

STANDALONE REPORT

GLOBAL STANDARDS MAPPING INITIATIVE 4.0

NOVEMBER 2023

COUNTRY SPOTLIGHT: BRAZIL

**GLOBAL BLOCKCHAIN
BUSINESS COUNCIL**

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GSMI 4.0 IN-DEPTH REPORT

COUNTRY SPOTLIGHT: BRAZIL

OVERVIEW

Brazil is developing into an increasingly mature, developed, and very attractive market for digital assets and blockchain technology, and arguably among the most overlooked. Adoption has been expanding at an increasing rate that is worthy of notice in terms of speed and size (e.g., increasing size of crypto investments, disclosures of holdings and transactions to the tax authority, and projects advancing financial innovation with blockchain and digital assets). This is a market of high volumes in size that is worth considering to bring to the forefront of discussions in the space.

With increasing trade volumes and significant activity for both retail and institutional investors, Brazil has become a critical market for many of the world's largest cryptocurrency exchanges. For example, the country has been one of Binance's largest markets globally since 2020. Other global exchanges such as Coinbase, Bitget, Huobi, OKX, and Crypto.com have also begun servicing Brazilian customers via integrations with the local instant payment system Pix, and have also been engaging in regulatory discussions. This trend is also consistent with claims from Consensus that Brazil has the second-most Metamask downloads of any country in the world, trailing only the US. Moreover, many blue chip companies over time have been moving their operations to Brazil.

Fintech in Brazil is fertile ground for blockchain & digital assets deployments – with caveat in payments

Financial technologies in Brazil have already attained a significant presence, setting the stage for promising implementations in blockchain and digital assets. Brazil has a history of fostering fintech developments aiming to promote competition, enhance the efficiency of Brazilian financial markets, and ultimately foster financial inclusion by increasing the availability of financial products and sources of financing for the broader population. Brazil's ecosystem of fintechs is also quite diversified, as they operate in several market segments: credit, payments, financial management, loans, investments, private financing, insurance, debt negotiation, etc. These solutions are at the moment making use of technological innovations both within the traditional banking system as well as distributed ledger technology (DLT) and cryptoassets.

Brazilian regulatory bodies in collaboration, including the country's central bank, operating along the lines drawn by the governmental agenda, have assessed the potential impacts of these innovations on existing operations conducted within the Brazilian financial and payment ecosystems.

Some fintech segments fall under the regulatory scope of the Securities and Exchange Commission of Brazil, the Comissão de Valores Mobiliários (CVM),¹ and Superintendency of Private Insurance (Susep).² Other segments are included within the regulatory scope of the Banco Central do Brasil's (BCB) ³ – particularly credit and payments.

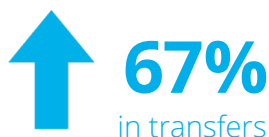
In order to support ongoing innovation in the financial ecosystem, in May 2018, Central Bank launched the Laboratório for Innovation in Financial Technology (Lift) — a virtual environment that allows the collaboration between regulators, academia, market participants, technology companies, and startups — aiming toward promoting knowledge sharing and technological innovation. The Lift initiative is jointly run by the Central Bank and the National Federation of the Central Bank's Civil Servants Associations (Fenasbac). The role of tech companies is to support ideas selected to take part in the program.

These initiatives have made the vibrant Brazilian fintech ecosystem fertile ground for continued financial innovation. In 2020, the launch of Pix, the Brazilian instant payments system, allowed enterprises to connect through a single rail, and the resulting adoption has been much higher than originally anticipated.

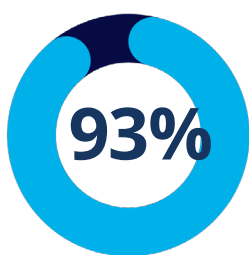
PIX BY THE NUMBERS



2.9 billion Pix transactions in December 2022, against 1.4 billion in December 2021, an **increase of 107% in just one year**



R\$1.2 trillion was the total amount transferred in December 2022 against R\$718 billion registered in December 2021, **an increase of 67%**



93% of transfers made by individuals are worth up to **R\$200.00**



71.5 million users included with Pix (**35% of the Brazilian population**)

133M
individuals use Pix

133 million individuals and 11.9 million merchants use Pix, as of December 2022, representing **77% of the adult population**, and **67% of merchants** with current relationship on the national financial system

Ultimately, the Central Bank's policies toward advancing Pix, and in support of open finance, have set the stage for a friendly environment with respect to financial innovation in Brazil, so much so that crypto innovations for payments already face a competitive landscape because of the high rates of penetration and the population's satisfaction with Pix. There is a very high penetration of neobanks, with Nubank as an example having experienced very fast adoption. The population has come to trust and openly adopt financial innovations in general, which influences their level of openness to experimenting with blockchain and digital assets developments. In this context, crypto and blockchain innovations emerge as a new stream that can scale as it comes together to converge with existing fintech solutions.

There is increasing energy and interest in digital assets on the coattails of the Central Bank's Drex project to launch a CBDC, which is further attracting investors focusing on Brazil due to the attractiveness of the financial ecosystem on which a tokenized Real would operate. It is expected that these innovations, offering solutions beyond a mere alternative to Pix, that can gain significant traction. Ethereum in Brazil ran a Drex focused hackathon, and there is increasing excitement on tokenization efforts expanding on the Drex platform.



