and mechanisms implemented in the DICT

- It was created in the DICT the process for tagging Pix aliases and Tax ID numbers suspects of committing frauds in order to quickly identify accounts involved in fraud and also to prevent new scams from being applied to Pix users: mandatory fraud notification applicable to all Pix aliases and ID numbers involved in any fraudulent transaction. This information is shared with all participating institutions whenever a Pix alias is consulted and it should be one of the factors to be considered for the purposes of authorizing or rejecting transactions;
- definition of procedures for identifying and handling cases in which excessive Pix aliases consultations occur and do not result either in settlement or in an invalid Pix alias, with the aim of preventing data scanning attacks; and
- creation of specific consultations by participants to users’ IDs, at any time and for any purpose, in order to verify associated fraud notifications.

INFOGRAPHIC 6
Pix flow via payment initiation service



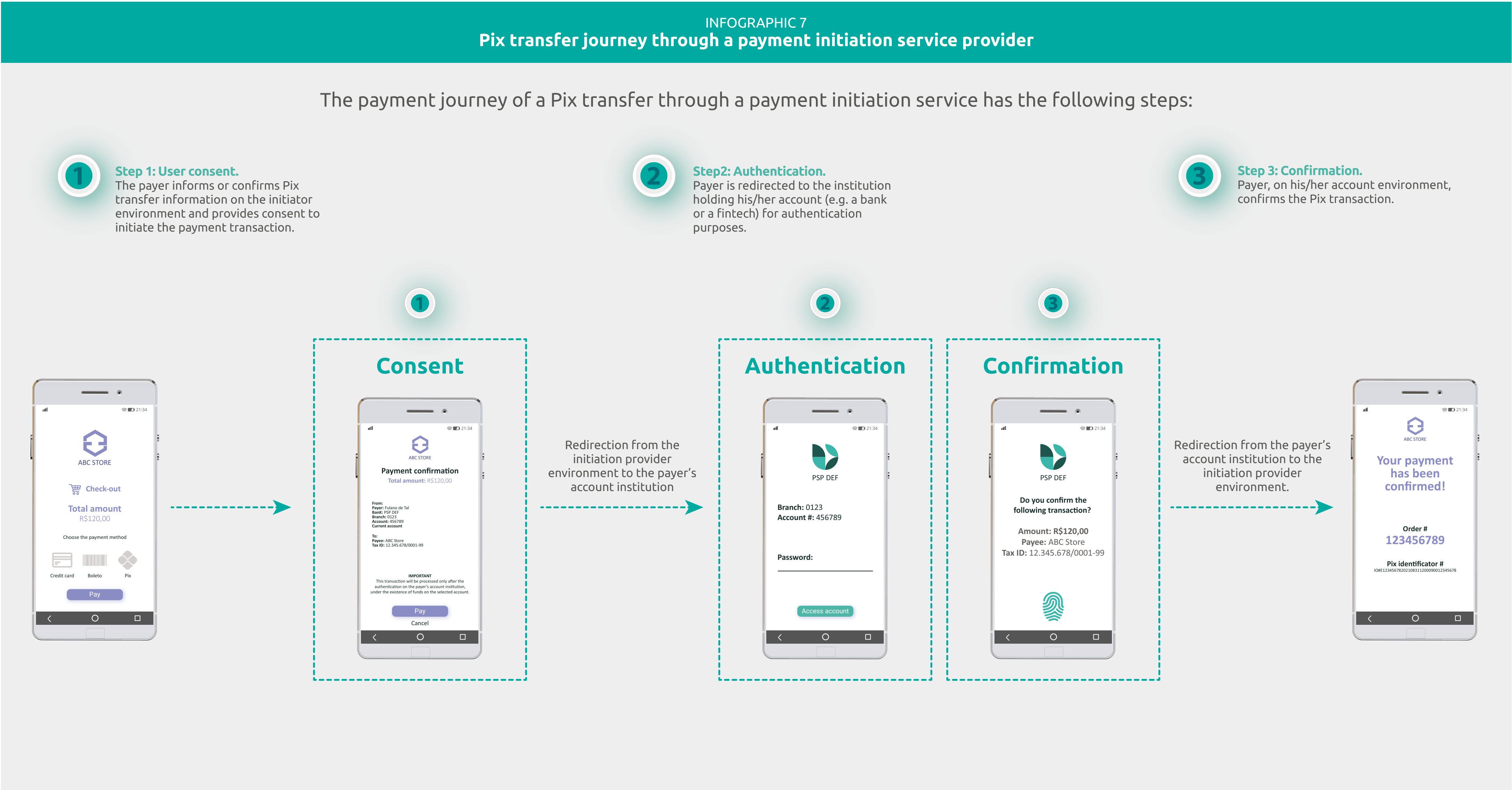
2.4 Initiation service: the link that connects Open Finance and Pix

In October 2021, after the launching of Open Finance phase 3, which covers the sharing of a payment transaction initiation service, Pix started to provide a new way of initiating transactions, through institutions so-called payment initiation service providers, that do not hold users’ accounts nor the funds received from the provision of the service. With Pix, institutions that act

solely for this purpose can provide the initiation service, so called “initiators”, or institutions that act as a transactional account provider and wish to also provide this service. The main objectives for creating the initiation service are to increase competition in the ecosystem, allowing institutions that are traditionally outside the financial system to develop solutions that allow the initiation of a Pix; and enable the development of innovative solutions that reduce the frictions of starting a Pix and improve user experience, especially in e-commerce.

The launch of Pix features regarding the payments initiation service has been staggered as determined by the Open Finance rollout schedule. The entire regulatory framework and infrastructures of Open Finance and Pix are ready to receive Pix transactions by payment initiation since October 2021,

for transactions initiated by Pix aliases, by manual data entry or payment initiation services in cases where the participant has all the payee user’s information, and since December 2021, for transactions initiated by reading a QR Code and for scheduled transactions.



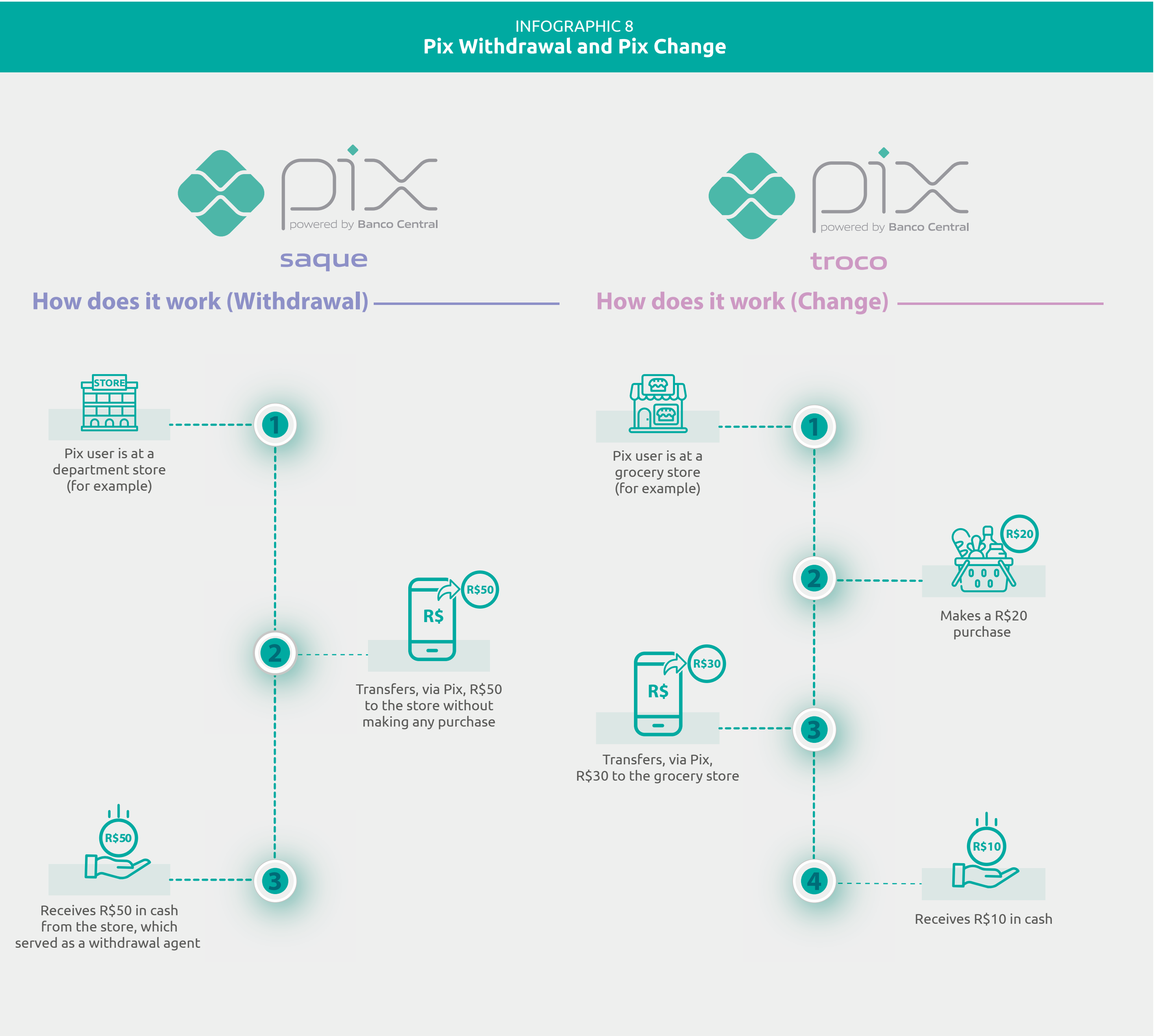
2.5 Pix Withdrawal and Pix Change

In view of the limited conditions for providing withdrawals in Brazil, either due to the existence of municipalities with a low presence of financial institutions or the asymmetries in the geographical distribution of withdrawal points coupled with the restriction on the provision of withdrawals by digital institutions, in November 2021 Pix Withdrawal and Pix Change functionalities were launched, with the aim of: increasing the capillarity of service points; promoting competition in the provision of the financial system withdrawal services; increasing convenience for users and democratizing access to the withdrawal service for Brazilians.



Pix Withdrawal allows users who have an account at any institution participating in Pix to make a Pix transfer directly from their account to the account of a withdrawal agent, which can be a commercial establishment, a bank correspondent or shared ATMs; or to the account of institutions participating in Pix, through the use of their proprietary ATMs. Then, the withdrawal agent or Pix participant handles the funds requested by the user in an amount corresponding to the Pix transfer made.

Pix Change consists of a transaction in which the user with an account at any Pix participant, when making a purchase at a withdrawal agent, makes a Pix transfer for that agent's account in an amount equivalent to the sum of the purchase value and the value of the amount the user wishes to receive back in cash, as a change. The value delivered to the user will be the difference between the total value of the Pix and the value of the purchase made at the establishment.

In order to serve a wide range of users profiles, the conception of Pix Withdrawal and Pix Change was guided by the ease of implementation and the flexibility offered to withdrawal agents, who can define, for example, the days and times for providing the service and the maximum amount available for withdrawal, in addition to other possibilities for customizing the availability of the withdrawal service, which may vary according to the particularities of each agent.



Pix Withdrawal and Pix Change bring several benefits to everyone involved in the transaction:

			
Users	Retailers	Pix Participants	Financial System
<ul style="list-style-type: none">• More options.• More convenience.	<ul style="list-style-type: none">• Customer’s inflow.• Reduction of costs related to cash and banknotes handling.• Mitigation of security risks.	<ul style="list-style-type: none">• Expansion of the withdrawal network.• Withdrawal offering with lower costs.• Reduction of asymmetries when offering the service.	<ul style="list-style-type: none">• More competition• Additional option for those institutions that has withdrawal offering difficulties.• More presence through the national territory.• Saving costs related to cash and banknotes handling.

2.6 Pix Regulation Improvements

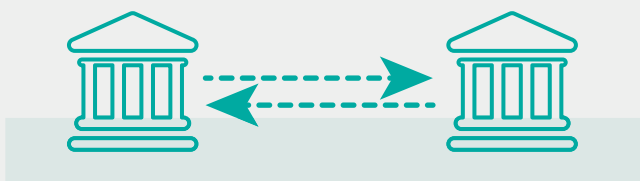
2.6.1 Partnerships and outsourcing

The Pix Regulation was amended in December 2022 to give greater clarity to commands about Pix’s operating rules. Among the main changes is the ban on outsourcing Pix initiation and receiving transfers services through an account provided by a third party that is not an institution participating in Pix. That is, the institution providing a transactional account that wishes to offer Pix to its customers must necessarily undergo the process of joining Pix, carry out homologation tests and an evaluation of the requirements for user experience.

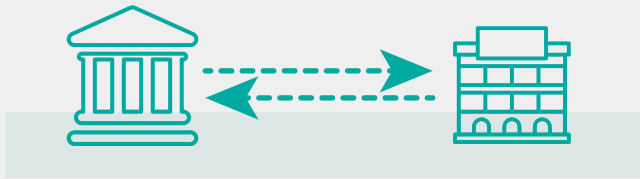
Situations where a third-party institution acts as a payment initiator, as stated in Resolution BCB 80 from 2021, and maintains a bilateral contractual relationship with a Pix participant allowing the initiation of transactions from the participant’s account, were also prohibited. Those situations are not characterized as an outsourcing service because in order to act as a payment initiator, an institution is required to be authorized to operate by the BCB and hence be a Pix and Open Finance proper participant.

Pix is constantly evolving and, during this process, the BCB monitors the various business models that emerge. The authority’s role in defining the feasibility of alternatives for the provision of Pix seeks to ensure a higher level of security for users, maintain symmetry in the conditions of provision between participants and increase the transparency of information.

INFOGRAPHIC 9
What are partnerships and outsourcing on Pix



Partnership
Relationship between Pix participants



Outsourcing
Relationship between a Pix participant and a private agent non-participant of Pix

Any transactional account provider that wants to offer Pix to its customers must apply to be part of the Pix ecosystem, undergo homologation tests and be subject to evaluation of its requirements to the user experience.

2.6.2 Instant Payments Account Remuneration

As of August 2022, the BCB instituted remuneration on the daily balance of the Instant Payments Account (IP Account), to be calculated based on the Selic Rate. The IP Account is the account held by a Pix participant, maintained at the BCB, to facilitate transfers between different institutions within the scope of Pix.

The IP account remuneration is an important measure to minimize the liquidity cost of institutions in maintaining funds to make Pix transactions viable, as well as leveling the opportunity costs for the different profiles of participants. Within the working hours of the systems that provide liquidity for Pix (Monday to Friday, from 6:30 am to 6:30 pm), access to funds is free of charge. Outside these systems’ operating hours, the sources of liquidity available are basically the use of the electronic currency balance collected, the reserve requirement on demand deposits and the access to a specific liquidity line, subject to interest bearing costs, with the latter two being available only for Financial Institutions. Institutions without access to these sources, such as payment institutions, which do not receive demand deposits and cannot access the specific liquidity line, as well as smaller financial institutions, which do not reach the volumes required to collect reserve requirements on cash funds, had an additional opportunity cost in allocating funds to give Pix liquidity. With the remuneration of the IP Account, the opportunity cost of institutions to maintain funds to provide liquidity to Pix was reduced and equalized, democratizing access to liquidity sources for all Pix participants.

New Pix use cases by government entities

In 2022, Pix use cases grew even more with the Federal Revenue using the arrangement to refund income tax to taxpayers and the Electoral Justice to remunerate poll workers who worked during the elections. The National Treasury Secretariat also began, in 2022, to make payment of obligations, within the framework of the Federal Executive Branch, through Pix.

2.7 Communication and Education – Pix contribution to financial citizenship

The integrated communication strategy was a critical factor for the success of Pix and for its rapid adoption by society. Pix’s presence in the most diverse social and economic contexts requires perpetuity and multiplicity of communication actions with informative and educational purposes so that society reaches the desired level of knowledge and maturity in relation to the use of Pix and its benefits, the initiation forms, scam prevention and the various aspects that contribute to awareness and better use of Pix’s features. There were many initiatives throughout 2021 and 2022. The most relevant are detailed in this section.

SUMMARY

PRESENTATION

IDEALIZATION

EVOLUTION

NUMBERS

FUTURE

2.7.1 Pix is new, but scams are old (#campanhacontragolpes, #essefilmevocêjáviu and #evitegolpes)

In the last week of April 2021, the BCB led a security campaign aimed at protecting users against the most common scams involving Pix and consolidating a culture of digital security among participants and users.

The “Pix is new, but scams are old” campaign alerted citizens to the social engineering strategies used by scammers, disseminating content related to the main scams involving Pix, the security measures to be adopted to avoid frauds and how to proceed if you are a victim.

All BCB profiles on social networks were used to publish daily posts, with the aim of expanding the reach of the campaign, which reached more than 10 million people according to estimates. Additionally, many participants and associations that make up the Pix Forum engaged in the initiative, following established guidelines for better coordination of actions.

An event broadcasted live on the BCB’s YouTube channel set the end of the campaign and included the participation of members from the team of specialists responsible for managing and operating Pix as well as market representatives, who spoke about banking and payment accounts hacking and cloning of messaging apps, among other topics, and interacted live with citizens through the event chat on YouTube.

2.7.2 #Pixparanegócios (#Pixforbusiness)

With the aim of promoting the use of Pix in the business environment, especially with retailers, the BCB carried out the *#Pixparanegócios* (Pixforbusiness) campaign on social networks in November 2021, in which companies of different sizes, sectors and regions gave their testimony on how fundamental Pix has become in their business models.

Posts and videos were produced with statements from micro and small entrepreneurs, professionals and businessmen from retailers chains, e-commerce platforms and innovative businesses, among others, describing the benefits of Pix and the showing different ways to incorporate Pix into the portfolio of means of payment and billing, reinforcing the message that Pix is for any company, regardless of their size, sector or region of operation.

2.7.3 #BCteExplica (#theBCBExplains)

#BCteExplica (theBCBexplains) is a series of short videos on the BCB’s YouTube channel that addresses financial issues with a language that is accessible to the population. Several *#BCteExplica* videos clarify issues involving Pix (only in Portuguese):



3. Pix in Numbers

Pix is a successful public policy that has gained national and international prominence and has been transforming the lives of millions of people and businesses. An independent study, published in 2022 by ACI Worldwide, an international consultancy that operates in the payments sector, quantified the financial effect of instant payment solutions in several countries.¹⁶ The study estimated that the widespread adoption of Pix resulted in estimated cost savings of US\$5.7 billion for businesses and consumers in 2021, which helped unlock US\$5.5 billion of additional economic output, which represents 0.34% of the Brazilian GDP. The report also projects that net savings for consumers and businesses are expected to climb to US\$37.9 billion by 2026, generating and additional US\$37.6 billion of economic output in the same timeframe, equivalent to 2.08% of the country’s forecasted GDP).

The success and effectiveness of Pix can also be translated by statistics, which are presented below.

3.1 Transactions

Pix was quickly accepted by the Brazilian population. Both the number of transactions and the financial volume have progressively grown since its release. In December 2022, considering transactions settled in and outside the SPI,¹⁷ 2.9 billion Pix transfers were carried out, a growth of 1,900% compared to December 2020, when Pix started operating, which demonstrates the great acceptance of Pix in the Brazilian society and business environment. Regarding the financial volume transferred, there was a nominal growth of 914% in 24 months, reaching R\$1.2 trillion in December 2022 (Charts 3.1.1 and 3.1.2).

¹⁶ See <<https://investor.aciworldwide.com/news-releases/news-release-details/latin-american-economies-poised-reap-economic-benefits-real-time>>.
¹⁷ Pix transactions can be settled in the SPI (the system operated by the BCB that settles transactions between different institutions participating in Pix) or outside it, when payer and receiver are users of the same participant or different participants who settle transactions through the same settlement agent.