RISE OF BLOCKCHAIN & DIGITAL ASSETS IN BRAZIL

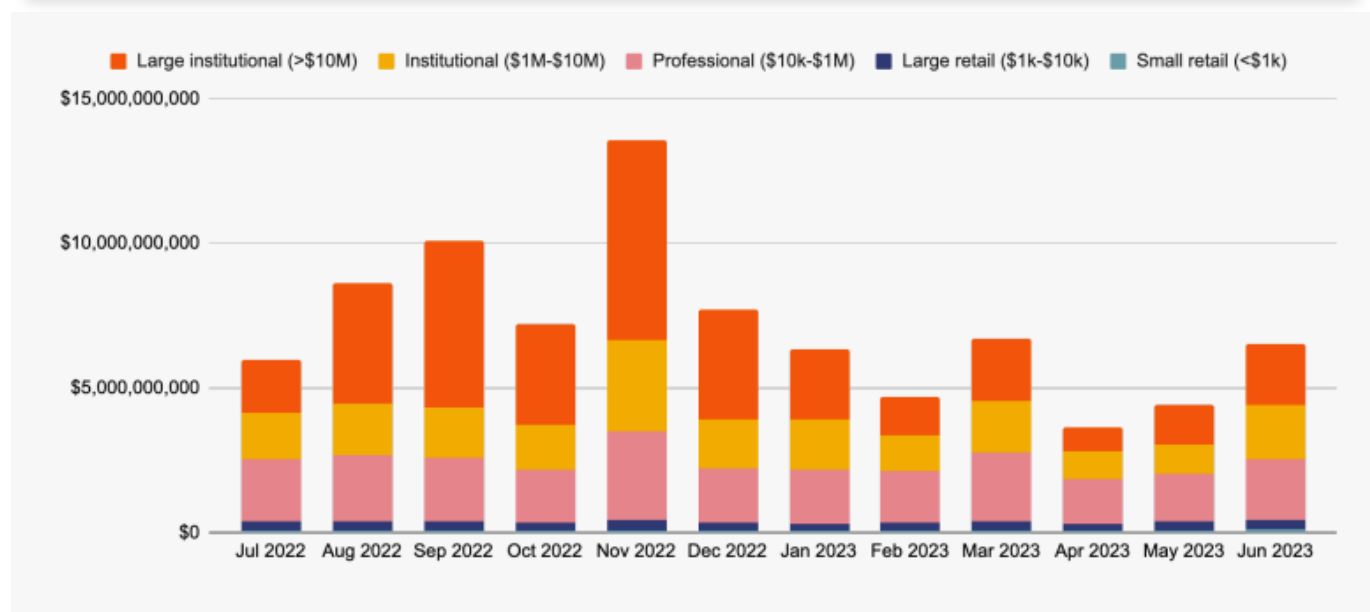
Increasing Crypto Trading

A total of **US\$3.8 billion**⁴ in overall crypto trading volume was reported during July 2023. This number is roughly equivalent to the monthly average of **US\$3.9 billion**⁵ reported for the prior months of the year. For context, the highest volume ever reported was **US\$5.2 billion**⁶, which came during the peak of the last crypto bull market in May 2021. Bitcoin and Ether remain the preferred non-stablecoin crypto assets for investors, with average monthly volumes of **US\$226 million**⁷ and **US\$49.7 million**⁸, respectively. These numbers are down significantly from the bull market of 2021, when bitcoin averaged **US\$1.1 billion**⁹ and Ethereum **US\$308 million**¹⁰ in monthly volumes. Bitcoin's market share for 2023 has been in the single digits, versus 40-50 percent during the bull market.

According to the [2023 Geography of Cryptocurrency Report](#) from Chainalysis, Brazil slipped from 7th to 9th place with respect to strength of its crypto market, but it still maintains the top spot out among all Latin American countries. This ranking seems consistent with Brazil's ranking as the ninth-largest economy in the world. For the 12 month period for June 2022 through June 2023, Brazil received approximately **US\$80 billion** in cryptocurrency value, with the overwhelming majority of that volume coming in transaction sizes of larger than **US\$1 million**. A positive trend identified in the report is that small and large retail transaction volume remained strongly consistent throughout the 12 months studied. Given that this was an extremely volatile and difficult period for the crypto industry, the consistency of these transactions demonstrates a longer term faith in the technology's value proposition. DeFi and peer-to-peer technology usage in Brazil has proven to be significant as well, though adoption was down slightly year-over-year. The report states:

"The data paints an optimistic picture for the Brazilian crypto market. Even in crypto winter, the so-called "middle class" of high-value crypto traders, along with basic retail users, stuck with the asset class."

Figure 1: Brazil monthly transaction volume by transfer size, Jul 2022 - Jun 2023 (Source: Chainalysis)



In addition, there are currently **19** domestic and international brokerages offering crypto trading services to Brazilians, as tracked by the domestic website Livecoins.¹¹ These exchanges have been moving an average of **US\$7.2 million**¹² per day worth of trades. Several other banks and fintechs offer crypto brokerage services as well, including Nubank, PicPay, Mynt (from BTG Pactual) and, until recently, XP Investimentos and PicPay. Many other traditional finance institutions are expected to apply for VASP licenses once the regulatory and licensing framework is released by the Central Bank.