INFOGRAPHIC 10 Pix’ Statistical Highlights

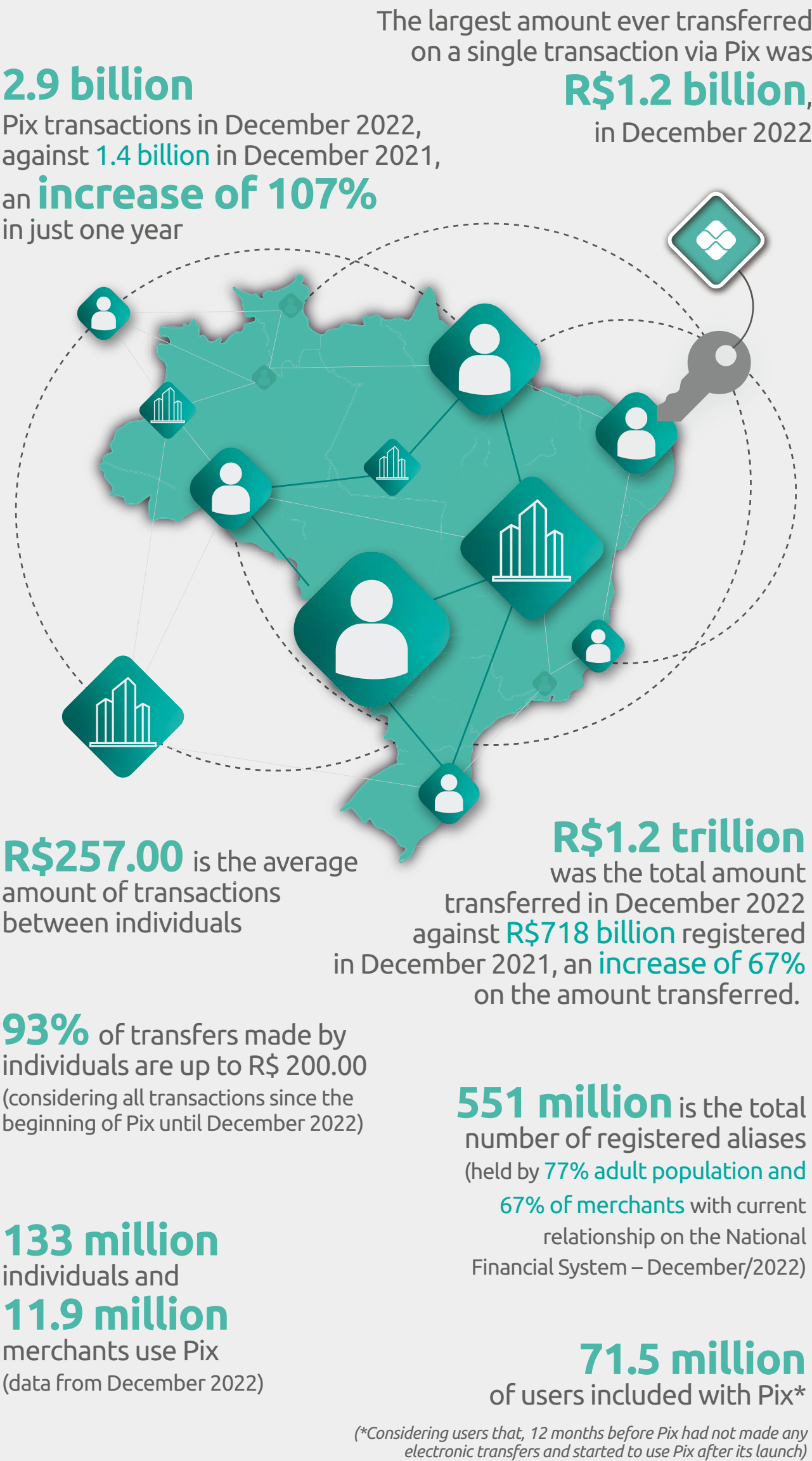


Chart 3.1.1 – Number of transactions

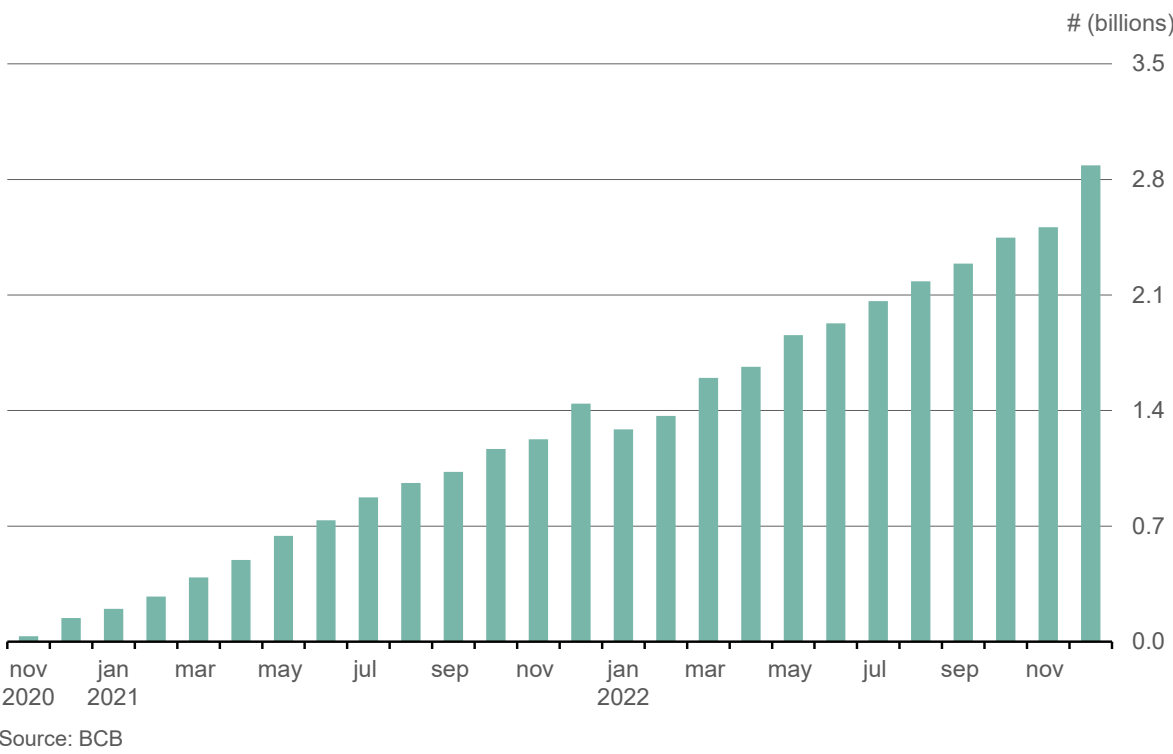
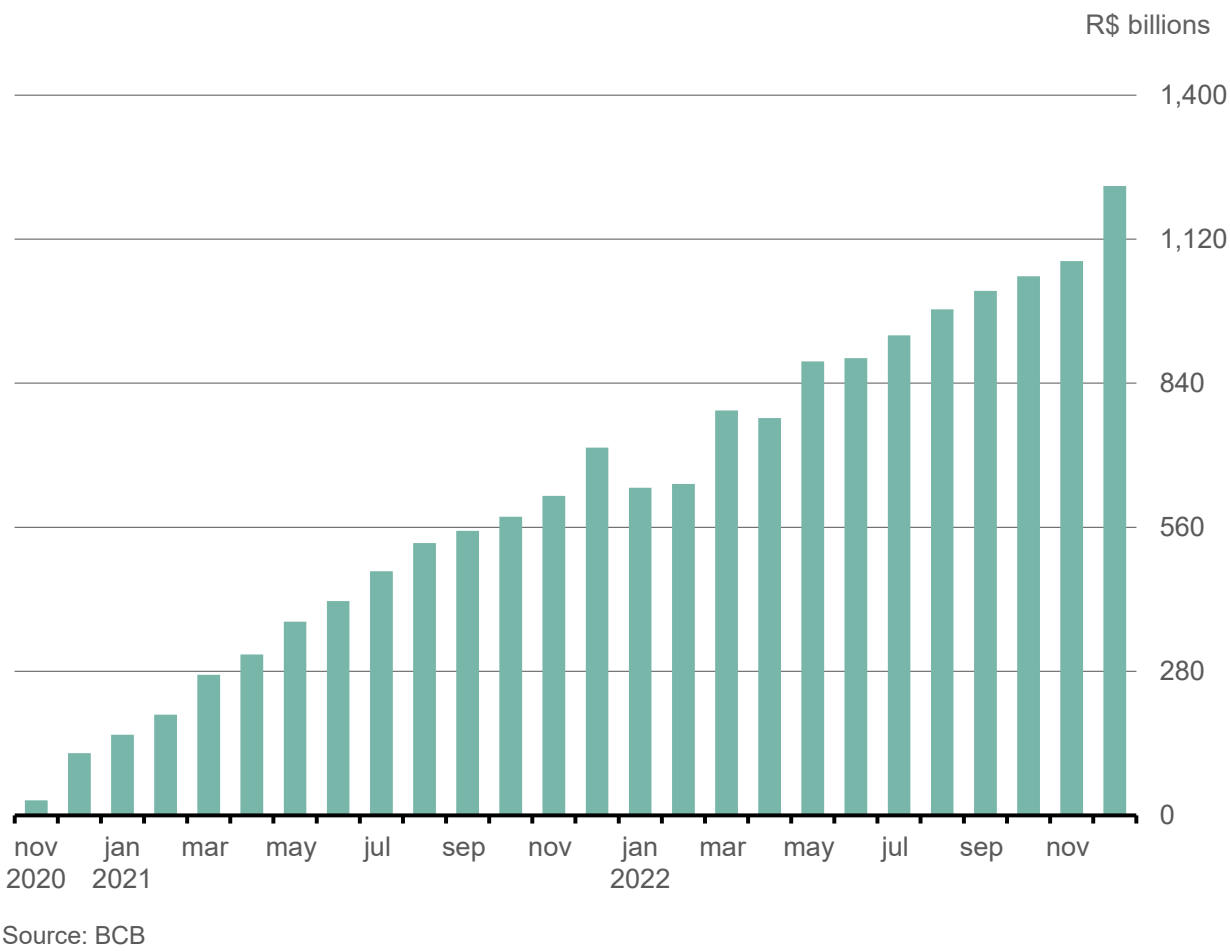


Chart 3.1.2 – Financial Value



Considering all transactions since the launch of Pix until December 2022, almost 61% were less than R\$100.00 (Chart 3.1.3), which shows that Pix has been used mainly for transfers of lower amounts. When considering transactions whose payers are only individuals, 93.1% were below R\$200.00, which reinforces the low value nature of this modality of transaction (Chart 3.1.4). Considering transactions only between private legal entities (e.g. merchants), there is still some concentration in the range up to R\$500.00, but it can be noted a greater contribution of higher value transactions: 18.6% of transactions have a value from R\$2,000.00 onwards (Chart 3.1.5).

Chart 3.1.3 – Histogram of transactions

By value range (R\$100,00)
Nov-20 to Dec-22

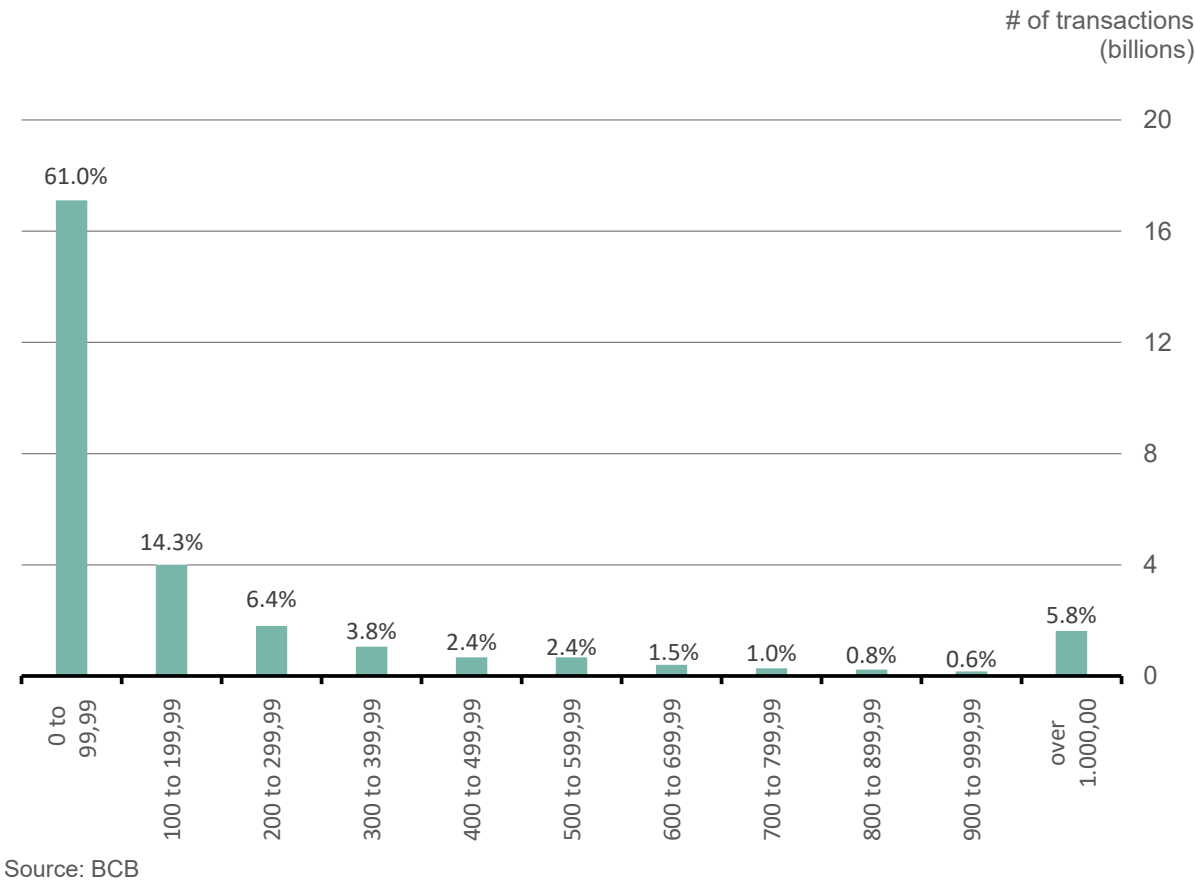


Chart 3.1.4 – Histogram of transactions (only individuals)

By value range (R\$20,00)
Nov/20 to Dec/22

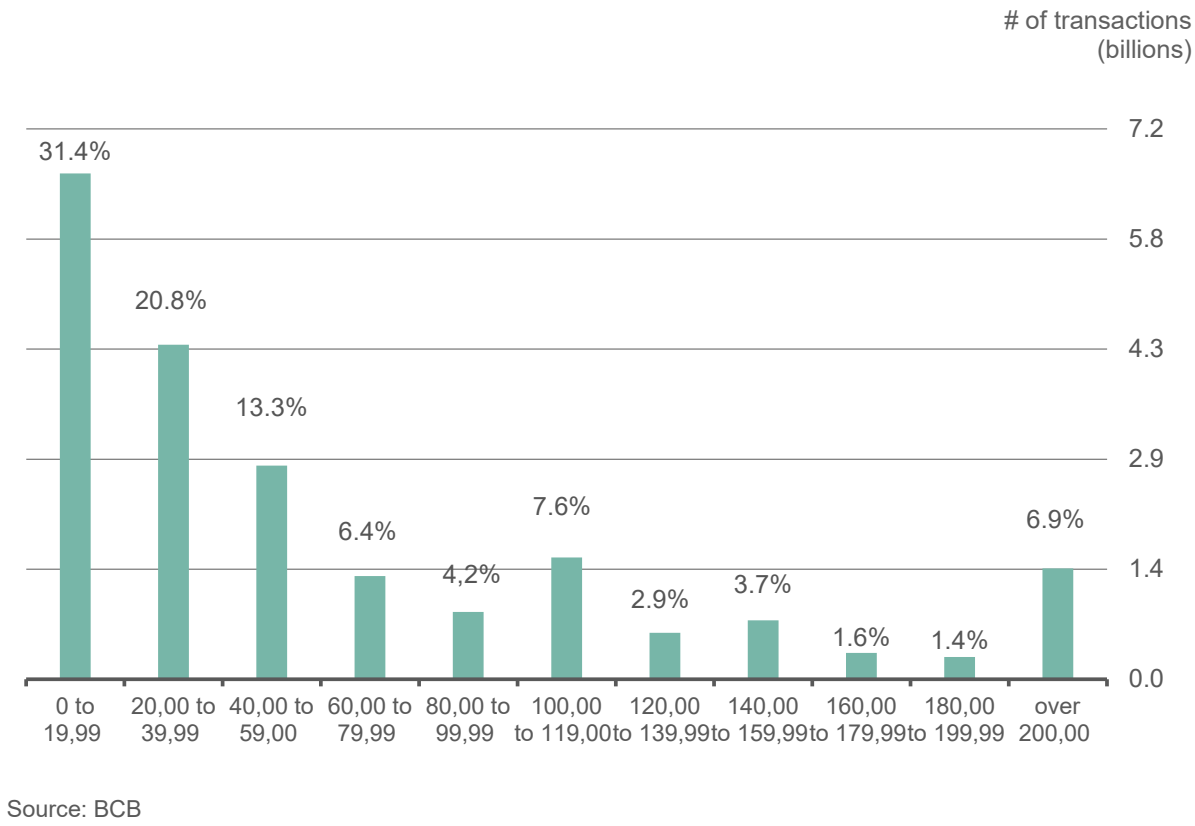
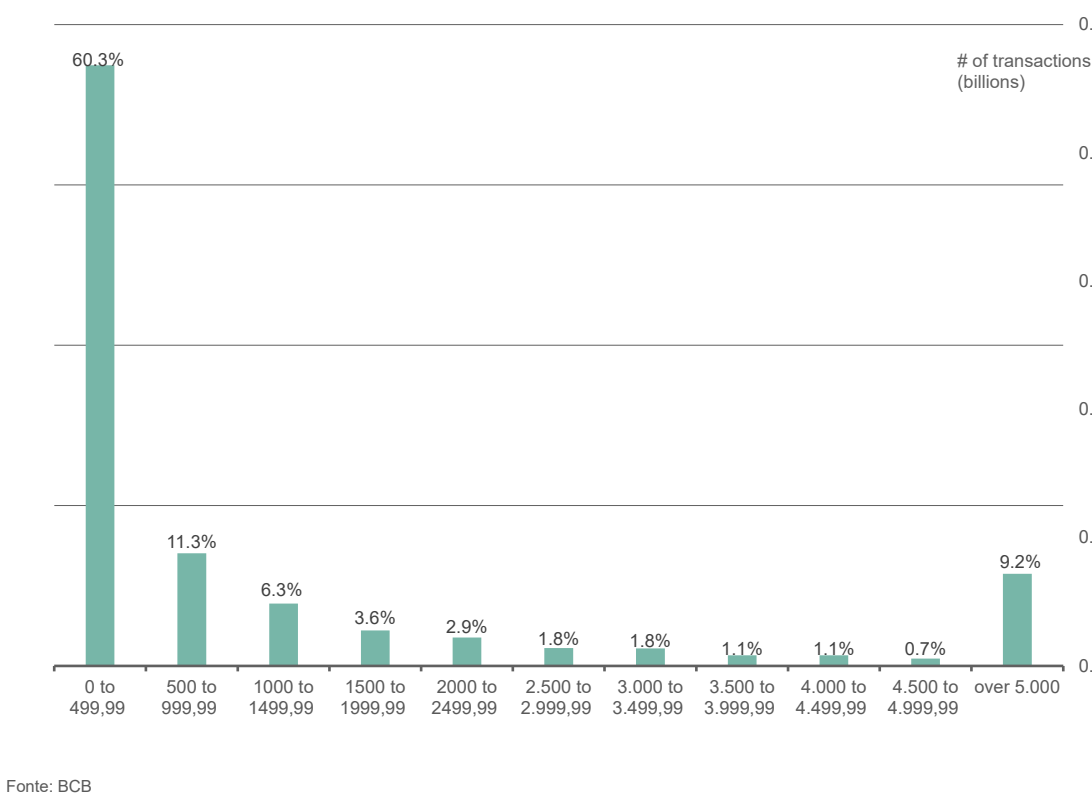


Chart 3.1.5 – Histogram of transactions (only companies)

By value range (R\$500,00)
Nov/20 to Dec/22



Pix is mostly used in transactions between individuals (P2P) while legal entities transact greater financial volumes. Due to the easy and friendly user experience provided by Pix, it was expected that most transactions would be between individuals, which was the case. In November 2020, 87% of transactions were between individuals (Chart 3.1.6). The adoption of Pix by companies tends to be slower, mainly because it depends on adaptations on merchants´ systems. Even so, it has been already noticed a progressive increase in the representativeness of transactions from individuals to companies (P2B): from 5% in November 2020 to 24% in December 2022 (Chart 3.1.6).

Considering only transactions that took place in December 2022, the average value of transactions between legal entities (B2B) was R\$5.7 thousand, which is much higher than the average value of P2P transactions, of R\$257.00 (Chart 3.1.8). This difference was expected given the mostly commercial nature of transactions between legal entities, which tend to contain higher individual values. This fact is reflected in the high representation of B2B transfers in the total financial amount settled, reaching 36% in December 2022 (Chart 3.1.7). The transactions median, in December 2022, was lower than the averages for all transaction types (Chart 3.1.8),¹⁸ mainly on B2B transactions, which leads to the conclusion that most transactions had lower values, with a few transactions with relatively high values, corroborating the findings in charts 3.1.3 to 3.1.5. Regarding transactions involving government entities, data from December 2022 illustrates that the number of transfers corresponded to only 0.1% of

the total and 0.7% of the total financial amount, showing that Pix still has room to grow in transactions involving government entities (charts 3.1.6 and 3.1.7).