Other marque name Web3 companies and service providers have been aggressively eyeing the market and establishing a solid presence include Ripple, BitGo, Fireblocks, Metaco, Ramp, and Zero Hash. Outside interest from service providers is expected to increase significantly as more banks and traditional finance institutions increase their digital asset infrastructure. Leading Web3 protocols also have significant community presence in the country, including Polkadot, Near, Algorand, and Cardano.

Retail markets

While inflation is largely under control in Brazil at the moment, the memories of hyperinflationary environments still ring true for many residents - particularly those over the age of 30. For retail investors, there are not many alternative investments available for preserving wealth. Capital markets in Brazil are not very deep, there are very few investors on the B3 stock Exchange relative to the country's entire population. Arguably, may be even easier to buy crypto than a treasury bond in Brazil.

It is also difficult to access dollars and other hard currencies - even though Brazilians on the aggregate would prefer to keep their funds in dollars rather than in the local currency, the Real. Brazilians also tend to view the value of the Real in relation to the US Dollar, such that even if inflation remained flat, the average Brazilian would feel richer or poorer if there were to be a notable increase or decrease of the Real's value against the US Dollar.

With the exception of payments where there is an existing system with widespread adoption on existing rails, crypto as an investment and trading alternative becomes even more attractive for a retail population that does not have easy access to many other investment options, as opposed to the accessibility of crypto. Outside of crypto, it is also difficult to gain exposure to US Dollars, which are particularly attractive in Latin America due to their credibility and price stability relative to local currencies in the region, which have experienced drastic historical price fluctuations and massive inflation episodes.

Record amounts of users reporting crypto trades are partially driven by a younger Brazilian population where demographic factors of age, socioeconomic factors, and fintech adoption have contributed to openness to crypto. Stablecoins and bitcoin are proving to be an option that many retail investors turn to as a means to protect wealth, or merely to access dollars. There is no definitive estimate of the total number of crypto holders and users in Brazil, but there are a variety of respectable estimates that place the number within the **5 million** and **15 million** range. This amounts to between **3** and **7** percent of Brazil's total population of **214 million**.

According to the most recent data from the Receita Federal, Brazil's tax authority, **4.1 million** citizens reported crypto transactions during the month of July 2023.¹³ This figure is the highest since the agency began tracking this information in August 2019 and represents a **173 percent** increase from **1.5 million** in July 2022 and a **1,200 percent** jump from **315,000** in July 2021.

Institutional markets

The Brazilian Securities and Exchange Commission approved regulation No. 175, in which Investment Funds are allowed to invest up to **10%** of their net worth in crypto assets.¹⁴ After a series of postponements due to other factors affecting the funds industry in Brazil, this new Resolution CVM 175 has come partially into force on October 2nd, 2023 to regulate investment funds in the country. Most changes proposed have entered into force, although a few changes are expected to come into force in 2024.

During the month of July 2023, a total of **92,000 businesses**¹⁵ declared crypto assets on their balance sheets to the Receita Federal, another a record number for the regulator. This figure compares to **33,000** in July 2022 and **7,600** in July 2021. While the exact nature of these companies is not disclosed in these statistics, nor is the reason for holding and transacting in cryptocurrency, there are indications that these companies are, at least for the most part, investment firms or asset managers invested in Brazil's many cryptocurrency ETFs or private crypto funds, and thus obliged to report these holdings and transactions to the Receita Federal.



Moreover, insights on Brazil's cryptocurrency market from the most recent *Geography of Cryptocurrency Report* by Chainalysis indicate that the country possesses the characteristics of a more mature, developed North American or European market. This is largely due to the strong institutional and professional investor presence in the market, as measured by on-chain transactions and exchange order book data.

Figure 2: Retail and professional-driven transaction volume in Brazil, July 2022-June 2023 (Source: Chainalysis)



Evolving regulation to support crypto markets

To address the growing crypto market, Brazilian regulatory authorities have also taken steps to provide regulatory clarity and oversight. Overall, growing crypto adoption is leading to reporting requirements for exchanges, equivalent to requirements for local fintechs.

It should be noted that the increasing figures of crypto market activity take into account the transactions that are being reported to Brazil's tax authority Receita Federal. Investors, both retail and institutional, must report their holdings and trades on crypto exchanges, and exchanges also must report customers' trading information to Receita Federal for tax reasons.¹⁶ Reporting of crypto holdings and trades takes place using the regular federal earnings tax form. For monthly transactions that surpass the threshold of **R\$35,000**, entities must pay capital gains taxes.

While citizens are obliged to report these transactions, reporting rates may still vary significantly but have been trending upward in recent years as more citizens become familiar with the process and the requirements. Domestically-headquartered brokerages are required to automatically report transactions of their customers to the agency. Overseas exchanges are not obliged to report on behalf of their customers, though customers are still required to report these transactions themselves. In that context, the growing figures for volumes and unique users recorded in Brazil should be interpreted as a result of growing interest in digital assets and increased compliance with reporting requirements.

The Brazilian CVM has also issued regulations related to cryptocurrency products and trading, contributing to a more structured environment for market activities. In 2019, the CVM issued regulations related to cryptocurrencies, particularly Initial Coin Offerings (ICOs). These regulations require companies conducting these activities to register with the CVM and provide specific information to investors. In October 2022, the Brazilian Securities and Exchange Commission published a guidance¹⁷ consolidating its understanding and guidelines about the definition and regulation of crypto assets in Brazil and their relationship with the securities market.

It is important to note, however, that crypto has not gained significant popularity thus far as a means of payment or infrastructure for transactions – a trend likely also attributed to the regulatory framework that has been supportive of financial innovation and has paved way to the existing and widespread payments system Pix. Brazilian residents have already adopted and trust Pix as a predominant payments use case.

Crypto ETFs

Crypto ETFs in Brazil have also gained popularity largely among retail investors. Brazil is the second country after Canada to approve a crypto ETF, and the first in Latin America. Currently, there are **13** cryptocurrency-related ETFs available in Brazil. Given that many investors gain access to crypto through ETFs, a resulting assessment is that ETFs actually contribute in growing the crypto market in Brazil.¹⁸

The landscape of cryptocurrency exchange-traded funds (ETFs) in Brazil has witnessed significant growth since the Brazilian Securities and Exchange Commission approved the first crypto ETF to be listed on the Brazil Stock Exchange (B3), Hashdex Nasdaq Crypto Index ETF (HASH11), on April 4th, 2021. This is the world's first crypto-based ETF, available to accredited non-US investors at the time of its launch. The Brazil Stock Exchange listed its first bitcoin ETF, QR Capital's bitcoin ETF, in June of 2021.

Managed by Hashdex, a pioneer in the field, HASH11 set a precedent for the Brazilian market, marking a new era in crypto investments. This ETF, like others that followed, offered investors a more structured and regulated way to gain exposure to cryptocurrencies, without the complexities and risks associated with direct purchases and storage of digital assets.

As of today, the total market capitalization of crypto ETFs in Brazil stands at **US\$438 million**.¹⁹ HASH11 remains a dominant player, contributing over **US\$1.4 million**²⁰ to the daily trading volume of around **US\$1.9 million**.²¹ This dominance underscores Hashdex's pivotal role in shaping the Brazilian crypto ETF market. Furthermore, the presence of multiple ETFs from Hashdex and QR Capital in top ETF lists highlights the competitiveness of this landscape, where a few key players are leading the market.

Interestingly, traditional financial institutions are also entering this space, as evidenced by Itau, one of Brazil's top banks, launching its own crypto ETF, BITI11. This move by a mainstream financial player not only legitimizes the crypto market but also broadens the options available to investors.

Additionally, BTG Pactual integrated cryptocurrencies to its investment app for customers, allowing them to buy and hold crypto without additional custody or management fees. Moreover, the regulatory environment in Brazil is notably advanced, allowing for ETFs based on derivatives and crypto spot ETFs to be launched. This regulatory openness has been crucial in fostering a diverse and dynamic ETF market, enabling investors to choose products that align with their risk appetite and investment strategies. The combination of innovative ETF offerings and a supportive regulatory framework positions Brazil as a significant player in the global crypto investment landscape.

Figure 3: Data on Crypto ETFs (Source: B3)



Stablecoins

As the regulatory environment in Brazil has progressed, providing greater clarity for businesses, the development of new products that foster innovation and advance the Brazilian market has been gaining momentum. Post-pandemic, the number of Brazilian investors has grown significantly, adding **8 million investors - 5%** of the population - from 2021 to 2022, leading to an increased pursuit of new products and opportunities across capital markets. Diversification stands as a cornerstone of investment, and the Brazilian market has made substantial advancements in expanding the array of financial products available to domestic investors.

In this context, stablecoins can play a relevant role when facilitating access to traditional markets' assets through blockchain, as they serve as the vehicle for transacting these assets on a decentralized network.

Surging usage of stablecoins is one of the most significant trends in the Brazilian market for 2023. Stablecoin transactions saw a total volume of **US\$3.3 billion**²² for the month of July 2023, roughly **86 percent** of total crypto volume. This is a notable increase in stablecoin volume, from **US\$2 million**²³ registered in July 2022, which comprised **77 percent** of total volume for that month. Brazil has reached among the highest volumes of Tether activity in terms of transactions, as recorded by government statistics.²⁴ For July 2023, USDT-paired transactions comprised **US\$3.2 million**²⁵ of total stablecoin volume (**82 percent** of total volume), while USDC comprised **US\$172 million**²⁶ in volume.

Interestingly, the average size of a transaction involving USDT was registered at **US\$13,500**,²⁷ whereas the average size for USDC was **US\$4,300**.²⁸ This tracks with the broader trend witnessed over the first half of the year, where the average USDT transaction size has been **US\$14,800**²⁹ and the average USDC transaction was **US\$3,100**.³⁰ These data points suggest that USDT has been the preferred stablecoin for larger institutional traders and commercial enterprises, whereas USDC has become the primary option for retail users and investors looking for exposure to dollars as a store of value.

Of note is also the relatively strong adoption of a Brazilian Real-pegged stablecoin called BRZ, which is issued by Transfero Group. This coin has one of the largest market caps among stablecoins that are not pegged to the US dollar. Prior to November 2022, BRZ was averaging between **US\$102 million** and **US\$200 million**³¹ in monthly trading activity, largely due to its popularity with traders. A significant portion of BRZ's liquidity was on the FTX exchange, however, so when the exchange collapsed a significant portion of BRZ's liquidity also declined.

Leveraging blockchain technology and aiming to enhance its product offerings, BTG Pactual Group, Brazil's largest investment bank, also issued a stablecoin pegged to the U.S. dollar, the BTG DOL. This is the world's first dollar-backed stablecoin from a bank.³² This constitutes a significant move towards the tokenization of money markets in Latin America. This milestone not only signifies the advancement of institutional initiatives in Brazil but also reflects the rise in crypto adoption in the Brazilian market.