Chart 3.1.6 – Distribution of the number of transactions

By transaction nature

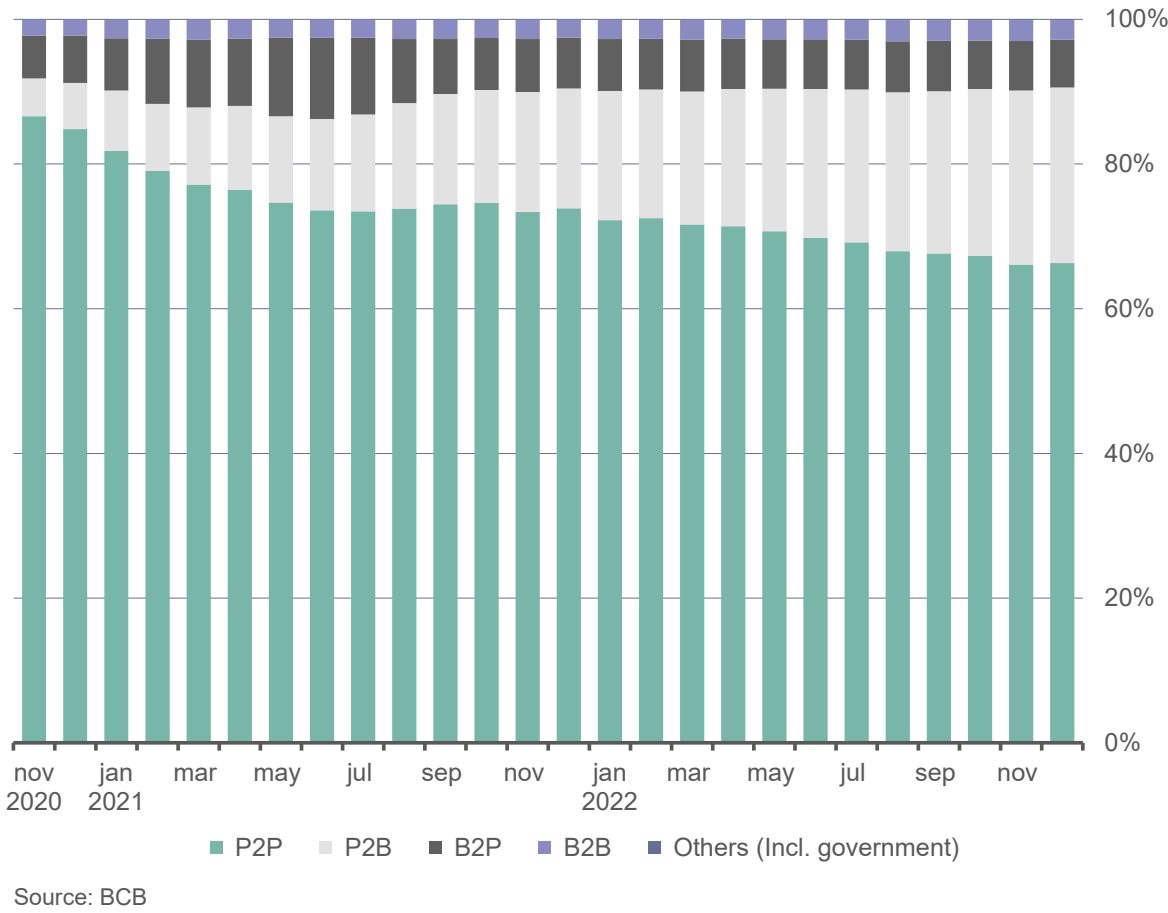
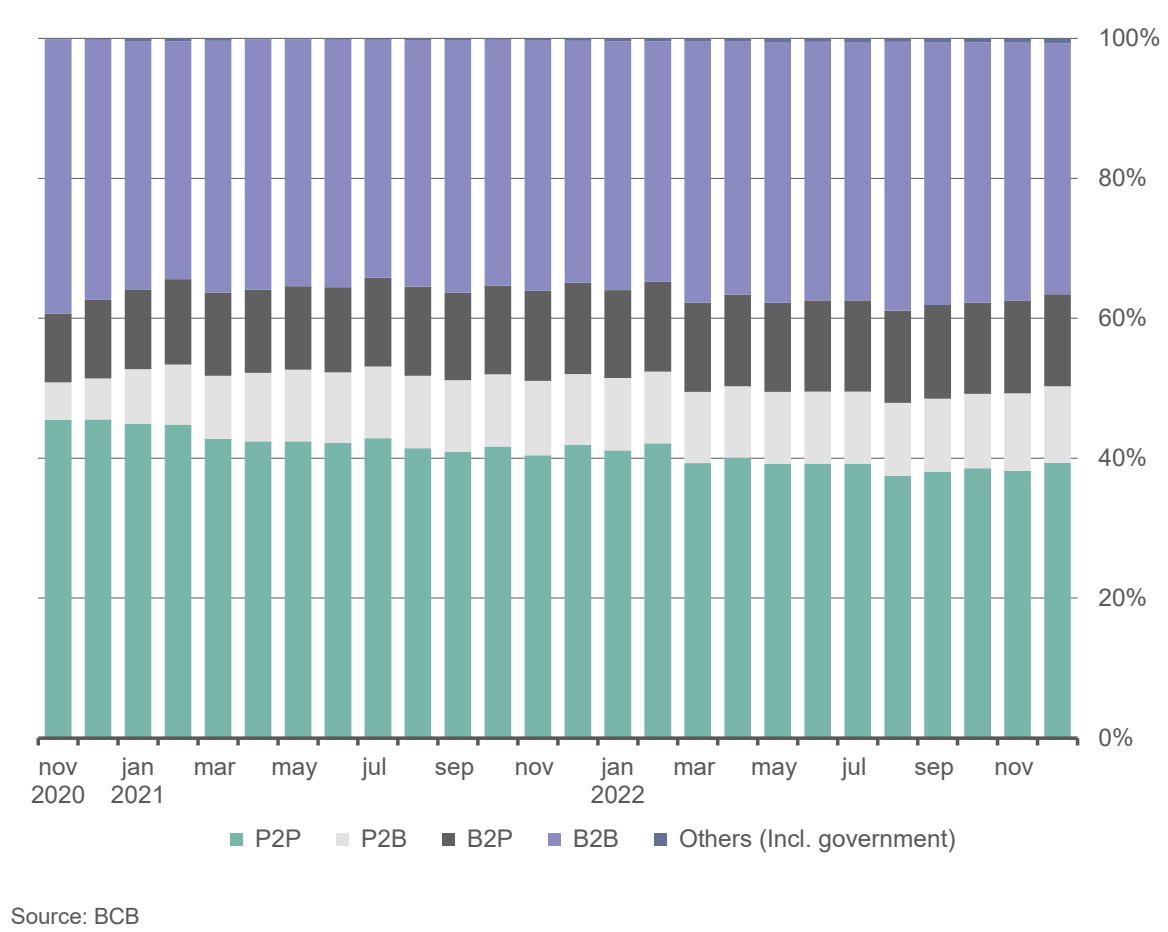


Chart 3.1.7 – Distribution of the financial amount

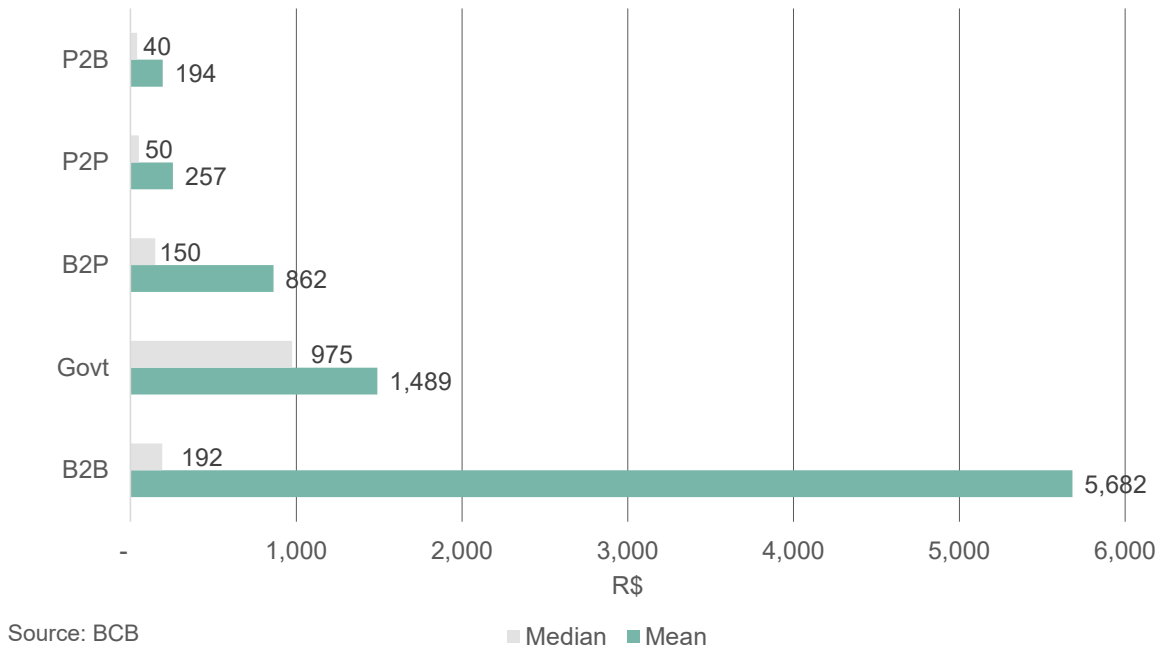
By transaction nature



¹⁸ P2P refers to transactions between individuals; P2B refers to transactions where the payer is an individual and the payee is a legal entity; B2P refers to transactions where the payer is a legal entity and the recipient is an individual; B2B refers to transactions between legal entities; and "Others" includes transactions involving government entities, both at the paying and receiving end.

Chart 3.1.8 – Average value of transactions

By nature of transaction



Pix has five different options to initiate transactions: manual entry of the payee’s data¹⁹, Pix alias, static or dynamic QR Code²⁰ and the payment initiation service. A Pix alias is more convenient than the manual entry, as it allows to carrying out transactions using only information from the payee. Considering only December 2022, around 65% of all Pix transactions were carried out through alias initiation (Chart 3.1.10). During this same period, it can be noted that 15% of transactions were initiated by manual entry. This is mainly due to the way that some participants implemented the functionality of saving payees’ data for future transfers in their systems (e.g. favorite contacts). Thus, when selecting the payee among transactions already settled, the participant’s system brings information from the payee’s account instead of the corresponding payee’s alias, hence generating a Pix transfer through manual entry. Transactions initiated by static or dynamic QR Code, typically related to trade, services or billing operations, have gained more relevance given the growing adherence to Pix by legal entities, representing 21% of total transactions settled in that same month, with an increase of 17 p.p. compared to November 2020, the Pix launching month (charts 3.1.9 and 3.1.10).

¹⁹ Manual initiation is that in which the payer must enter all the data of the recipient (Tax ID, payment service provider identification, branch number, account number and account type), as with TED and DOC.

²⁰ The difference between Static QR Code and Dynamic QR Code is that the latter has the ability to store a larger amount of information. In general, the dynamic QR Code is the one that is generated electronically for each transaction, while the static QR Code is the one that is printed and can be used for several transactions.

Chart 3.1.9 – Number of transactions

By initiation method

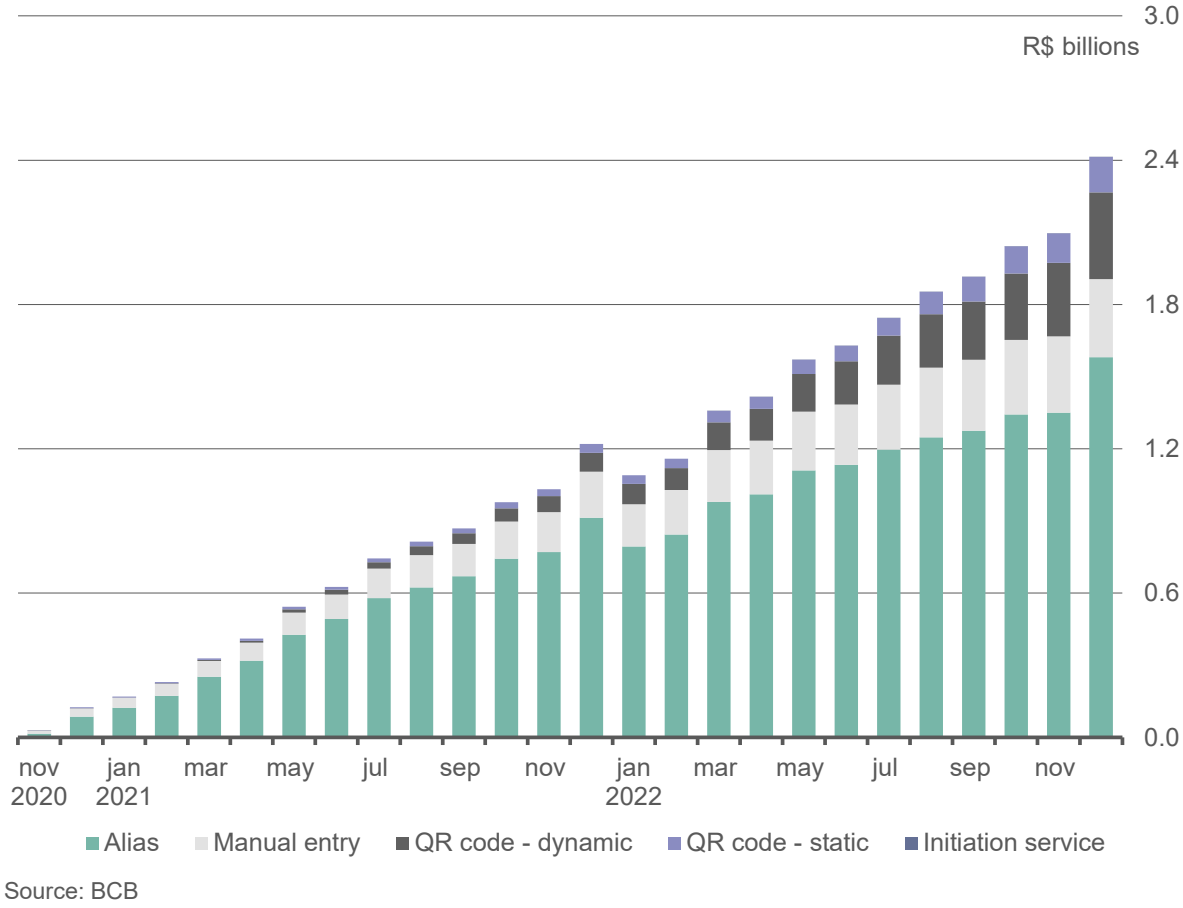
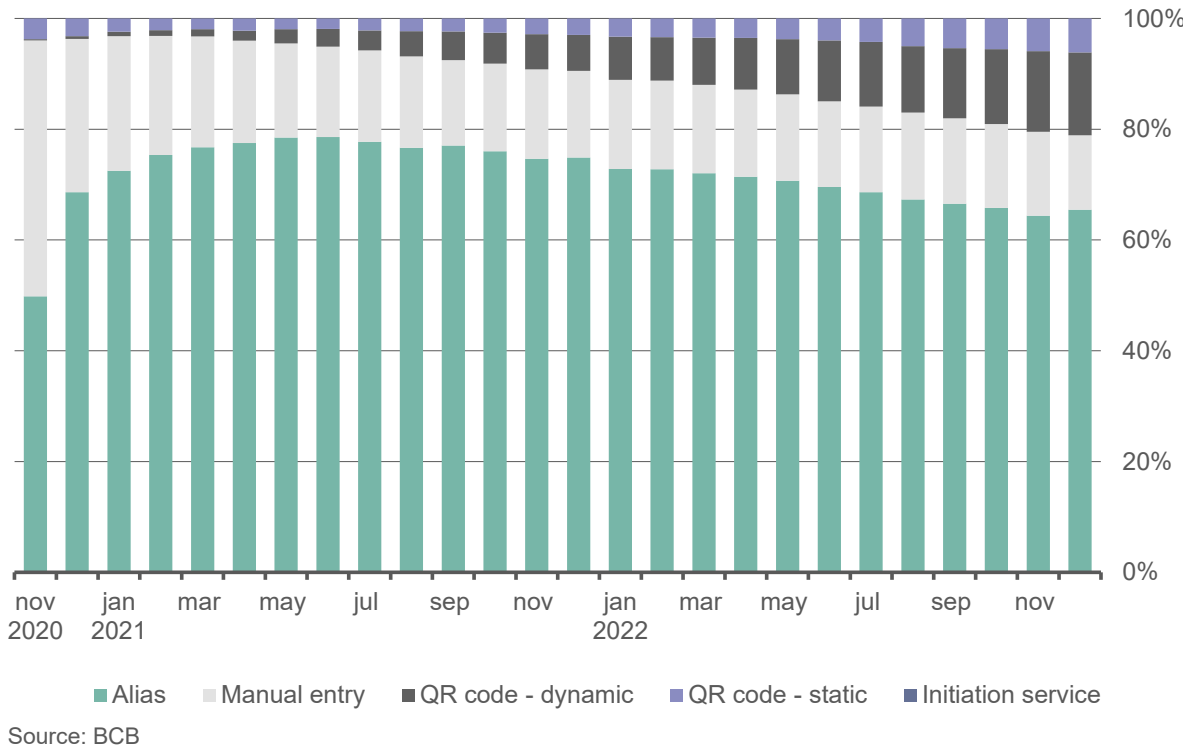


Chart 3.1.10 – Share of transactions

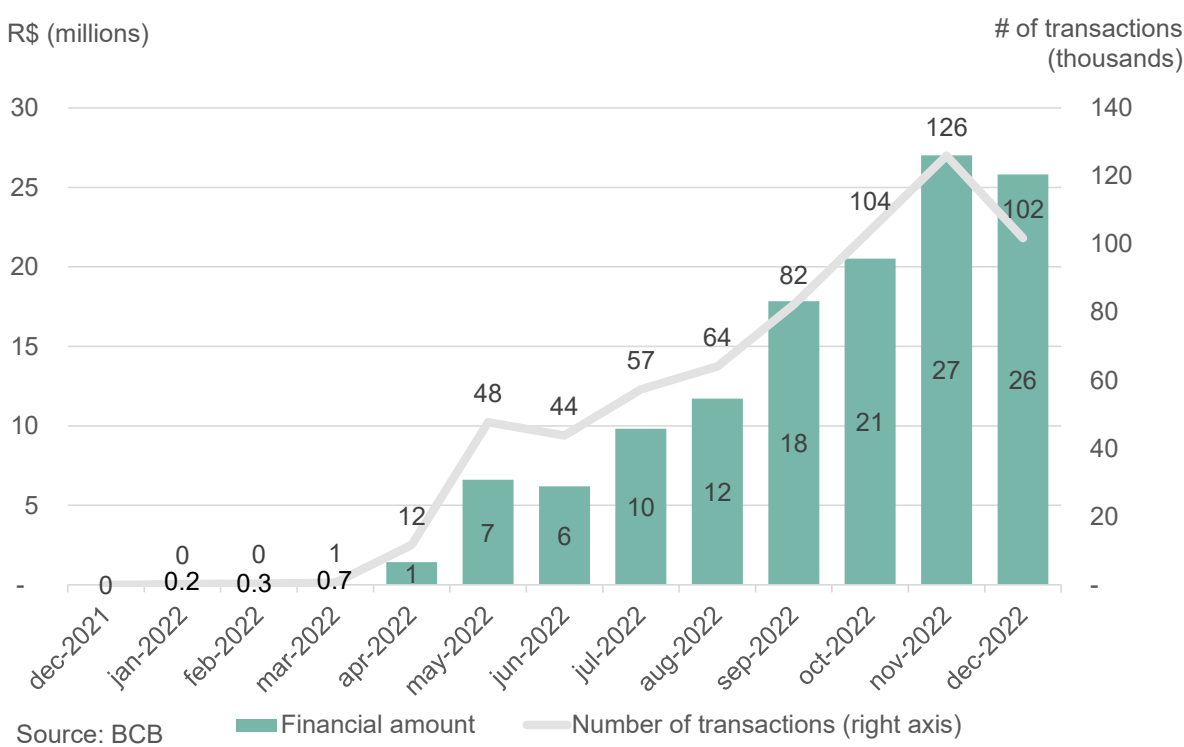
By initiation method



Another way to initiate a Pix transaction is through the payment initiation service, a functionality introduced in October 2021 (see Section 2.4). November 2022 was the month with the highest number of transactions with payment initiators, having registered 126,000 transactions totaling R\$27 million (Chart 3.1.11). It is expected that this Pix initiation mode will gain relevance as users become more familiar with the concepts and rules of *Open Finance* and with the convenience of transactions through the Pix payment initiation service.

Chart 3.1.11 – Pix transfers initiated through payment initiation services

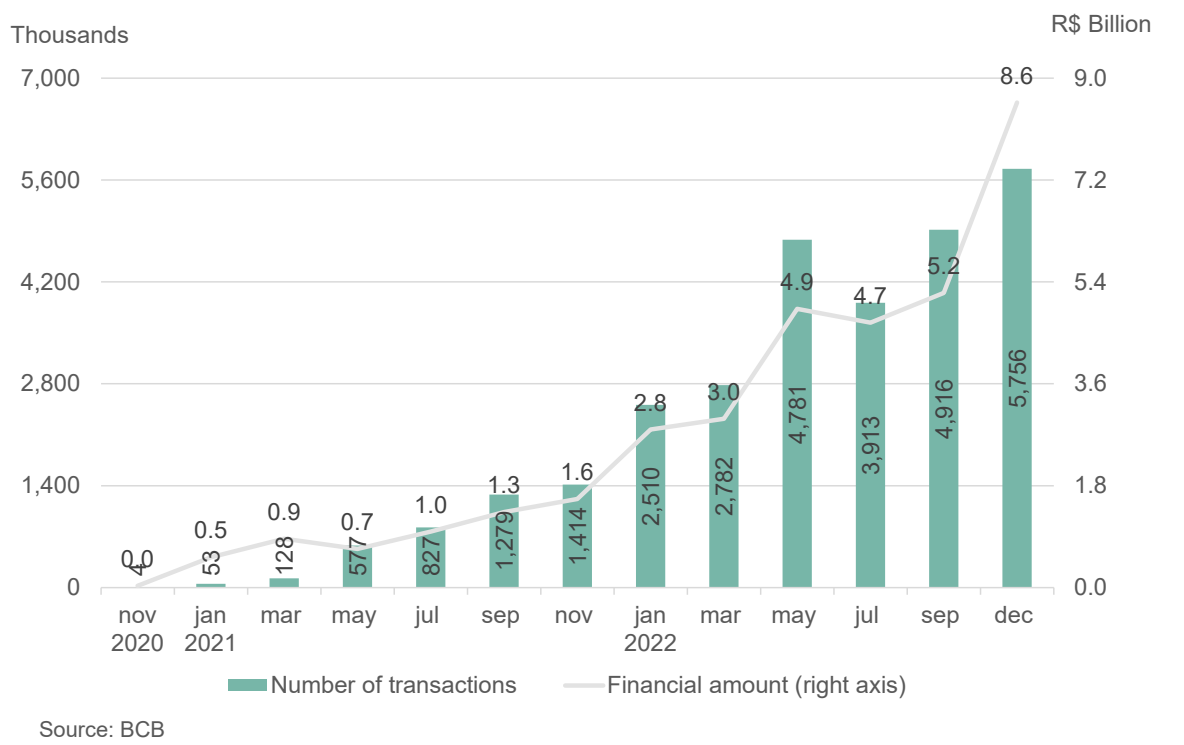
Financial value and number os transactions



Government entities have increasingly adopted the use of Pix, but there is still plenty of room for expansion. The quantity and volume of transactions involving municipal, state and federal government entities has been growing significantly every month, reaching 8.6 million transactions, which represents R\$5.7 billion transferred in December 2022 (Chart 3.2.12). From November 2020 to December 2022, 18,200 government entities, from different spheres of government, used Pix for payments and/or receiving payments.