Digital Identity Solutions

Brazil is rolling out a National Identity Card project, a digital identity solution using blockchain technology, drawn by the features of immutability and decentralization to enhance security and reliability.³³ The national data processing service Serpro has launched a private blockchain, the b-Cadastrors platform, on which on-chain identification documentation is issued.

Blockchain technology is deemed to be critical for protecting personal data and preventing fraud, providing citizens with a more secure digital experience. Local governments have also stated that blockchain technology can help target organized crime, facilitate collaboration among government sectors, and simplify citizens' access to public services while streamlining administrative records. The ability to securely exchange data among the Federal Revenue and government departments can be a gamechanger according to the announcement of the project.

This solution is launched initially in the **3** states of Rio de Janeiro, Goiás, and Paraná.³⁴ The Brazilian government announced that over **214 million** Brazilians would adopt blockchain technology for digital identity in the near future, and eventually the rollout is expected to be nationwide. This is consistent with Brazil's efforts over the last few years to unify identity issuance across all its **26** states.

PIER: Blockchain to exchange information among regulators

Initiatives to foster blockchain adoption have taken place in the Brazilian government prior to many other countries, particularly to channel the benefits of this technology to enhance data sharing. One early example is the network built to exchange information among Brazilian regulators in the financial sector. This is especially relevant as blockchain adoption in financial services has been expanding across the country, and that financial innovation is further supported through the Brazilian Securities and Exchange Commission's recent regulatory sandbox launch.

The Platform for Information Integration Among Regulated Entities, or Plataforma de Integração de Informação entre Entidades Reguladas (PIER) was created to facilitate information exchange between the Brazilian Securities and Exchange Commission, the Central Bank of Brazil, and the Private Insurance Superintendence (Susep).³⁵ PIER interacts with various information systems across these three regulatory institutions, comprising a vast integrated database that includes data on sanctioning actions; participants and their administrators, administrators' curricular information, and the controls and corporate participation of regulated entities and their administrators. Authorized users may query information regarding any specified regulated entity, and more than one topic may be searched simultaneously.

The introduction of blockchain technology to facilitate this information exchange has greatly improved the quality of information security on the platform. Through this technology, the platform records data about its use, mitigating undue access to available information and the history of consultations already carried out. Blockchain adoption for PIER also significantly reduces compliance costs for market participants by avoiding unnecessary redundancies in information requests from common regulated entities. This in turn reduces bureaucracy and speeds up the availability of information.

Brazil Blockchain Network

Brazilian government agencies are working together, since early 2022, to create the Brazil Blockchain Network (RBB) to serve as a backbone for the blockchain environment in the country. RBB is a public non-profit that aims to enhance government connectivity, helping to prevent fraud and corruption, while optimizing the provision of digital services to citizens.

This effort is yet another measure to encourage the adoption of blockchain technology in public administration, which is expected to propel future uses in a variety of activities. The aim is to increase security in public administration acts and contracts. Public administration bodies and private institutions of public interest can participate in the RBB initiative in order to create, strengthen, and foster an innovative ecosystem utilizing blockchain technology.

This implementation is part of the ongoing digital transformation strategy implemented across several sectors of the Brazilian government (BNDES national development bank for economic development, Maranhao state, etc. – refer to stakeholders),³⁶ expected to foster numerous future applications much like the Internet did since the 90's. RBB encourages institutions to leverage their initiatives and enables the adoption of blockchain technology by public institutions and institutions serving the public interest.

Taxation Solutions

RIO DE JANEIRO

According to a decree published on Oct. 11, 2022,³⁷ the city of Rio de Janeiro announced its intent to allow the use of cryptocurrencies to make Real Estate Tax Payments, through third-party service providers, starting in 2023.³⁸ This move would position Rio as the first Brazilian city to accept digital assets for tax payments. It is expected that taxpayers would be able to make these payments using several cryptocurrencies, and that their use for tax payments in other matters may be approved in the future. The decree also states that companies wishing to provide cryptocurrency payment services as third-party service providers must be registered with the city and comply with the requirements set forth by the Brazilian Securities and Exchange Commission (SEC).

BCONNECT: INFORMATION SHARING ACROSS COUNTRIES – MERCOSUR TAX BODIES

The Southern Common Market, a South American trade bloc denoted as Mercosur for its Spanish abbreviation, is comprised of 5 sovereign member states (Argentina, Brazil, Paraguay, and Uruguay)³⁹ that are now connected through the blockchain network bConnect, which was launched for use in October of 2020.⁴⁰ Mercosur tax bodies have adopted this blockchain based system to share information. Bconnect was built on Hyperledger Fabric by Brazil's Federal Data Processing Service (Serpro), the country's state-owned IT service, which serves the Federal Tax Service of Brazil and the Brazilian Internal Revenue Service.

The bConnect platform aims to validate the authenticity and security of customs data shared between the Mercosur countries.⁴¹ This tool enhances the agility and security of information exchange regarding foreign trade, particularly registration information on companies certified by the Federal Revenue Service as Authorized Economic Operators (OAS) which benefit from facilitated customs procedures, both in Brazil and abroad.⁴² The purpose of bConnect since its launch has been to meet an international need for automating the exchange of customs data from OAS across countries, which previously was carried out largely over e-mails sending this data in the form of spreadsheets extracted from each country's respective systems. Additional plans include expanding this network to facilitate information sharing from customs declarations.

VASP Regulations Expected in 2024

Brazil intends to continue fostering enabling legislation in support of developments in blockchain and digital assets in the country. ⁴³ In December 2022 Brazil enacted a legal framework for virtual assets (“Marco Legal das Criptos”) through Law No. 14,478/22, which was approved, enacted, and entered into force in June 2023.⁴⁴ This framework provides guidelines for regulatory activities conducted by VASPs, while also stating that the crimes of fraud, money laundering, and other financial crimes with virtual assets would fall within the corresponding existing frameworks.

This framework also replaces and formalizes a number of prior regulatory developments. The Central Bank and the Brazilian Securities and Exchange Commission are the designated regulators, with the Central Bank designated as the competent authority to regulate, authorize, and supervise the activities of virtual asset service providers (VASPs) operating in the country.

Under its new mandate as regulator overseeing the space, the Central Bank is expected to release an update to this regulatory framework for VASPs in 2024.⁴⁵ It has released public consultations on regulation of the space during 2023, requesting feedback from the market, on issues such as consumer protection, disclosures, and risks of decentralize governance, to incorporate into the upcoming framework. Once licensing requirements are underway, the expected outcome aims to attract entrepreneurial activity and foster innovation within the country. The Brazilian president has emphasized the importance of coordinated action with other regulators, notably the Brazilian Securities and Exchange Commission, for adequate oversight of activities in the space.





DREX: THE RISE OF CBDCS IN BRAZIL

Objectives

The discussion about the issuance of a Central Bank Digital Currency (CBDC) in Brazil has gained prominence over the last few years, broadening the general understanding that monetary authorities' financial stability mandate also comprises promoting innovation in payment methods. Authorities recognize that the accelerated digital transformation underway in the global economy makes financial innovation a requirement to ensure competitiveness in the future. Hence, ensuring financial stability is closely related to promotion of financial innovation, especially as it relates to improving financial inclusion.

After having systematically followed relevant discussions regarding digital assets and innovation in money since 2016, and also having conducted targeted relevant research initiatives on the matter, the Central Bank of Brazil (BCB) began to seriously consider issuing a CBDC in August of 2020, through internal discussions and discussions with its international peers. CBDC development is at the moment a work in progress, intended to be launched alongside the upcoming regulatory framework in the near future.

The aim of the Central Bank deepening financial inclusion in Brazil, democratizing the population's access to services, such as investments, financing and insurance. The intent to develop a CBDC falls within the Central Bank's vision of "financial democratization," which is the ultimate objective of its Agenda BC#.⁴⁶ Financial democratization consists in improving access to financial markets, low long-term interest rates, and better financial services to benefit the general population. Launched in 2016, the Agenda BC# is the Central Bank's strategic work agenda to tackle structural issues facing the national financial system through technological innovation. With this project, the Central Bank is pushing the market toward financial innovation and further blockchain adoption.

In this context, the possibility of the Central Bank issuing the Brazilian Real in digital format has been considered with the following objectives in mind:

- Keeping up with the dynamism of the technological evolution of the Brazilian economy;
- Increasing the efficiency of the retail payments system;
- Contributing to the emergence of new business models and other innovations based on technological advances;
- Favoring Brazil's participation in regional and global economic scenarios, while increasing efficiency in cross-border transactions.



CBDC project begins

In light of the success of Brazilian instant payments Pix, the Central Bank began to consider further possibilities of implementing digital assets technology. The quick spread of decentralized financial transactions, conducted over blockchain ecosystems with the use of various digital assets as tokens, was perceived as an opportunity to apply such technologies to further modernize the Brazilian financial system. Based on the results of the Central Bank's working group on CBDCs established in August 2020, alongside advancing internal discussions on the topic, the path was forged toward building the conditions for issuing the Brazilian Real in digital format.

The Central Bank made a number of announcements throughout 2021. In 2022, in light of the accelerating development of the digital economy, the Central Bank promoted the discussion of possible uses of its CBDC through the LIFT Challenge Real Digital – a virtual laboratory to enable a collaborative environment to evaluate use cases and technological feasibility of the digital currency issued by the Central Bank. As a result, a prototype comprised of 9 different projects was developed in LIFT Challenge, with their results currently available as reports published on the LIFT home page.⁴⁷

Drex CBDC Project & Features

In August of 2023, the Central Bank's CBDC project was given an official name and logo: the "Drex Platform," alluding to the initials of "Digital Real" and the name of the existing payments tech solution Pix.⁴⁸ One important aspect of the Drex Platform is that, under the proposed architecture, the Central Bank will maintain its partnership with the private sector in providing liquidity to the market, through the coexistence of the CBDC, or wholesale Drex, with private digital currencies, retail Drex, issued by regulated institutions through the transformation of demand deposits and payment account balances into digital currency in the Drex Platform. Such regulated private digital currencies will serve as the basis for building digital financial services and will play on the Drex Platform the role that stablecoins currently do in public chains.

To access the Drex Platform, the financial user will need an authorized financial intermediary, such as a bank, cooperative or payment institution. This intermediary will transfer your money (specifically, balances on demand deposits and payment accounts) to the user's digital wallet on the Drex Platform, to enable transactions with digital assets. As is already the case with Pix, the population's access to intelligent services on the Drex Platform will occur through an app offered by their financial service provider – such as a bank, a credit union, fintech, or payment institution.