Chart 3.1.12 – Number of transactions and financial value

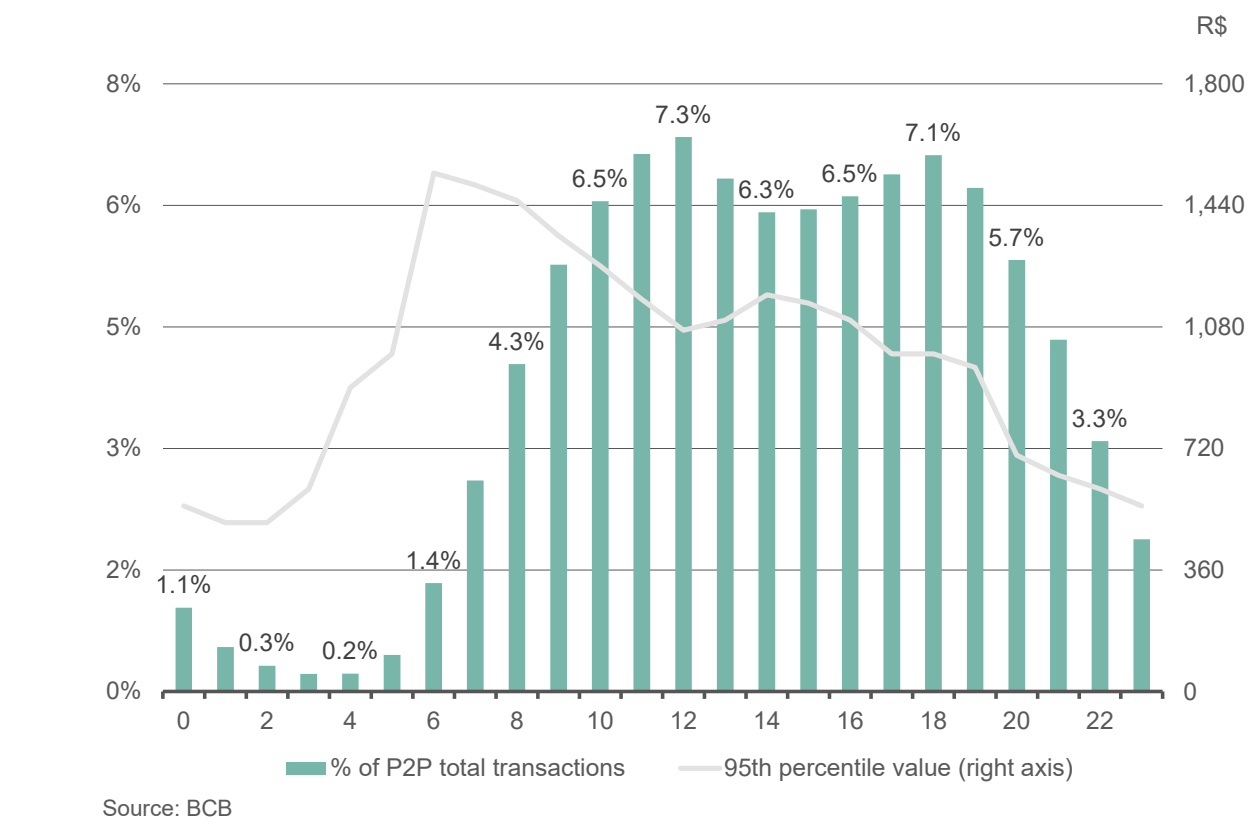
Public entities



Pix transactions are concentrated during the daytime period.²¹ Considering the total number of transactions between individuals since the launch of Pix until the end of 2022, only 18.6% were carried out at night (Chart 3.1.13), with more than 95% of transactions equal to or lower than R\$1,000.00. Despite the concentration during the day, however, there was a high number of Pix transfers occurring between 7 pm and 11 pm, period when it is not possible to make eletronic transfers such as TEDs. Thus, data indicate that 24-hour availability adds value and meets the needs of the population.

Chart 3.1.13 – Intra-day transactions (P2P)

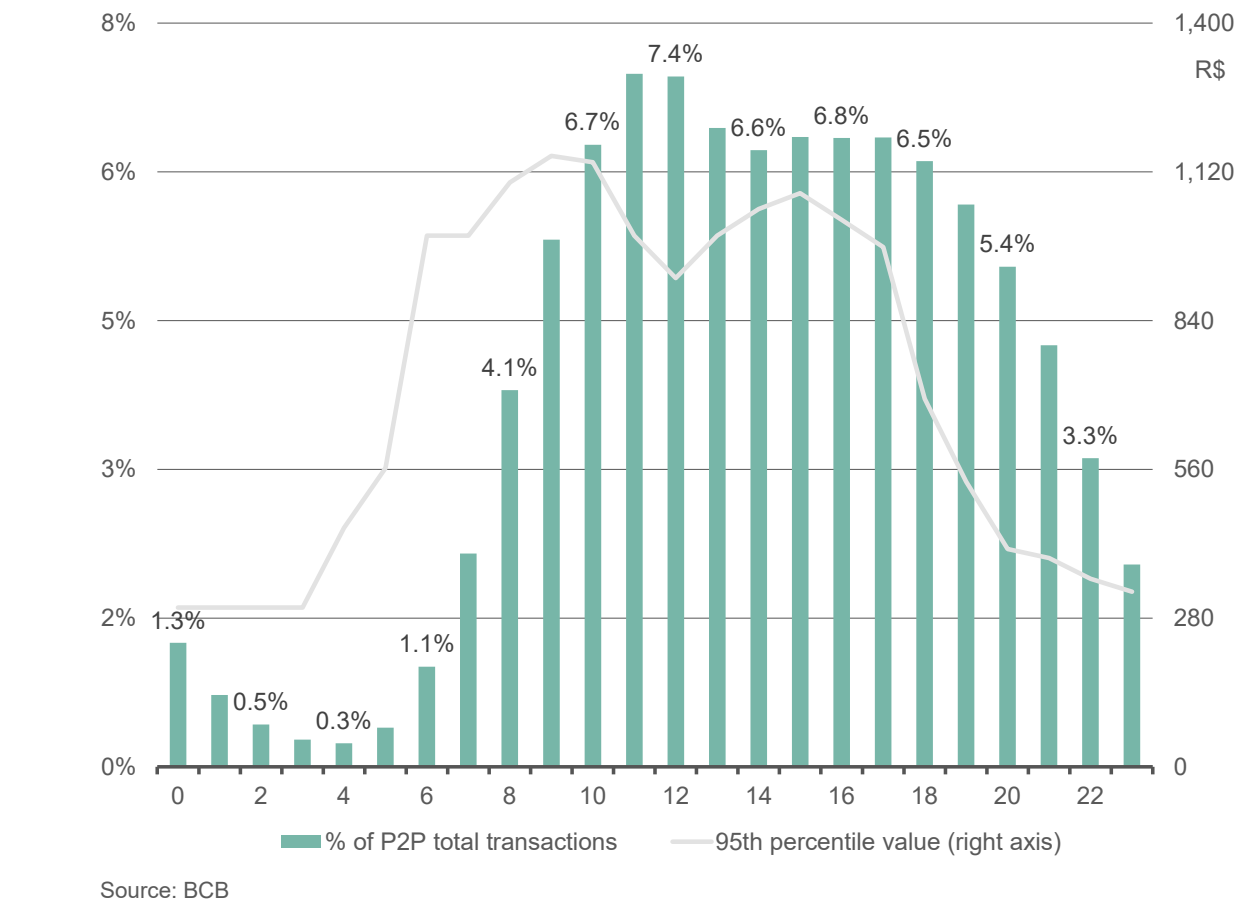
By time slot
Nov/20 to Dec/22



²¹ The daytime period, as a rule, comprises transactions carried out between 6 am and 8 pm, while the night time period comprises transactions carried out between 8 pm and 6 am.

Chart 3.1.14 – Intra-day transactions

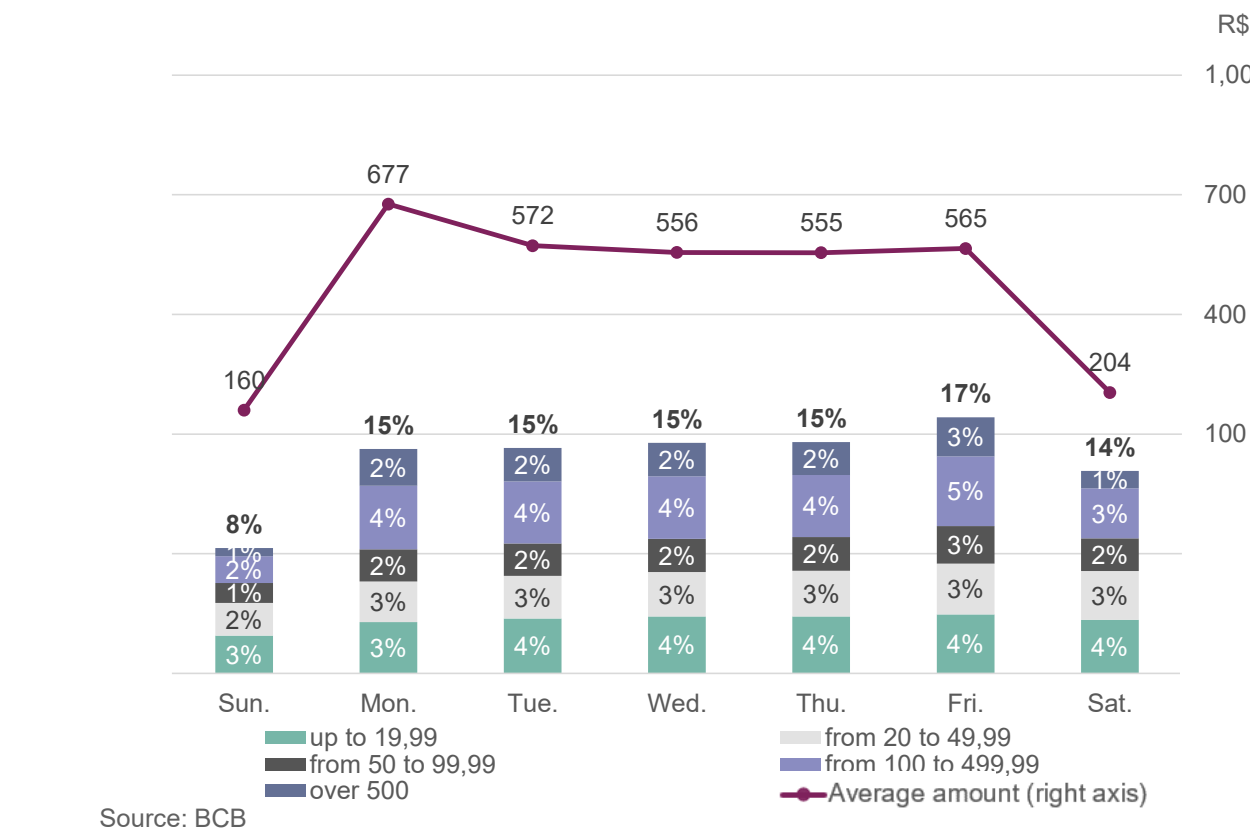
By time slot
Nov/20 to Dec/22



Business days concentrate the largest number of transactions and the highest financial value in general. From Monday to Friday, the number of Pix transactions represented approximately 77% of the total transactions that took place between November 2020 and December 2022. The average value of transactions drops significantly during the weekend due to the reduced number of high value transactions held on these days (Chart 3.1.15).

Chart 3.1.15 – Intra-week transactions

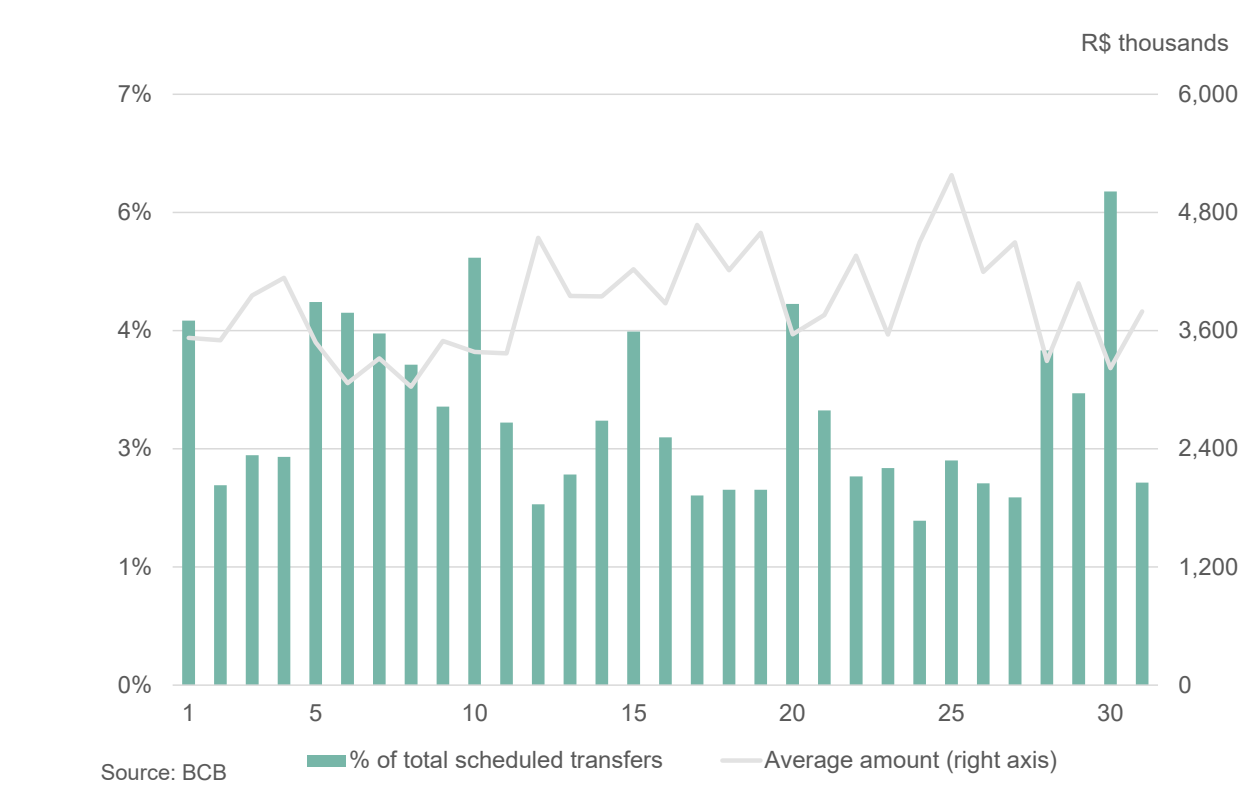
Percentage over total Pix transfers
Nov/20 to Dec/22



Pix schedules are made for typical invoice and future dated billing. The number of scheduled transactions is the highest on the 30th day of the month, covering more than 6% of the total bookings made between November 2020 and December 2022, followed by the 10th, with 5% of bookings in the same period (Chart 3.1.16). Regarding the daily average value, the scheduled transactions do not seem to show a definite behavior or trend.

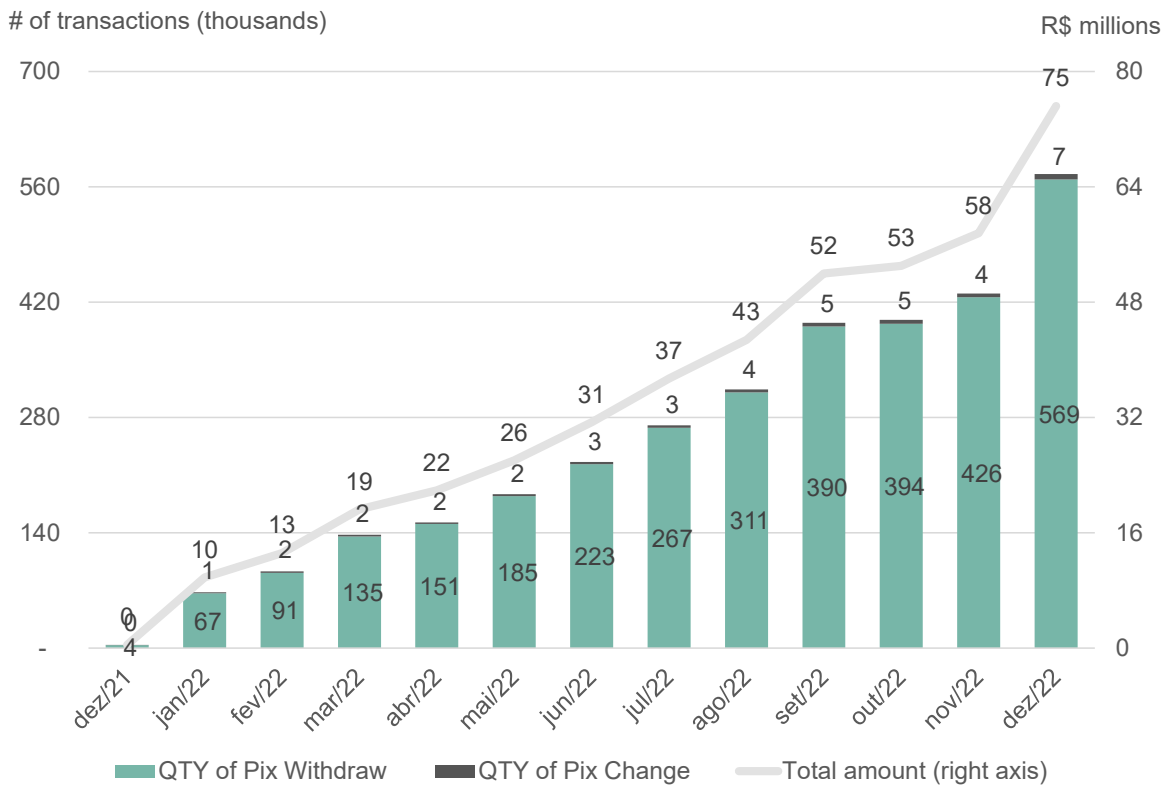
Chart 3.1.16 – Intra-month transactions

Scheduled transfers
Nov/20 to Dec/22



Pix Withdrawal and Pix Change transactions have been growing gradually since their launch. With regards to Pix Withdrawal, in December 2021, when these functionalities went live, there were 4,000 withdrawals totaling R\$440,000. A year later, in December 2022, Pix Withdrawal transactions added up to 569,000 withdrawals, representing an amount equivalent to R\$74 million. Pix Change has been growing also in quantity and value, but on smaller scales when compared to Pix Withdrawal (charts 3.1.17). When analyzing the distribution of Pix Withdrawal and Pix Change transactions by withdrawal agents, most of these operations take place at shared ATMs and banking correspondents (Chart 3.1.18). Regarding the number of establishments that provide services and have already had at least one Pix Withdrawal or Pix Change transaction, there is a gradual increase, from 1,700 in the month of release (December 2021) to 11,800 establishments in December 2022, an increase of 594% in one year (Chart 3.1.19). Finally, it is important to highlight that these transactions mostly take place outside the country's state capitals, both for Pix Withdrawal and Pix Change transactions (Chart 3.2.20).

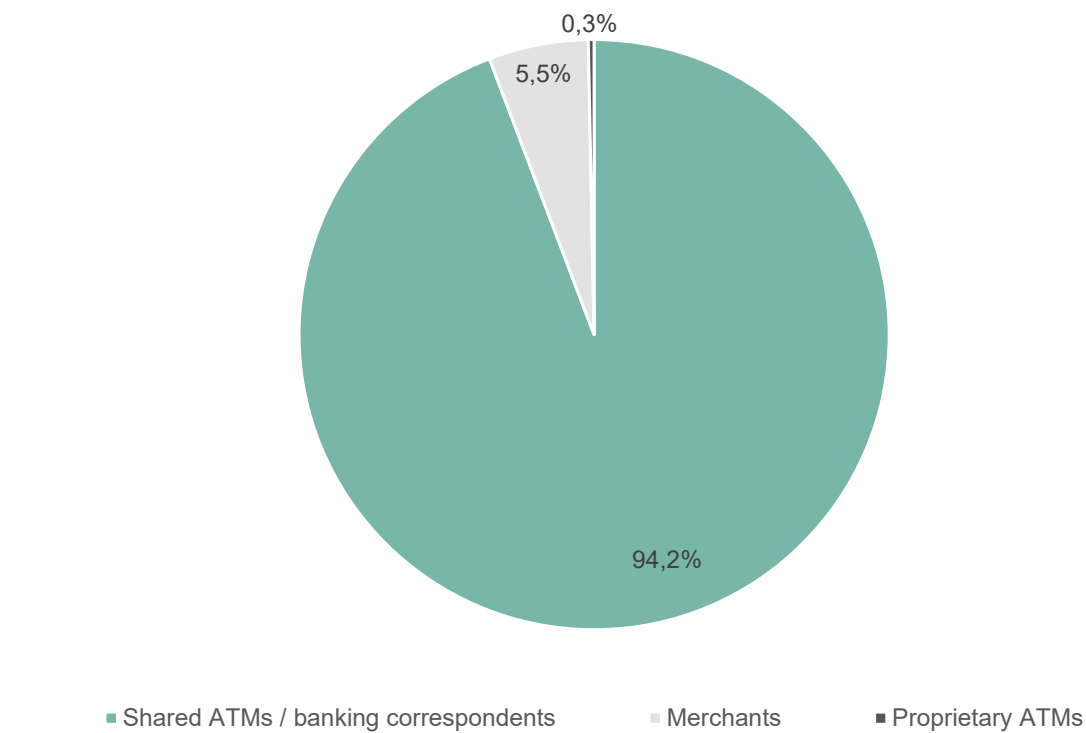
Chart 3.1.17 – Evolution of Pix Withdraw and Pix Change



Source: BCB

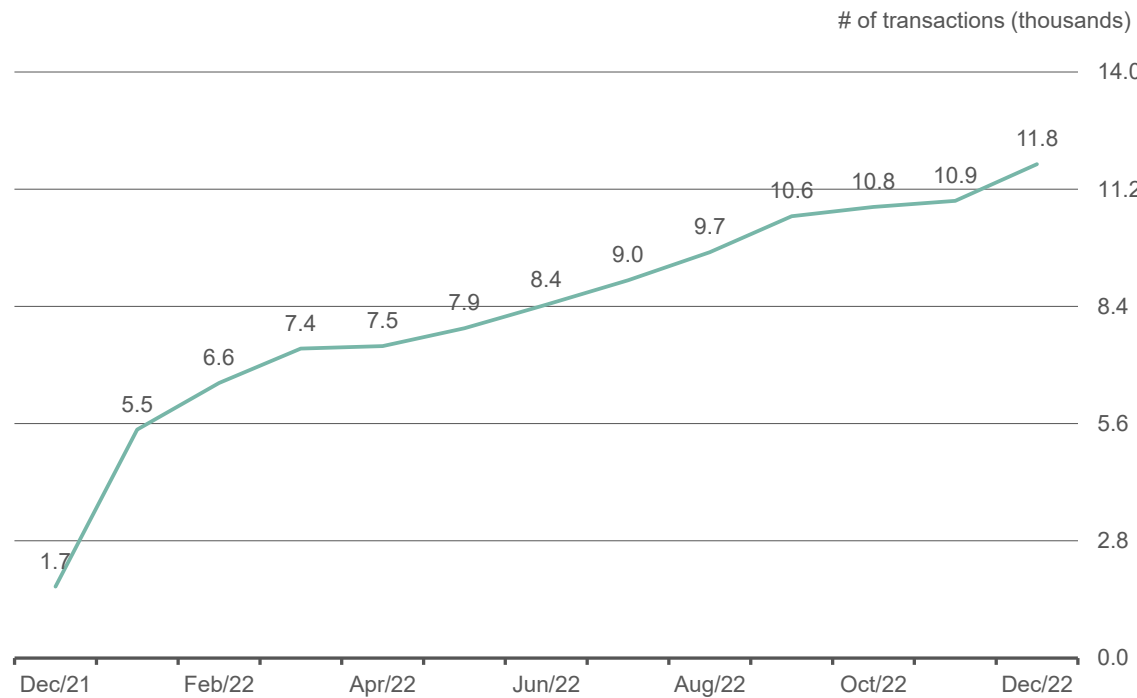
Chart 3.1.18 – Distribution of Pix Withdraw and Pix Change, by agents who provide the withdraw service

Dec/21 to Dec/22



Source: BCB

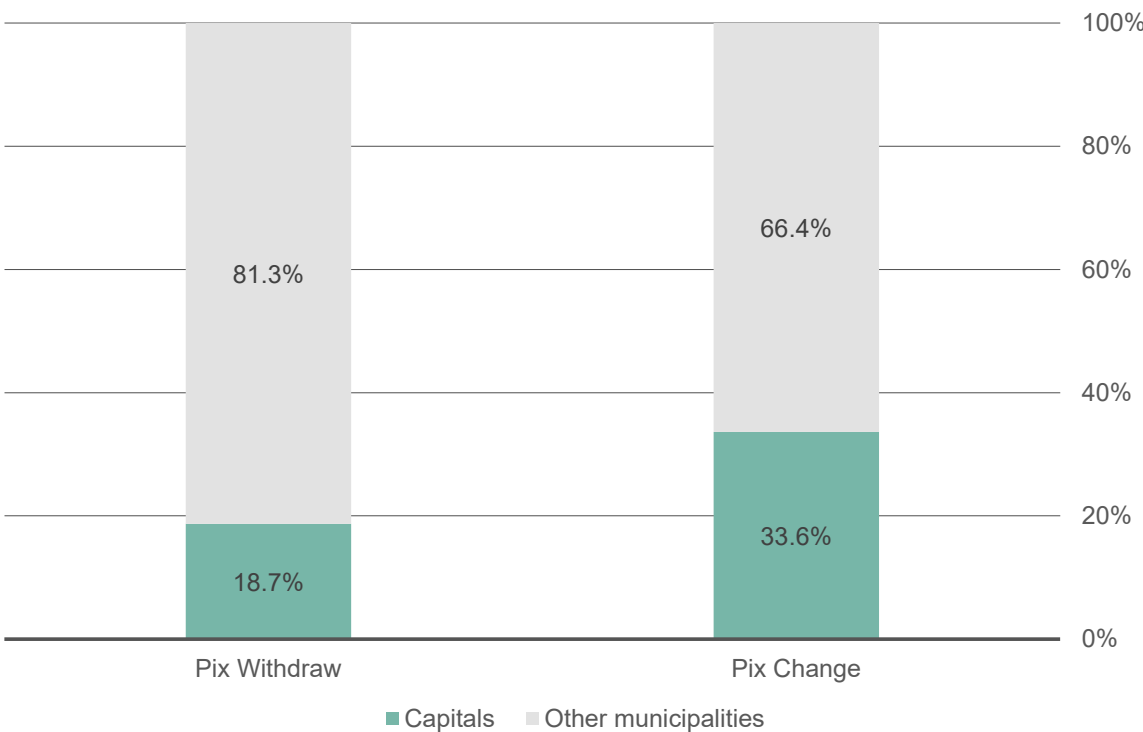
Chart 3.1.19 – Number of merchants that offer withdrawals through Pix and have already provided at least one Pix Withdraw or Pix Change transaction



Source: BCB

Chart 3.1.20 – Percentage of Pix Withdraw and Pix Change, capitals and other municipalities

Dec/21 to Dec/22



Source: BCB

Highlights : Did you know?

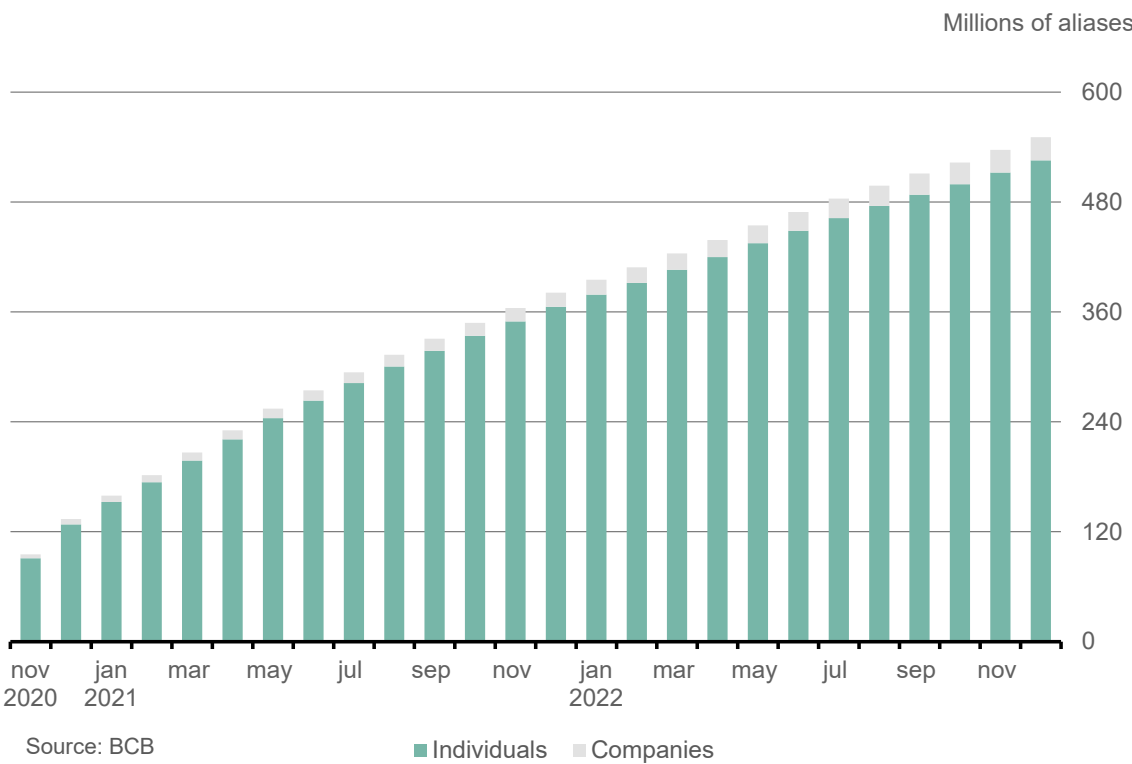
From the Pix launch to December 2022, the record day with the highest number of Pix transactions was December 20, 2022, with 103.6 million transactions. This was also a record in terms of value, with R\$60.2 billion traded on the day.

The day may be ending, but Pix is still running at full steam. In the last minute of each day, on average, 8,000 transactions are settled.

3.2 Pix aliases

The number of registered Pix aliases has been showing significant growth, with individuals being responsible for for the most. In the first month of Pix's operation, in November 2020, there were 95 million Pix aliases registered, 96% of which belonged to individuals. At the end of 2022, 133 million citizens (77% of the adult population)²² and 11.8 million companies (67% of companies with a banking relationship in the country)²³ held a total of 551 million aliases (Chart 3.2.1), linked to approximately 400 million transactional accounts.²⁴ Regarding the types of registered aliases, the random string alias is the most common, representing in December 2022, 42% of registered aliases (Chart 3.2.2).

Chart 3.2.1 – Number of registered aliases



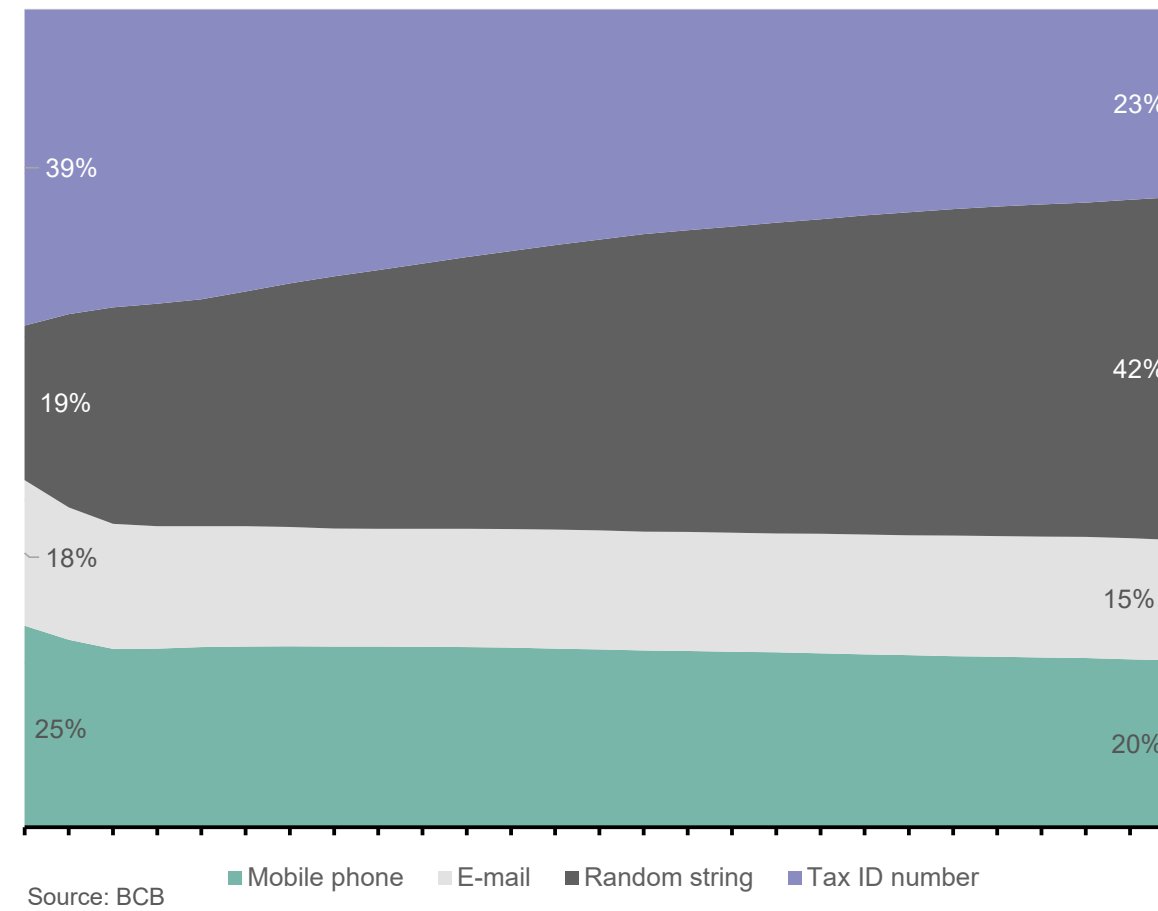
Source: BCB

²² Population over 14 years old, according to Continuous PNAD - Continuous National Household Sample Survey, available at: <https://www.ibge.gov.br/estatisticas/sociais/trabalho/9173-pesquisa-nacional-por-amostra-de-domicilios-continua-trimestral.html?=&t=resultados>. Data from the 4th quarter of 2022.

²³ Number of legal entities with current relationships with the SFN, counted only once, even if they have relationships with more than one institution. Available at: <https://www.bcb.gov.br/acessoinformacao/ccsestatisticas>.

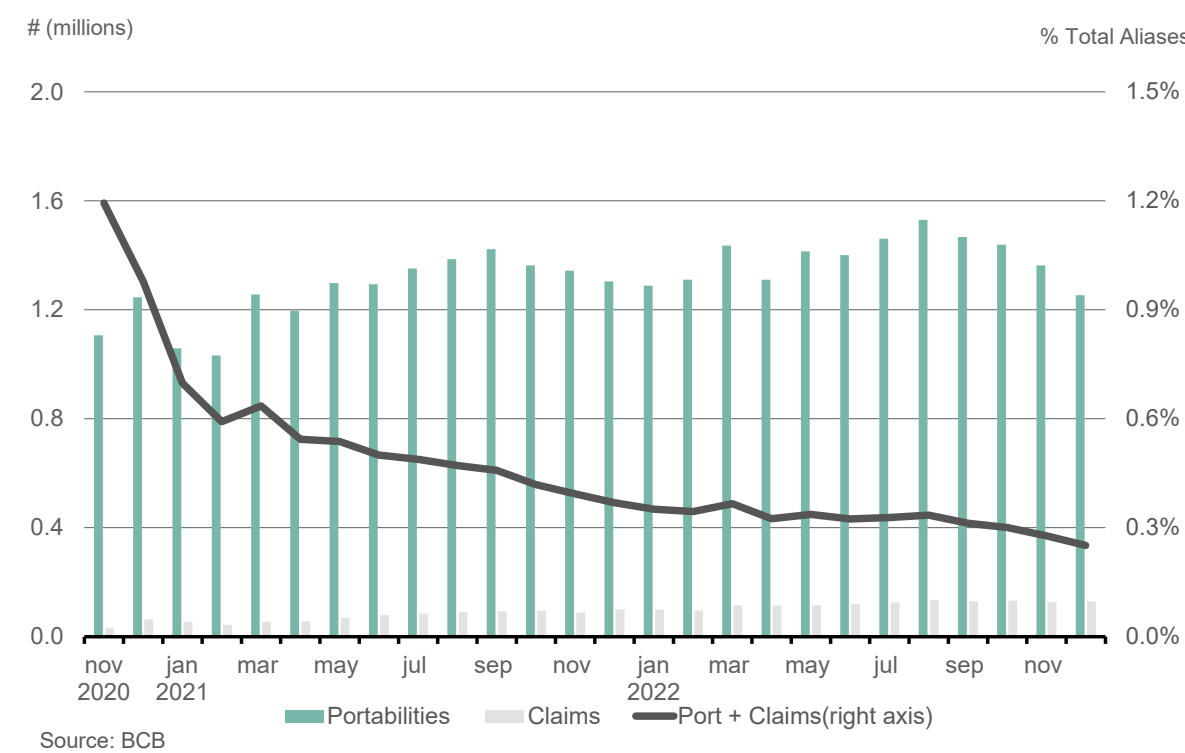
²⁴ Pix transactional accounts can be a checking account, savings or prepaid payment account. Each individual account can have up to 5 linked Pix keys and each legal entity can register up to 20 keys per account.

Chart 3.2.2 – Aliases categories



Pix has features for alias management by users, such as portability and ownership claim. The portability of aliases guarantee flexibility to users, since it allows for the easy migration of aliases between institutions participating in Pix with which the alias owner maintains a relationship. Ownership claim is the functionality that allows a user to change both alias and account to another user ownership. Since the launch of Pix, approximately 35 million portability processes have been made and 2.5 million claim processes have been completed (Chart 3.2.3). Together, both functionalities represent an average of 1.4 million completed processes per month.

Chart 3.2.3 – Aliases Portabilities and Claims

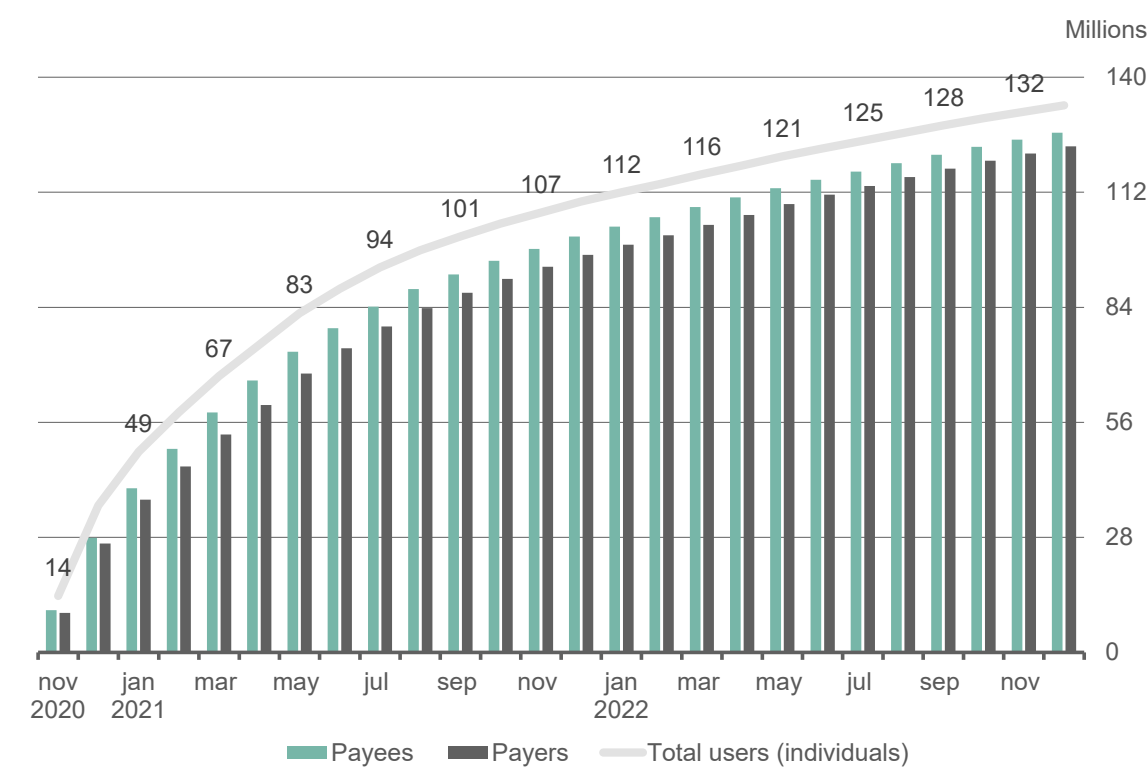


3.3 Users

3.3.1 Individuals

Pix has a wide reach among the Brazilian adult population and is has been widely used in all regions throughout the country. By December 2022, 133 million individuals had already made or received at least one Pix transfer, which is equivalent to 77% of the adult population²⁵ (Chart 3.3.1). In 20 units of the federation, i.e. states, the percentage of adult Pix users is greater than 70%, especially in the state of Roraima and the Federal District, where the adult users' percentage is greater than 90%. Even among the lowest ranked states, in Maranhão and Piauí, the percentage of Pix adult users is still above 60% (Chart 3.3.2).