The objectives through the Drex platform will be carried out through a platform that operates with digital assets and smart contracts, among other functionalities, facilitating the provision of more efficient and secure financial services and products. Hence the smart services of the Drex platform will be carried out through smart contracts, which can be adapted to the convenience of customers, and can allow financial transactions to be completed when all conditions are met, adding security to all parties. The benefits of these technologies, to be used with Drex, will be offered to a larger base of citizens without exposing their businesses to the uncertainties of an unregulated financial environment.

Programmability functions – available in the crypto asset ecosystem and across web3 – are recognized for their potential to expand financial inclusion. The standardization of protocols involved in financial transactions and the interoperability of solutions integrated into the Drex Platform – apart from the reuse of protocols and composability of financial services – reduce the cost and time of developing new financial products, enhance access and transparency, while freeing the entrepreneur to focus on specific aspects of their business model.



Risk Management

All actions undertaken by the Central Bank support the perception that, in the absence of a decentralized infrastructure that has the central bank currency as a settlement asset and that is compatible with transactions with tokenized assets, users of tokenized financial services are exposed to integrity and market risks, which could compromise the financial stability. Moreover, if financial instruments that are traded in traditional markets are tokenized and traded on decentralized ecosystems as well, then there arises the risks of pricing mismatches and market fragmentation.

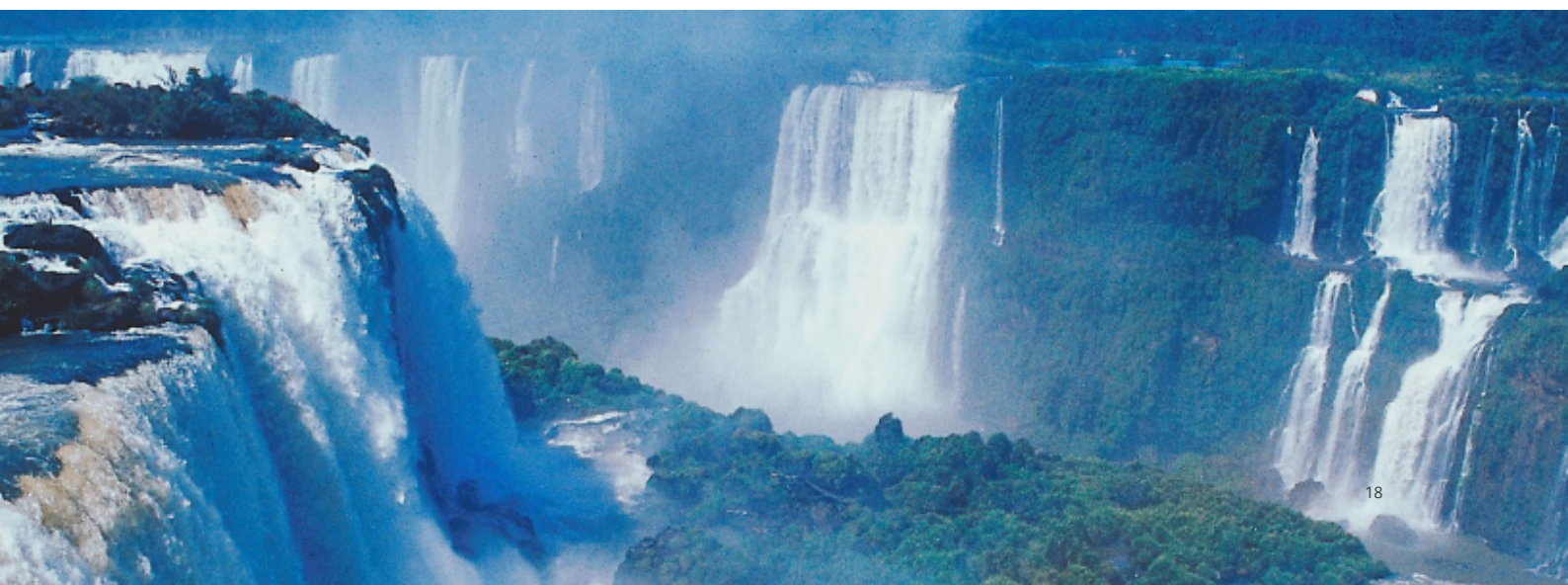
Regulators have taken significant steps to ensure consumer protection, especially data protection and privacy at scale. They have deployed significant resources toward these protections, as well as systems which reveal this topic is not taken lightly.⁴⁹ Brazil has also enacted its own data privacy law, the Lei Geral de Proteção de Dados or General Data Protection Law in English (LGPD), with purpose of protecting every natural person's fundamental rights of freedom and privacy, alongside the free development of a personality.

Drex alignment with regulatory objectives

Thus, the Drex Platform is being developed to democratize access to the benefits of the digital economy, bringing more efficiency and security to financial transactions, by allowing various types of secure financial transactions with digital assets and smart contracts to be available to the population. Those may be the building blocks for new or improved financial services, and upon those new or improved business models.

In this scenario, the Central Bank concluded that the adoption of a DLT infrastructure for Drex would allow a high degree of auditability, traceability and transparency, guaranteeing the necessary tools for its supervision and regulation, at the same time in which it fosters the incorporation of new technologies and the development of new business models with the potential to meet the population's demand for natively digital means of settlement, similar to those available in the crypto assets ecosystem.