Chart 3.3.1 – Individuals who already sent or received transfers via Pix

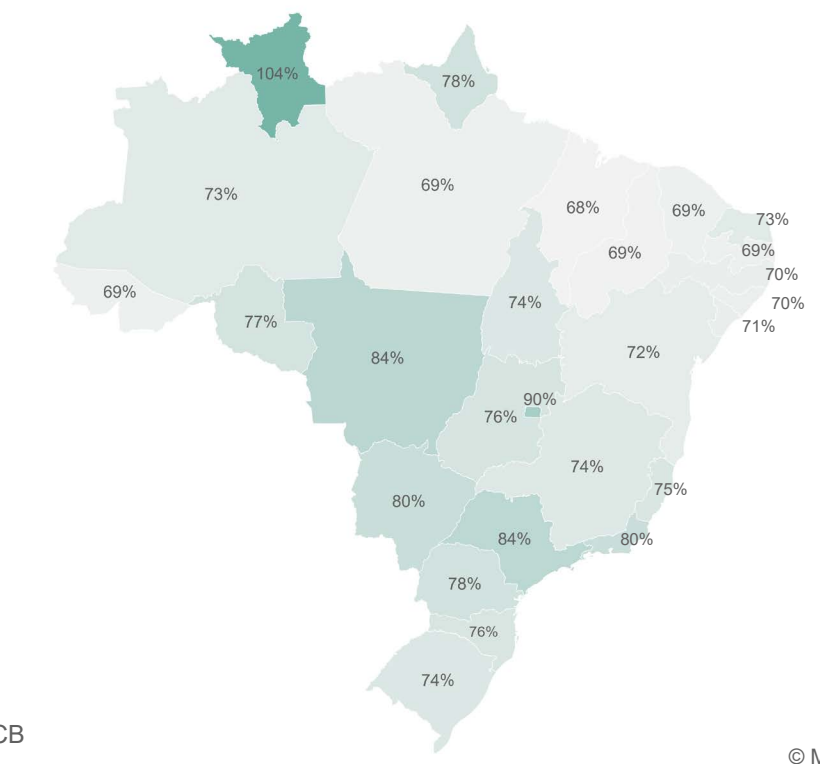


Source: BCB

25 Population over 14 years old, according to the Continuous PNAD – National Household Sample Survey, available at: <https://www.ibge.gov.br/estatisticas/sociais/trabalho/9173-pesquisa-nacional-por-amostra-de-domicilios-continua-trimestral.html?=&t=resultats>

Chart 3.3.2 – Individuals who already sent or received transfers via Pix relative to the adult population, by federal unit

Transactions between Nov/20 to Dec/22



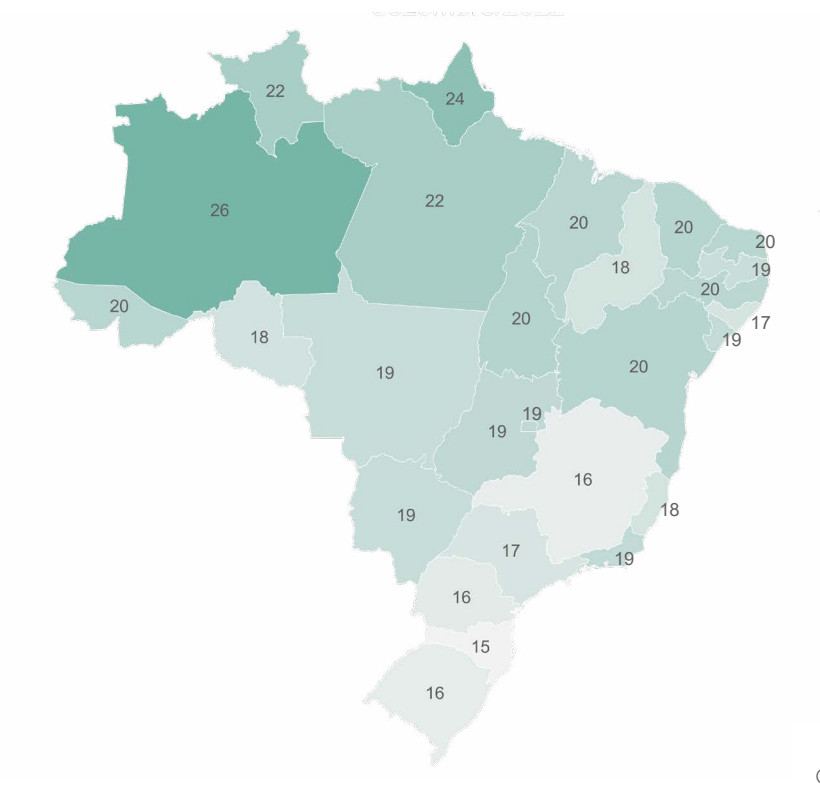
Source: BCB

Da plataforma Bing
© Microsoft, OpenStreetMap

The frequency of Pix usage is relevant in all regions of Brazil. If we only consider individuals who have already made or received a Pix transfer, the Northern region stands out, with 21 transactions per person, followed by the Northeast region with an average of 19 transactions per person. Individually, Amazonas and Amapá are the states with the highest number of Pix per user in this indicator, with 26 and 24 transactions respectively (Chart 3.3.3).

Chart 3.3.3 – Number of transactions per users (individuals) by federal unit

Transactions between Nov/20 to Dec/22



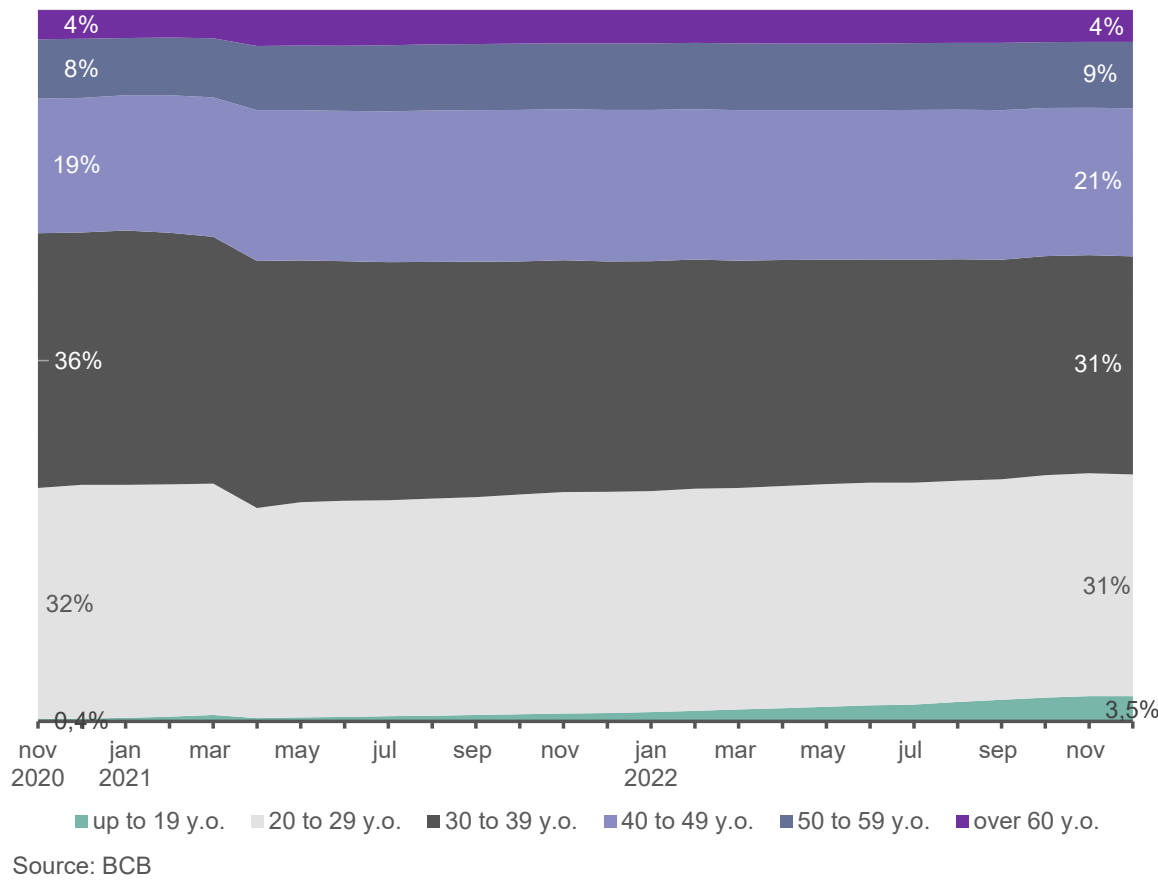
Source: BCB

Da plataforma Bing
© Microsoft, OpenStreetMap

Transfers and payments through Pix are mostly made by adults aged 20 to 39 years old. However, the proportion of transactions by users aged between 30 and 39 years old fell from 36%, in November 2020, to 31% in December

2022 (Chart 3.3.4), given that, since the launch of the ecosystem, Pix users expanded in the range up to 19 years old and discreetly in the range between 50 and 59 years old. Data shows that the use of Pix has grown within the younger population, although still with a modest degree of use (3.5% of the total), as well as within the older public.

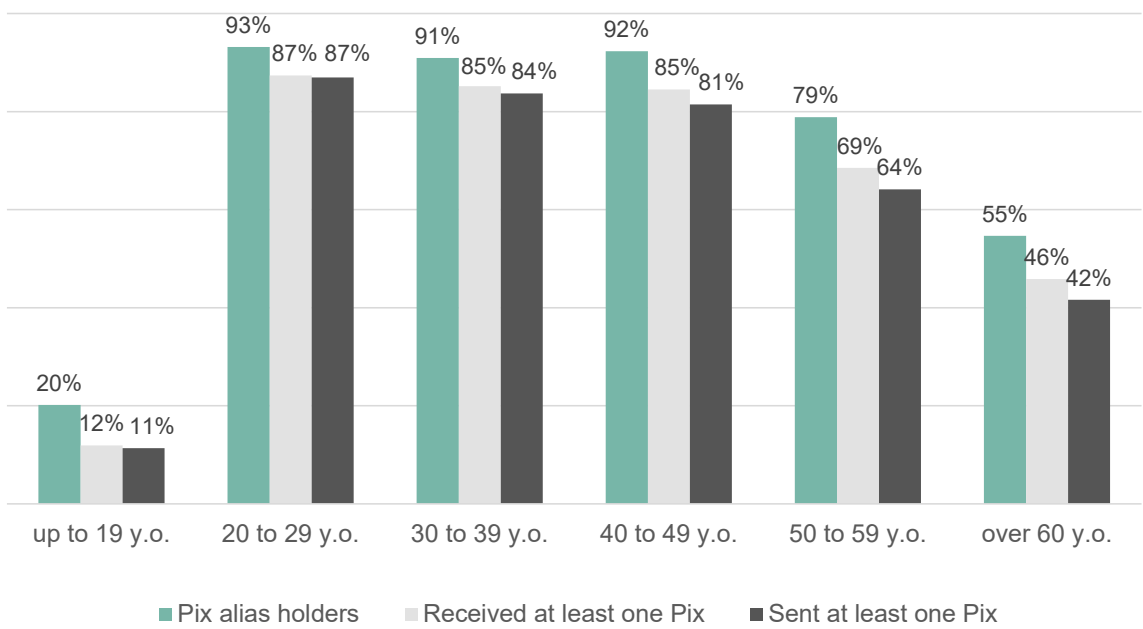
Chart 3.3.4 – Number of transactions, by payer’s age group



Regarding the level of adoption by age group, data between January and December 2022 showed that the one with the highest adoption is between 20 and 29 years old, with a significant 93% of that population having registered at least one alias and 87% having made or received at least one Pix transfer (Chart 3.3.5). In addition, it should be noted that more than 80% of the population aged between 20 and 59 had already made or received at least one Pix, which highlights the significant use of Pix among the adult population. There is also a significant adoption within the older age group, over 60 years old, with almost half of that population having already made or received at least one Pix transfer, even with the occasional technological barriers usually more present in the more mature population.

Chart 3.3.5 – Pix’s usage percentage, by age group

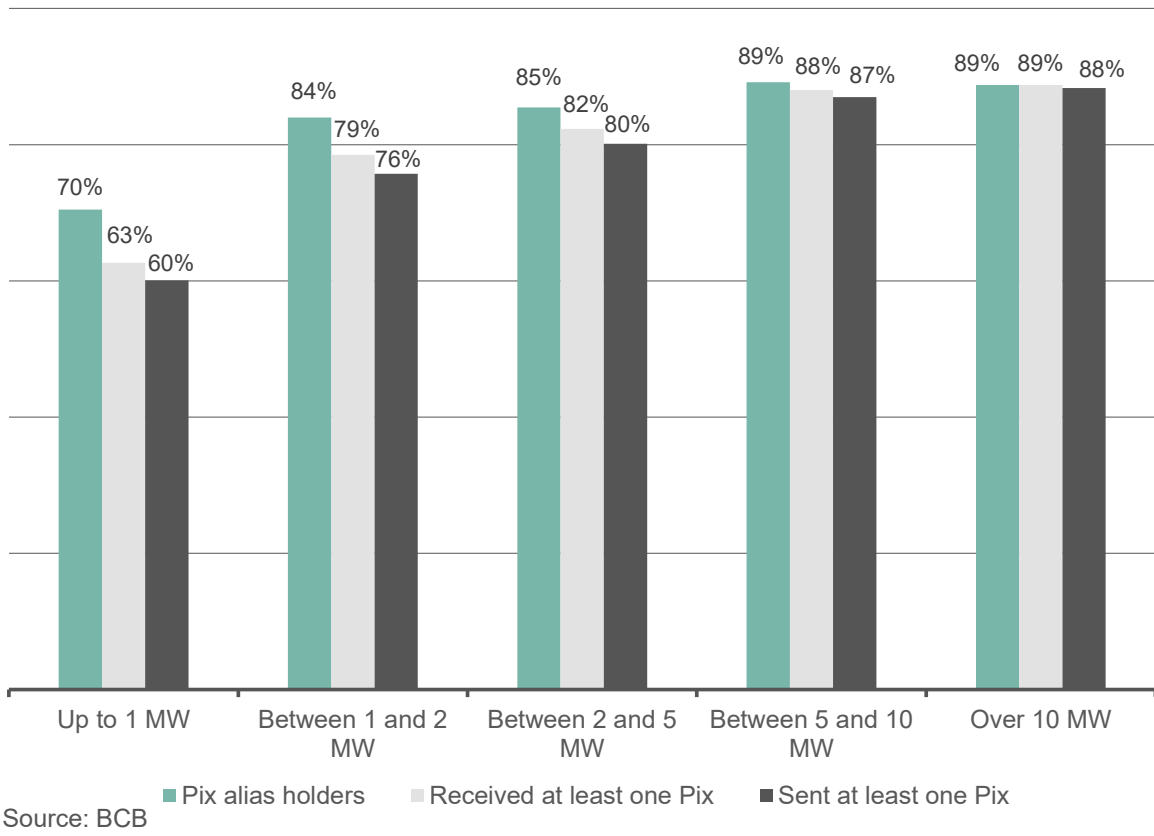
Jan/22 to Dec/22



Pix has also become popular with Brazilians of all income segments²⁶. Considering individuals with a banking relationship, when considering people with an income of up to 1 minimum wage (*s.m.*), more than 60% of the population has already sent or received at least one Pix transfer and 70% own a Pix alias, which shows how important Pix has become as a means of transferring funds for the lower-income population. Among the highest income segments, Pix has already been used by more than 87% of users and 89% have registered Pix aliases (Chart 3.3.6).

Chart 3.3.6 – Pix usage, by income bracket

In terms of Minimum Wage – MW



Highlights: Did you know?

Transfers and payments made through Pix allow a short message to be sent from payers to payees as a briefing note. A survey carried out about the most used words demonstrates the association of the transactions with payments of obligations (bills, bank slips, rent, payment installments, overall payments, etc.), certain types of goods (cakes, cars, clothing, gifts, perfume, TVs, etc.) and services (haircuts, pedicure, snacks, lunch, dentists, cleaning, shipping, etc.)

Top 100 words when describing a Pix (in Portuguese)

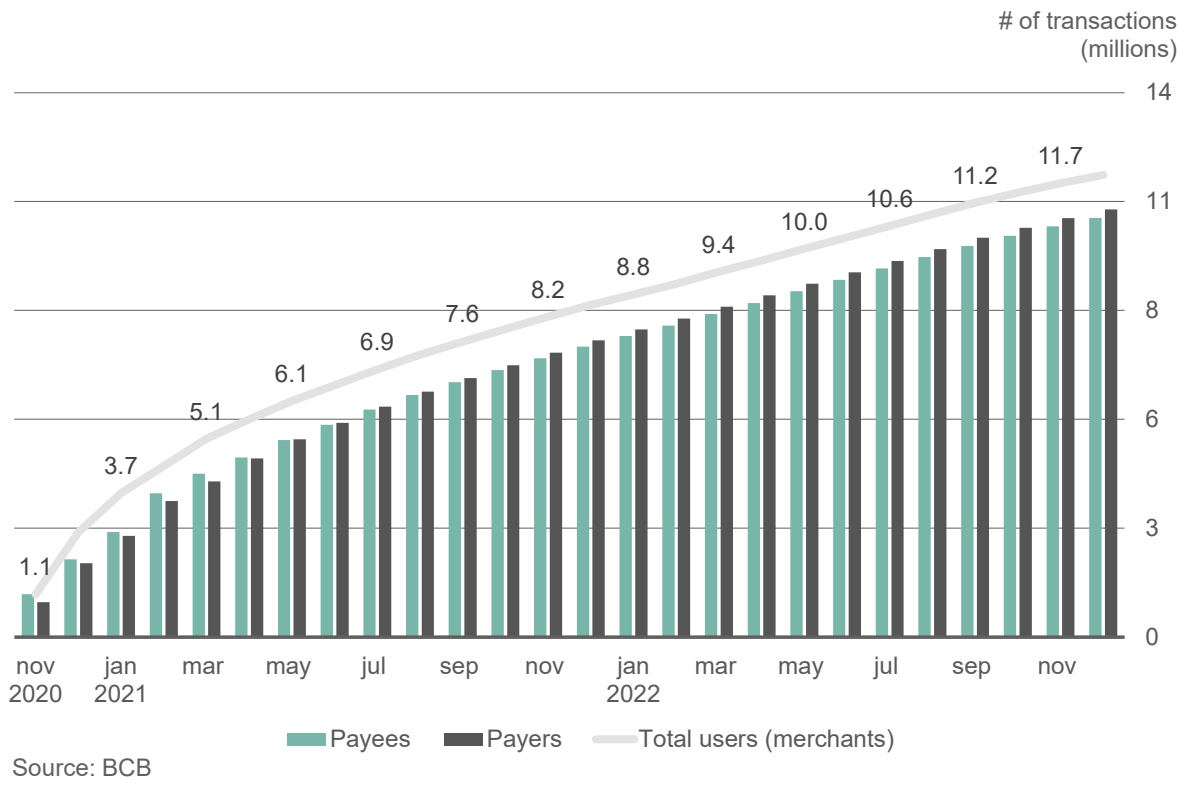


3.3.2 Legal entities

In addition to individuals, merchants, companies, foundations, organizations and other legal entities have also quickly adopted Pix as a means of making and receiving payments. By December 2022, 11.9 million legal entities had already made or received at least one Pix transfer (Chart 3.3.7), which is equivalent to approximately 67% of firms with a banking relationship.

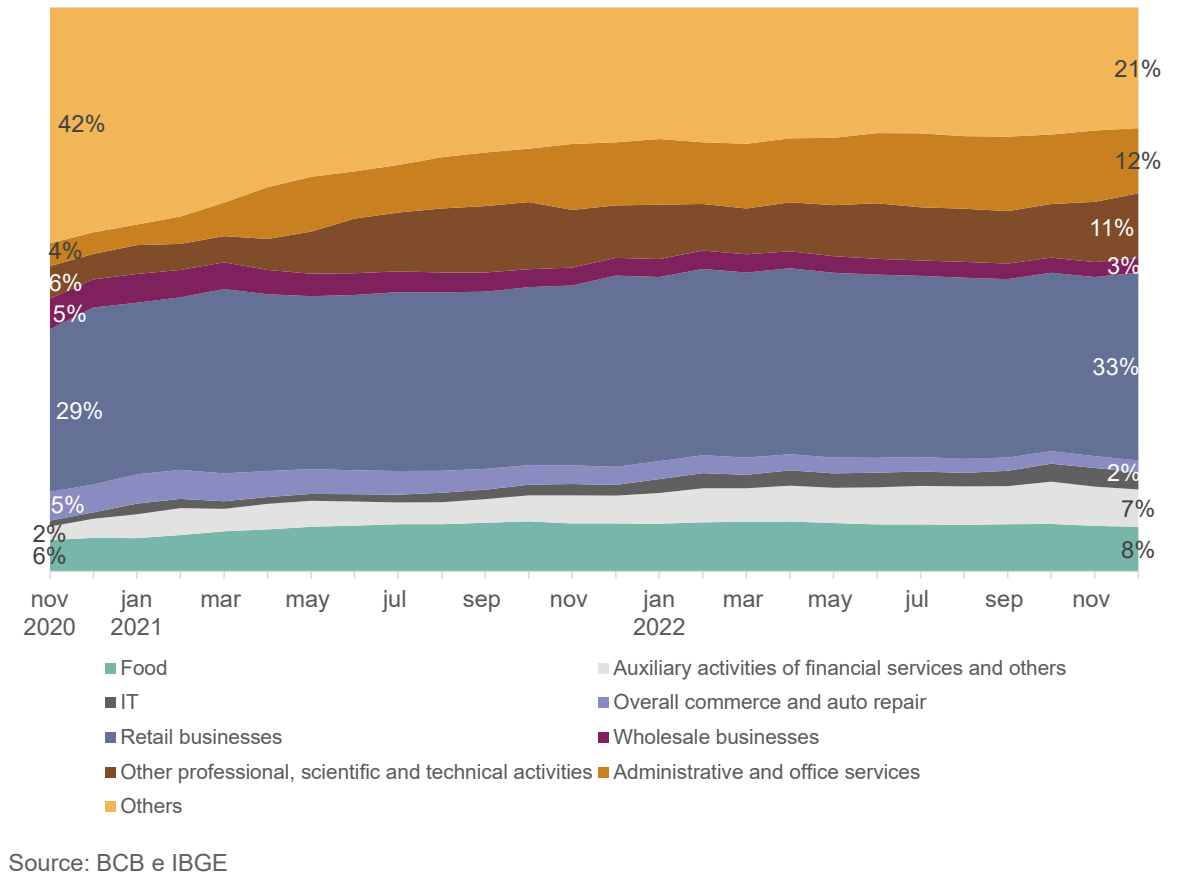
²⁶ Customer income declared by financial institutions in the Credit Information System (SCR).

Chart 3.3.7 – Merchants that have already sent or received payments via Pix



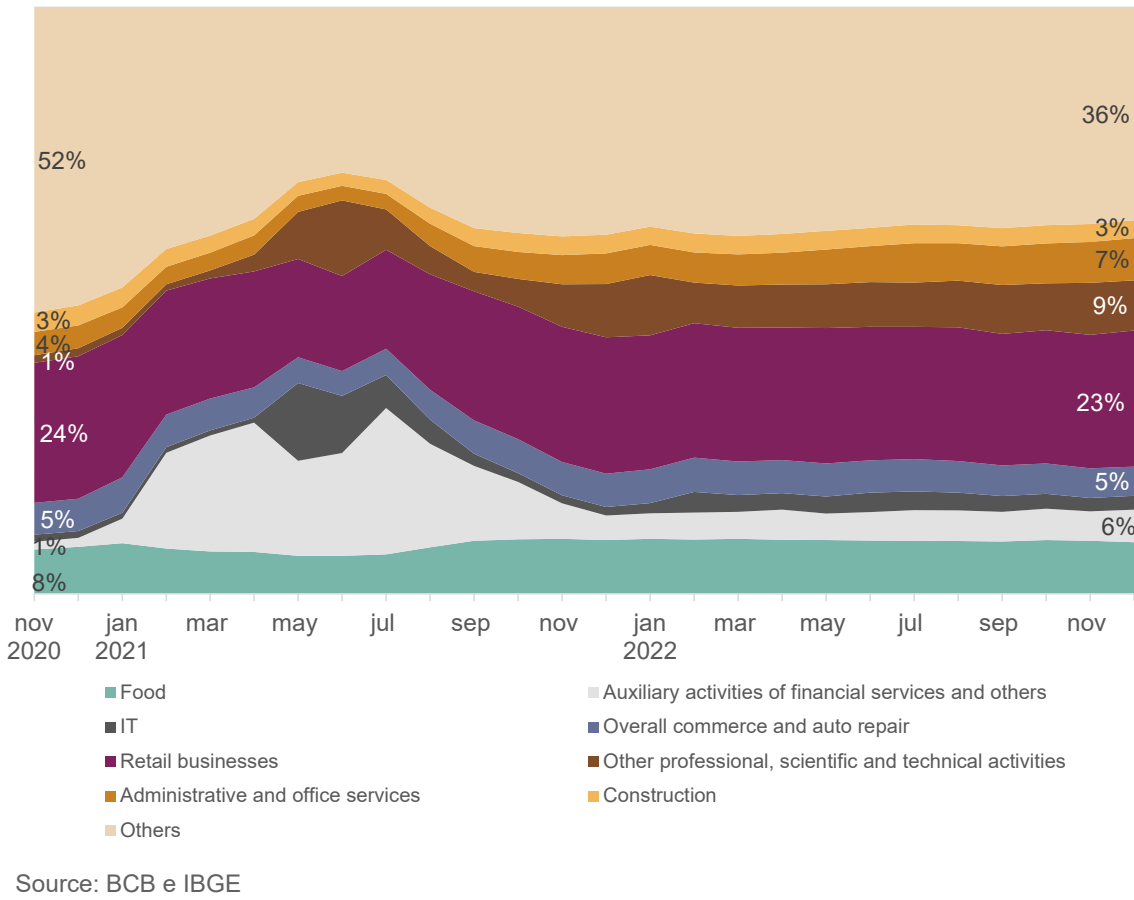
The companies that used Pix the most for receiving payments, according to their classification in the CNAE²⁷, are mainly retailers and, to a lesser extent, from office services and administrative support, professional activities, scientific and technical non-specified activities, food, and financial services, such as insurance and private pension funds (Chart 3.3.8). The companies that made payments the most through Pix are, again, mostly retailers, demonstrating that retail trading has been intensively using Pix for making and receiving payments. (Chart 3.3.9).

Chart 3.3.8 – Economic sectors (CNAE) that received payments the most via Pix
% of transactions



27 National Classification of Economic Activities. More information at <https://concla.ibge.gov.br/concla.html>.

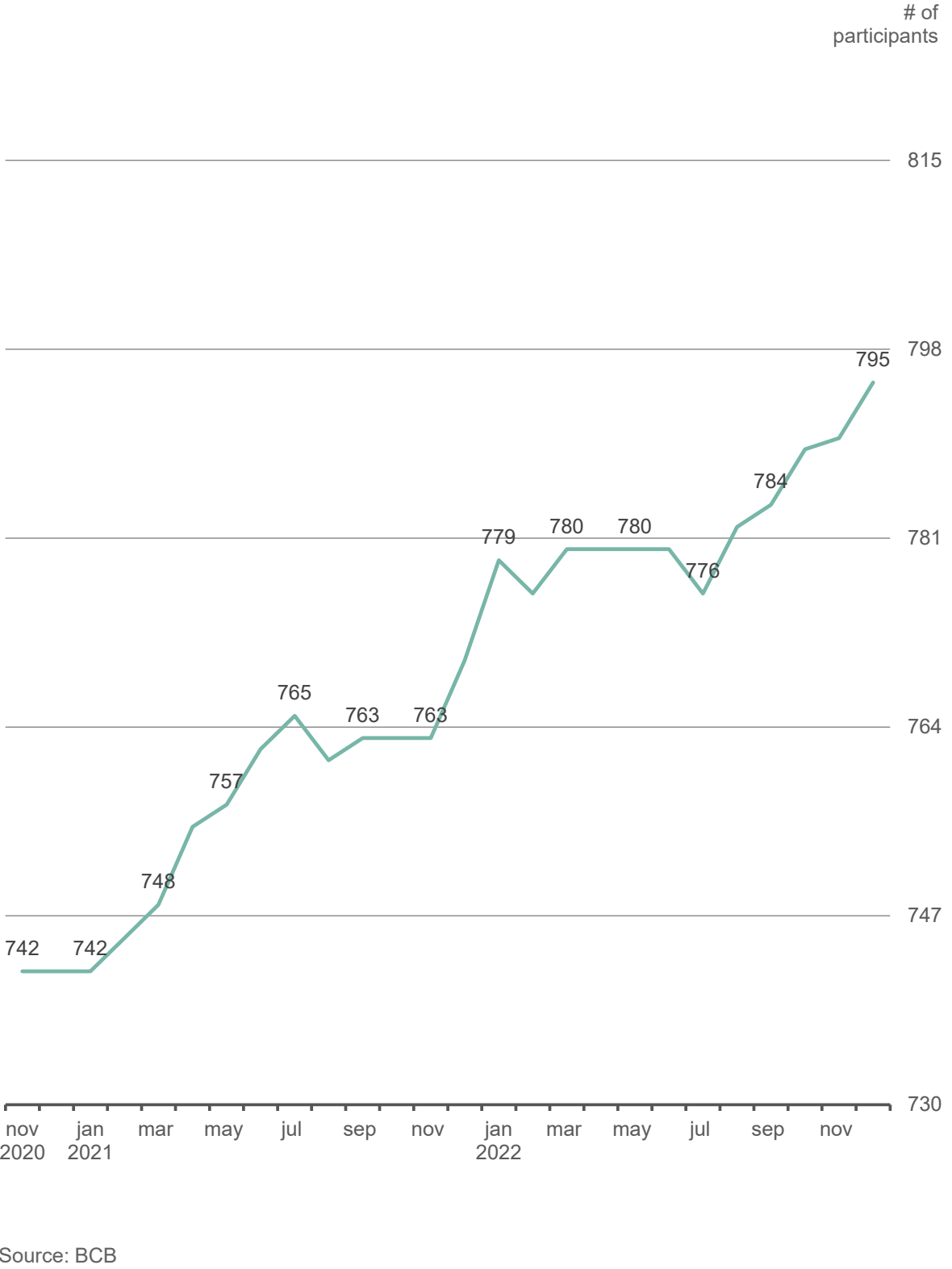
Chart 3.3.9 – Economic sectors (CNAE) that sent payments the most via Pix
% of transactions



3.4 Participants

Pix is an open ecosystem that allows the participation of different types of financial firms and payment institutions. Despite the large number of participants since its launch, with the vast majority being optional participants²⁸, the participation in Pix, continues to grow gradually among various segments, ending 2022 up with 795 institutions (Chart 3.4.1).

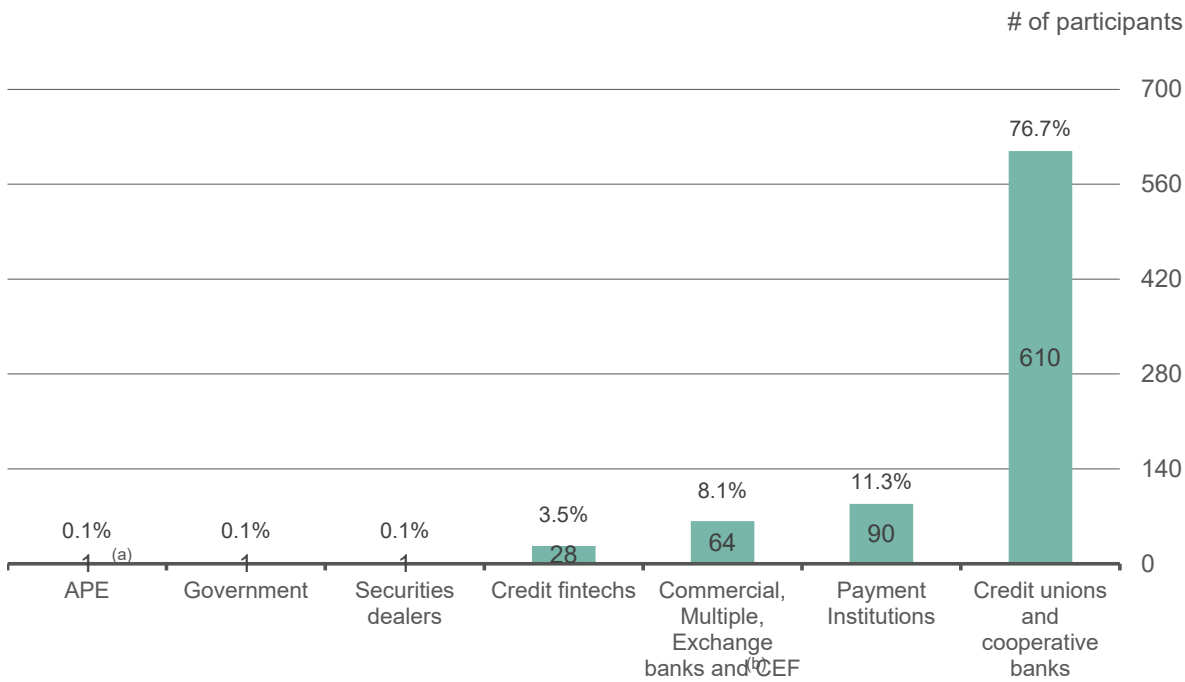
Chart 3.4.1 – Active Participants



In addition to credit cooperatives and multiple or commercial banks, payment institutions (IPs) are also among Pix participants (Chart 3.4.2), including those that have not yet reached the parameters to apply for authorization to operate with the BCB. The offering by different types of participants has contributed to the large scale use of Pix, to provision of specialized solutions in certain niches in the society and to the democratization of access to electronic means of payment. The trend is that the number of participants will continue growing in the coming years, further fostering competition in the ecosystem.

28 According to article 3 of BCB Resolution 1, financial firms and payment institutions that provide transactional accounts and that have less than 500,000 active customer accounts are allowed to join Pix.

Chart 3.4.2 – Participants by segment
 Number of Institutions and % of total participants
 Dec/22

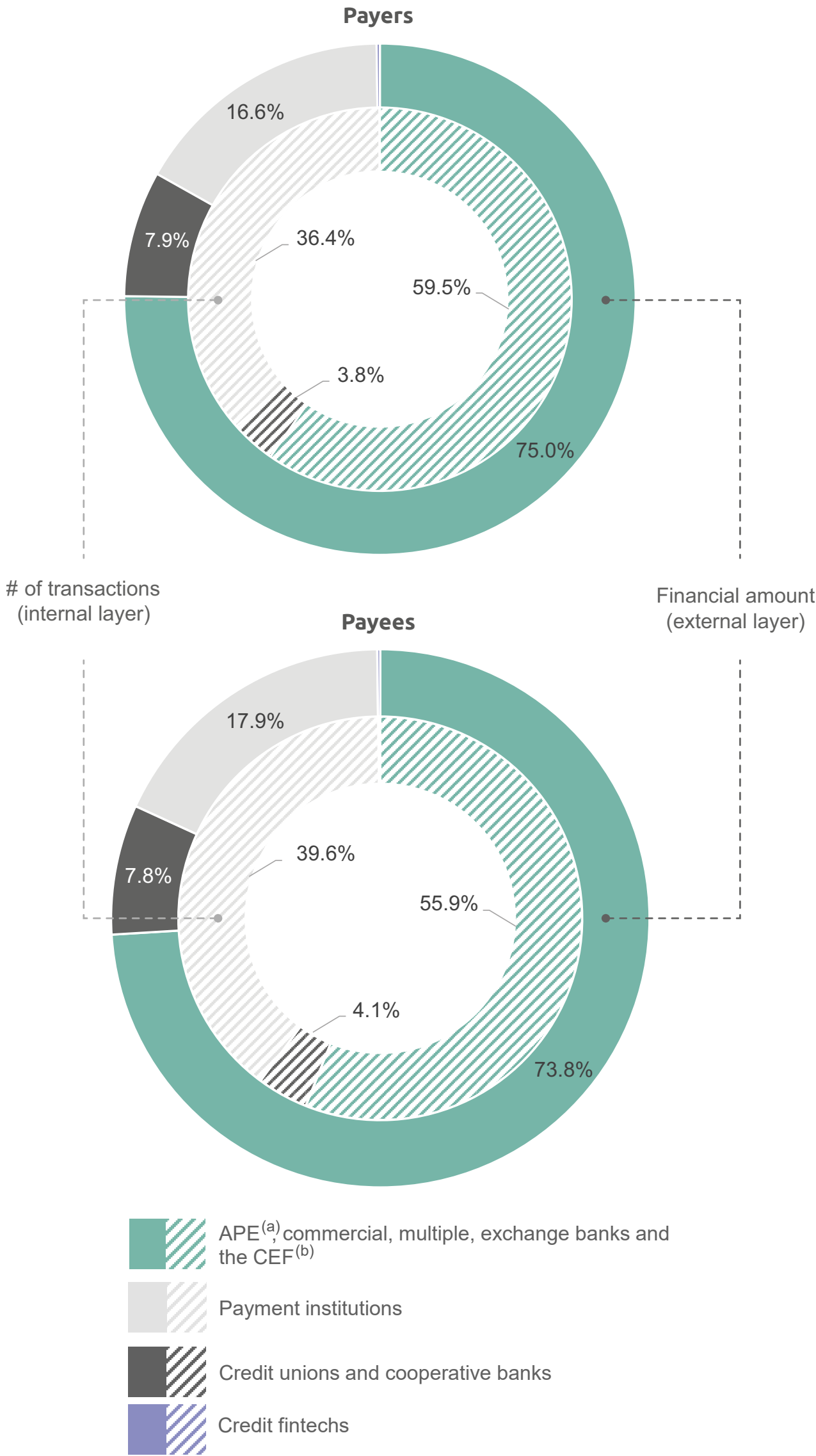


Source: BCB

Note: (a) Savings and Loan Association; (b) Caixa Econômica Federal (public-owned federal bank).

The segment made by banks not only held the largest number of transactional accounts but was also responsible for a greater number of transactions and a greater financial value transacted through Pix, when considering transfers made between November 2020 and December 2022. Credit cooperatives and cooperative banks accounted for approximately 77% of the participants, holding approximately 3.8% of transactions and approximately 8% of the total financial volume. On the other hand, savings and loan associations (APEs), commercial banks, exchange banks, multiple banks and the *Caixa Econômica Federal* (CEF) represented 8% of the participants, being responsible for approximately 60% of the transactions and about 75% of the total financial volume. Lastly, the segment of payment institutions represented 11.3% of participants, with 36.4% of transactions and more than 16.6% of total financial volume (charts 3.4.2 and 3.4.3).

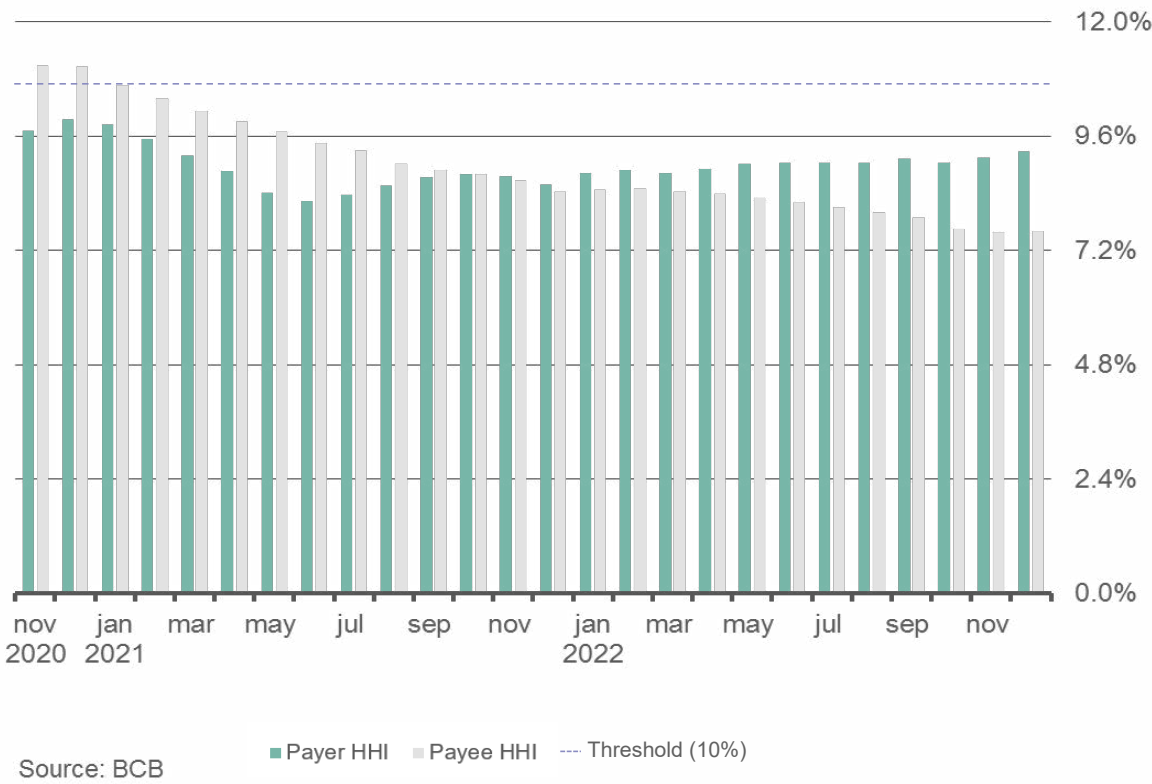
Chart 3.4.3 – Pix transactions’ share
 Nov/22 to Dec/22



Note: (a) Savings and Loan Association; (b) *Caixa Econômica Federal*.

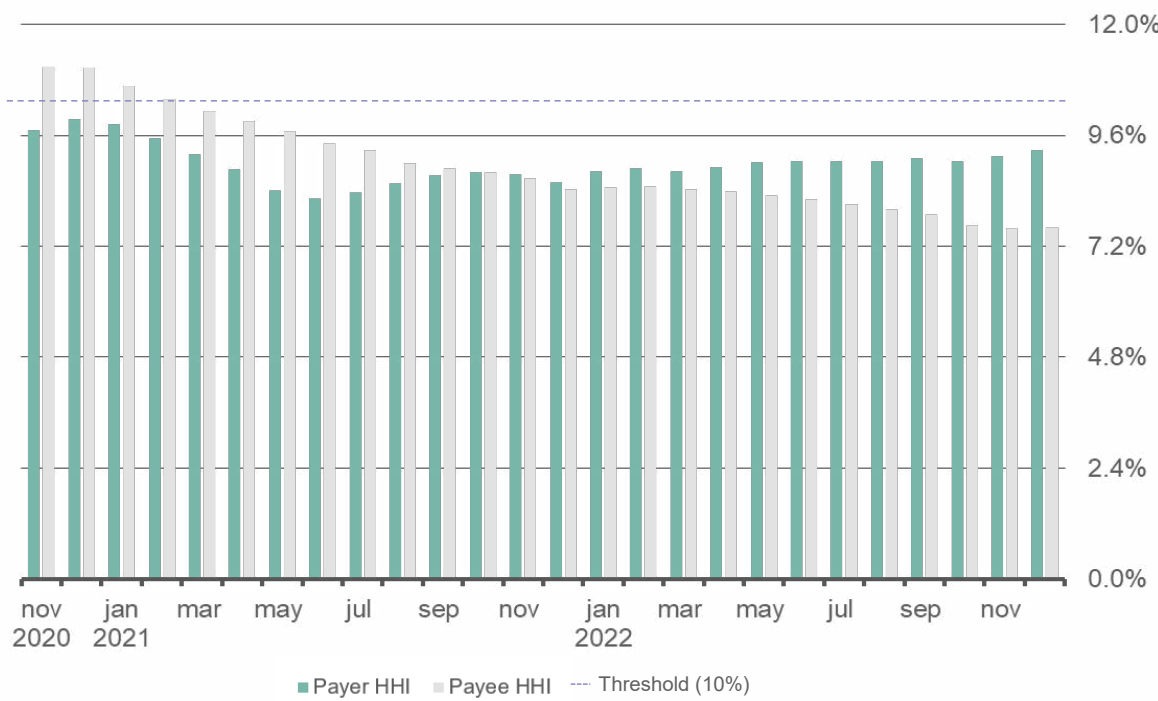
The provision of Pix by different types of participants has been an important factor in promoting greater competition in the ecosystem. The concentration measure employed in the analysis was the *Herfindahl-Hirschman Index* (HHI)²⁹ of Pix transactions settled in the SPI, which revealed a low concentration of transactions (Chart 3.4.4) and financial values (Chart 3.4.5) among Pix’s participants, both at the paying end as well as at the receiving end, indicating a low concentration in the ecosystem. This index improved over time, especially when considering the transaction value concentration indices of both payers and payees, as new participants have joined Pix and smaller participants have gained market share.

Chart 3.4.4 – Evolution of the Pix Participants’ HH Index
 by Number of transactions



²⁹ The HHI is a measure of concentration in a given market. For more information, please consult the *Guide for the Analysis of Acts of Concentration*, published in the Communiqué 22,366, of April 27, 2012. HHI results between 0% and 10% indicate a low concentration, between 10% and 18% indicate a moderate concentration and between 18% and 100% indicate a high concentration.

Chart 3.4.5 – Evolution of Pix Participants’ HH Index
by value of transactions



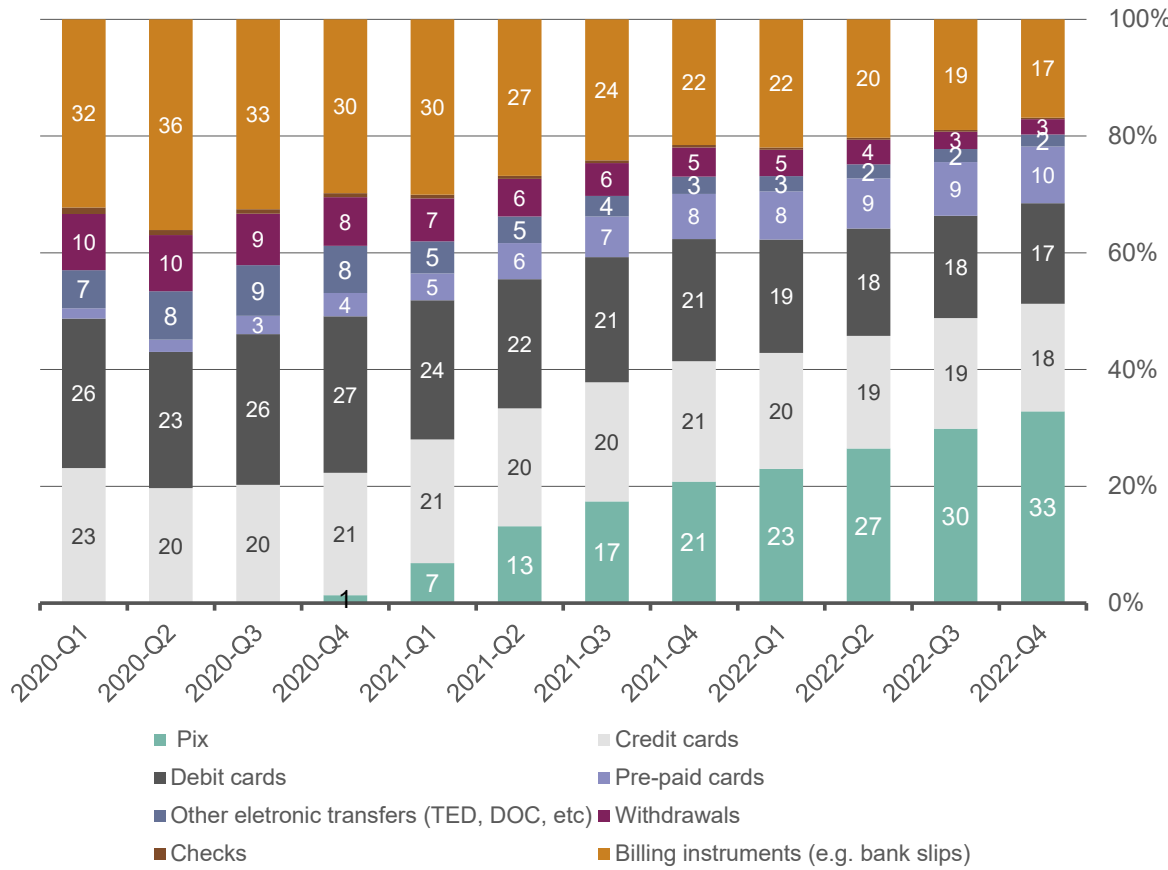
Source: BCB

3.5 Pix in the retail payments market

Pix was created to fill several gaps in payment instruments available to the Brazilian population. The Pix characteristics chosen when designing it and the the adopted implementation strategy have contributed to its wide use. , Right after its launch in November 2020, the number of Pix transactions exceeded those via DOC. In January 2021, Pix surpassed TED’s usage, followed by *Boleto* (a type of bank slip regulated by the BCB). Pix reached 3.9 billion transfers in the last quarter of 2021 (Chart 3.1.1), representing the double the number of eletronic transfers, checks and *boletos* transactions all combined. Finally in the first quarter of 2022, with 4.3 billion transactions (Chart 3.1.1), Pix became the most used electronic payment instrument in Brazil, surpassing even credit and debit cards in terms of number of transactions (Chart 3.5.1). Due to the expressiveness of low value transfers through Pix, as explored in section 3.1, although representing 33% of total transactions in the retail means of payment³⁰, Pix accounted for 13% of the total value transacted in the last quarter of 2022. In contrast, TED (an electronic transfer operated by the BCB), still remains as the instrument with the highest financial volume transacted in the last quarter of 2022 (Chart 3.5.2).

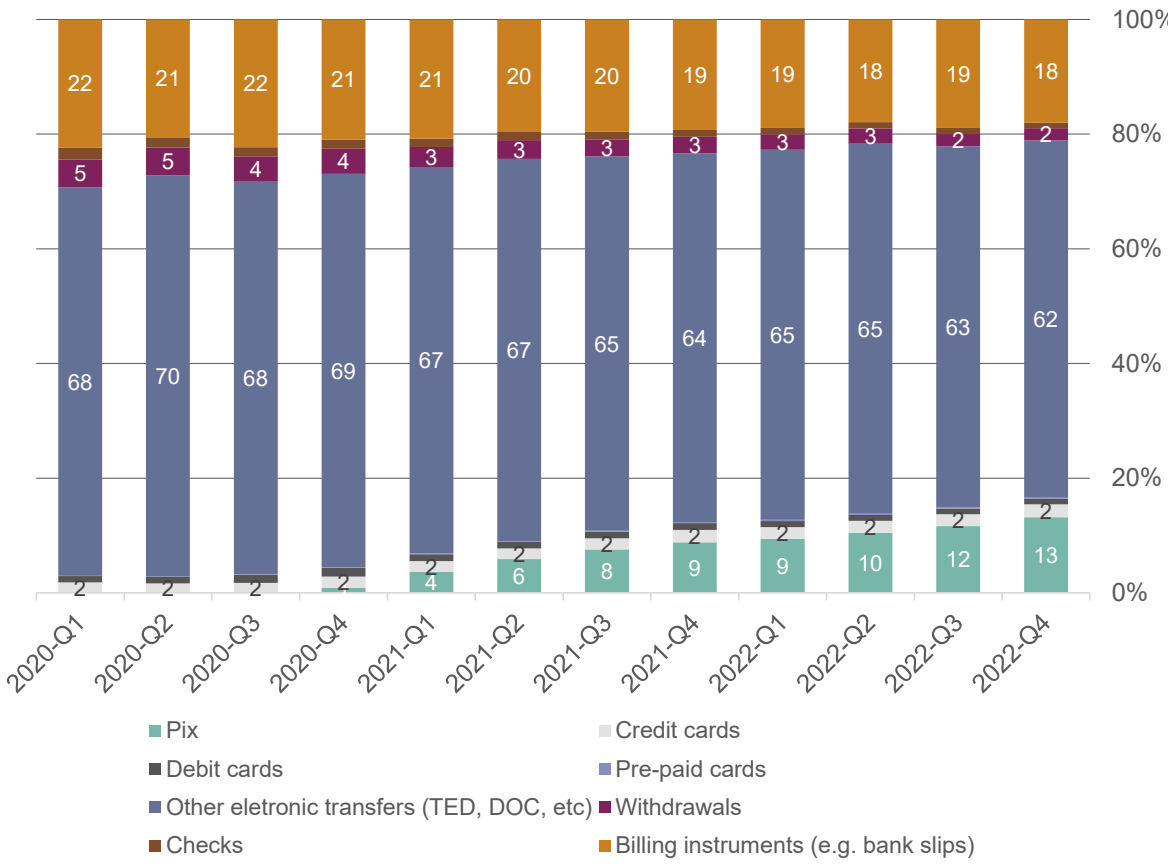
³⁰ The retail payment instruments considered in this report are: credit cards, debit cards, prepaid cards, collection agreement, boleto, direct debits (also known as direct debit and automatic debit), electronic transfers (DOC, TED, TEC), checks, withdrawals, intrabank transfers (transfers which both payer and payees are customers of the same institution) and Pix.

Chart 3.5.1 – Number of transactions
Share by payment method



Source: BCB and CIP

Chart 3.5.2 – Value of transactions
Share by payment method

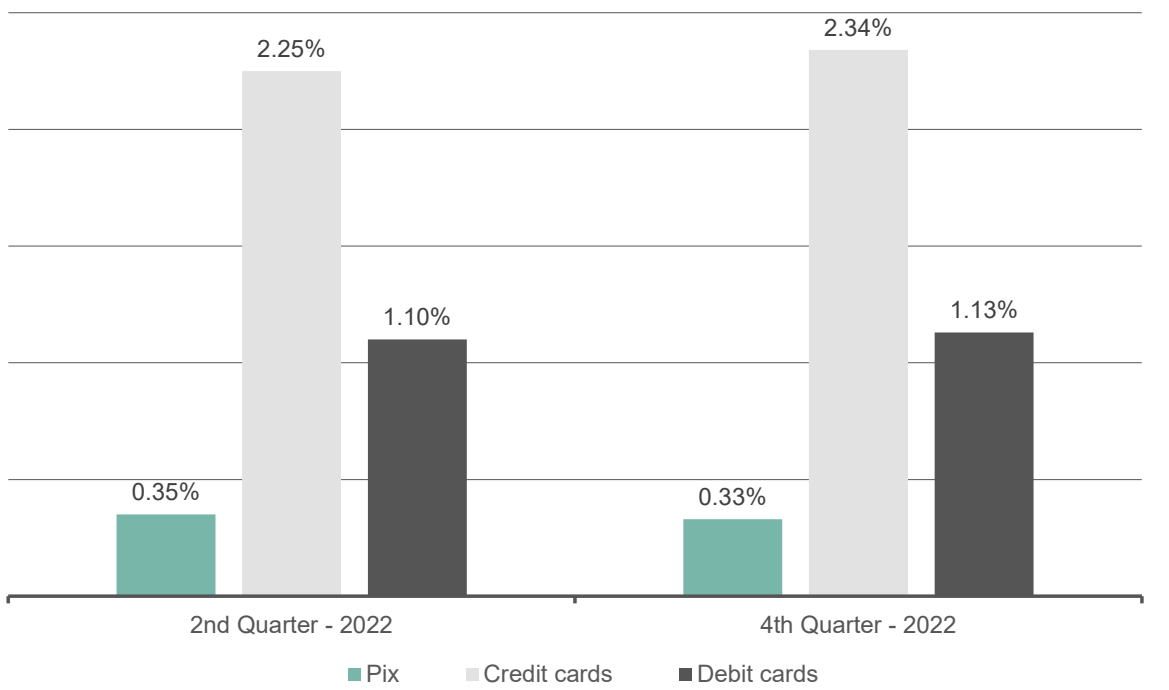


Source: BCB and CIP

One of the main factors for choosing Pix by payees (merchants and commercial establishments) is the low cost relative to other means of payment. Data from the fourth quarter of 2022 indicate that the average cost for merchants to

receive payments through Pix³¹ was 0.33% per transaction, relative to 1.13% for debit cards and 2.34% for credit cards, which demonstrates that Pix, in addition to being a means of payment that allows payees to receive funds instantly, it is also a less costly alternative for receiving payments (Chart 3.5.3).

Chart 3.5.3 – Average cost for payees
Pix, credit cards and debit cards



Source: BCB

4. The Future of Pix

4.1 Evolving Agenda 2023

In addition to improving the Pix products already available, new functionalities and new products will be added in the coming years, promoting the continuous and permanent evolution of Pix to increasingly meet the payment needs of individuals, merchants and government entities. The goal of the evolving enhancement is to expand the use cases served by Pix and further leverage its use. Pix was created to allow any transfer or payment in Brazil be made through it.

The products and functionalities expected to be developed in 2023 are detailed below.

³¹ The criterion used to calculate the cost of Pix corresponds to the ratio between revenues from the charge of Pix payments received by merchants, informed by participants, and the total number of these transactions, registered in the BCB's internal systems and also declared by the participants.

4.1.1 Automatic Pix

Pix will allow recurring payments to be made automatically, by the payer’s previous authorization, without the need for authentications on each transaction. This functionality, known as Automatic Pix, will facilitate to make recurring payments, eliminating the need for scheduling and/or making payments for each transaction individually and, thus, minimizing the risk that the payment is not processed due to the payer’s forgetfulness or neglecton, thus incurring in additional costs such as fines and interests. It will be a very convenient payment method for users, reducing friction. For payees holding accounts in any Pix participant, the main benefit will be to allow the placement of recurring payments to be settled automatically, eliminating the need to open additional accounts and establish bilateral agreements with each of these institutions.

The Automatic Pix will be developed in a very flexible manner, to meet the multiplicity of businesses with different needs and to provide opportunities for multiple agents to provide the solution to merchants, hence stimulating competition among participants. This is expected to allow reaching a larger share of payers and payees in various market segments. Given the greater number of firms capable of providing the solution to merchants, it is expected that the cost will also be lower than the one currently observed in the provision of similar services.

Furthermore, the standardization of rules, operational procedures, informational and financial flows will bring more efficiency to the process, simplifying both the operationalization and the control of the payment collection process, in addition to reducing costs for payees. We believe that the product will be used by public service concessionaires and by companies that provide products or services that require recurring payments, such as educational institutions, gyms, subscription clubs (online and offline), streaming services, health insurances, overall insurances, condominium administrators, clubs, news portals, credit operations, among others. Despite the specifications and development of this new product being expected to take place throughout 2023, it is estimated that the launch will take place in 2024.

4.1.2 Secondary channel for non-priority transactions

From the point of view of Pix’s technological infrastructure, a specific channel is under development for processing non-priority payments, the secondary message transmission channel, which will start to be operated in October 2023. With the possibility of scheduling a Pix, the paying institution retains payment orders on its systems until the due date. Sending these transactions, via the message system, to the BCB can lead to the accumulation of large batches of payments simultaneously and to the system overhead. In order to rationalize the processing of payments where the instantaneous availability of funds in the

payee’s account is not essential, as in the case of scheduled payments, and also avoiding concurrence with payments that, in fact, need to be settled in a few seconds, this secondary channel will be created for non-priority transactions.

4.1.3 Security mechanisms

As previously mentioned, the improvement agenda related to the security of Pix is a continuous and a permanent work of the BCB and involves multiple external agents. For 2023, we highlight the planned improvements regarding security information related to the Pix aliases, which are stored in the BCB and shared with all participants. New specifications will be created to enable institutions to improve records related to fraudulent transactions. Additionally, the information made available when consulting users aliases for security purposes will be reformulated, bringing more relevant information and covering a longer period. Such improvements aim to provide better subsidies for institutions to help prevent fraud.

4.2 Future vision

4.2.1 Pix does not stop here

Pix was developed, from its inception, with the purpose of meeting the most varied use cases, involving several diverse economic agents in Brazil, and providing a multipurpose means of payment, with potential for universal use.

With Pix, the BCB is able to actively intervene in the achievement of multiple public objectives, stimulating a competitive environment, network effects, technical cooperation among market players and economies of scale.

Innovative at its core, Pix has yet to reach its full potential. Although its versatility is recognized in relation to other payment instruments available in Brazil, there are still some challenges for its full use and availability for all payment needs.

Even Pix being already consolidated by the population as a transfer tool between accounts, and its infrastructure allowing for several other innovations, some obstacles still need to be overcome. Some of these barriers are related to the usage habits of payers who are used to choosing other payment instruments in their daily transactions, mainly for paying bills and making purchases. Changing the habit of using a payment instrument involves time to absorb and understand how to use it and the benefits provided by the new instrument, as is the case with Pix. This requires educational actions by the BCB and the participants, development of new Pix use dynamics and the correction of inefficient incentives for its use.

For payees, mainly merchants and government entities, there is still the challenge of efficiently generating batch payments and adapting the internal systems of payment issuers to automate processes. Pix makes it easy to integrate systems, but the process requires technological development by commercial automation and business management solution companies (such as ERPs and POS systems). Another issues are related to physical and electronic payments at points of sale which involve the need for technological developments by commercial automation software companies and integration and signaling actions by merchants, which also demand time for adaptation.

Once these challenges are overcome, the BCB hopes that individuals and, above all, merchants will be able to use the structure and technology offered by Pix in a more creative way, without the need to adapt its use to pre-existing mechanisms, often related to other functionalities or other forms of payment. Pix includes innovative tools and, as such, must be disruptive in relation to what already exists, enabling, for example, new ways to make payments for purchasing purposes, such as self-services stations that do not need to queue at single points, among others.

In short, the BCB’s present and future actions will be guided by the objective of allowing payers and payees to have the option of choosing Pix for any type of payments, regardless of value and use case. Among the future possibilities for the evolution of Pix, there are several products and features that will make it even easier to use Pix in bill payments and purchase situations, which are typically transactions between individuals and companies. The BCB strives for Pix to be an instrument for promoting competition, financial inclusion and transparency in the provision of payment services in order to Pix be able to contribute to a more efficient retail payments market.

4.2.2 The (r)evolution continues

The products and functionalities to be developed in the context of the development agenda for the coming years should boost Pix more intensely, as a universal payment instrument. The goal is for making Pix effectively address situations and use cases not yet covered and also to improve the payment experience for users, meeting the demands of society.

Among the possibilities for future developments is the use of other forms of initiation that allow the payer to carry out Pix transactions without internet connectivity, which has the potential to expand access and provide more convenience to users, stimulating new usage dynamics and the replacement of less efficient means of payment. The arrival of 5G technology in Brazil brings even more opportunities for the development of quality processes and solutions for the retail payment market. The ability to process transactions in a shorter period will allow for the potential use of digital instruments, such as

Pix. There is also room to study alternative manners of initiating payments, for example, using proximity technology - NFC, RFID, Bluetooth, biometrics and others. The use of new technologies making the payment experience even faster can be especially beneficial in some specific use cases, such as, for example, toll payments on highways, parking lots and public transport. Many businesses that currently are not viable due to the lack of “connectivity” can be made possible instantly, in a simple, safe and cost-effective manner.

There is also the possibility of establishing standardized rules that enable the use of collateralized mechanisms linked to payment transactions, allowing Pix to be used for future dated payments or in payment installments hence mitigating the credit risk of merchants. Additionally, the BCB has been monitoring the provision, by some private agents, of proprietary solutions that make installment payments with Pix feasible. There is not a single model being practiced. There are, for example, solutions that link a loan to a Pix transaction and other solutions allow the payment of a Pix transaction on the credit card bill. The BCB monitors the evolution of this market and the use of these solutions, and may, in the future, if it deems necessary, decide to either create a single product or to define minimum rules to be observed by the participants offering this service.

Pix may also allow, in the future, integration with international instant payment systems, enabling cross-border transactions between Brazil and other countries, such as remittances, international trades and oversea payments for purchases of goods and services. The BCB has been monitoring initiatives around the world and Pix has already been developed to facilitate this type of connection, adopting international communication standards.

Other products and functionalities will still be envisaged and developed according to the demands of society and the structural and technological improvements to come. The fact is that innovations that have already been experienced are paving the way for the digital transformation in means of payment, no being possible a fallback.

In this context, the BCB, in the exercise of its mandate, in addition to the important monitoring of the domestic retail market, must take advantage of Brazil’s insertion in the international context, assessing the need to internalize the best international practices, which can be incorporated, in an adapted manner, to the domestic reality.

Many new features will still be implemented. The revolution started in 2020 was just the beginning.