To deepen the internal debate on asset tokenization – considering the technical aspects of the registration, custody, trading, and settlement activities of financial assets in DLT infrastructures –, the Central Bank established a working group at the end of 2022. Several round tables were held with representatives of the financial market, which resulted in virtual seminars with the themes “Market Operators” – June 2023; “Market Infrastructures” – July 2023; “Identity and Compliance” – August 2023; and “Sustainable Assets” – September 2023.





Initial Testing & Next Steps

To operationalize the development of a unified testing platform for Drex, the Central Bank established rules and procedures for the operation of the Drex Platform Pilot Project, the Drex Pilot, as Resolution 315/2023 - Central Bank. On the one hand, the group of Pilot participants is kept small and manageable to be efficient. On the other hand, the Central Bank established the Drex Forum, in March 2023, with the aim of providing transparency about the implementation of Drex, in addition to favoring broader society's participation in the process. The Drex Forum is a communication channel with market agents and entities representing institutions regulated by the Central Bank, as well as other interested sectors of society. Two virtual Drex Forum plenaries have already been conducted, in June 2023 and September 2023.

The Drex Pilot is, therefore, a testing platform for operations with Brazilian digital currency. At the current testing stage, the BC is evaluating the benefits of programmability and privacy guarantees that can be assured by the Drex Platform, a multi-asset environment based on the Hyperledger Besu open-source platform, in where simulated operations with digital assets are being conducted.

To participate in this testing environment, the Central Bank received **36** applications from individual companies and consortiums of companies. Based on the criteria established in the Drex Pilot Regulation, 16 proposals were selected, comprising a total of more than **70** firms involved in the Pilot. The construction of this testing environment began in March 2023 and its first testing phase is planned to be completed in May 2024.

After the current testing phase planned to be concluded on May 2024, assuming that the privacy concerns will be clarified by then, the Central Bank will open another call for use cases to be deployed on the resulting platform, so as to incorporate the population in the testing environment by the end of 2024 or the beginning of 2025.

TOKENIZATION

Tokenization gaining popularity

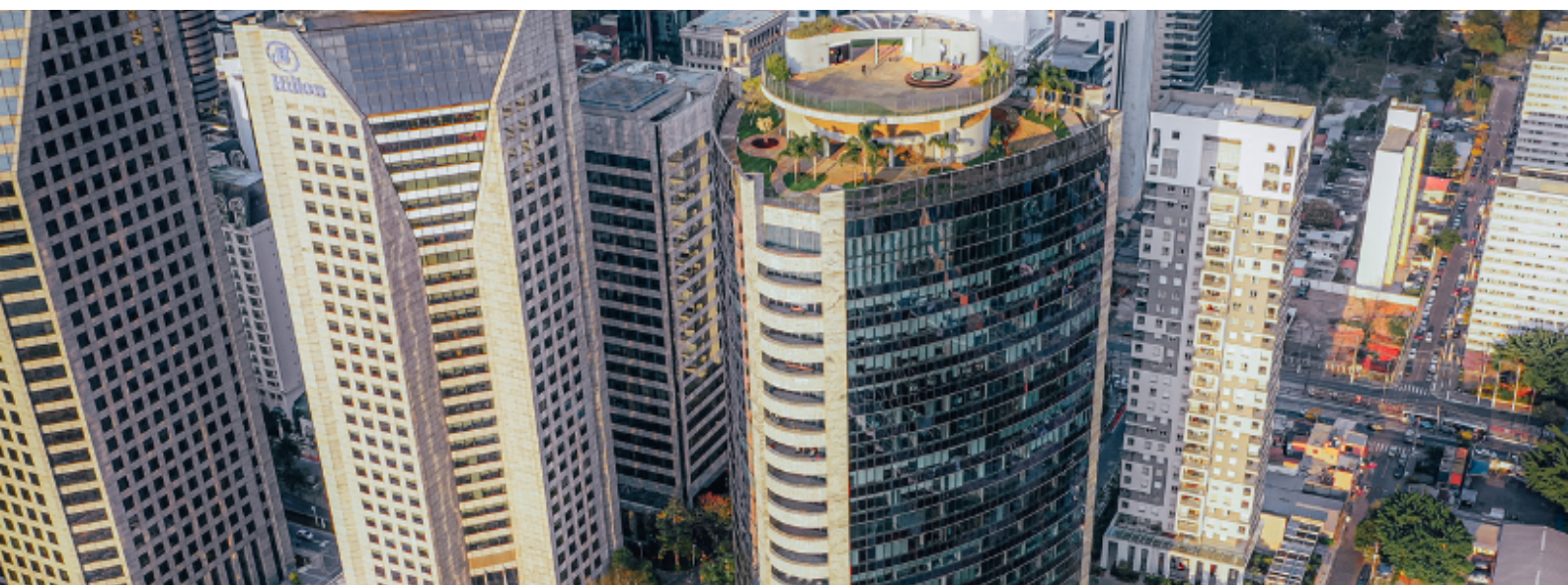
Tokenization involves the conversion of rights to an asset into a digital token on a blockchain. Stakeholders recognize that the tokenization and trading of real-world assets is an important next step for a blockchain integrated economy. Regarding the tokenization landscape in Brazil, both neobanks and banks are getting heavily involved in the trend to tokenize and trade assets in Brazil. Tokenization in general is a part of financial players' strategy to enter the blockchain and digital assets space (e.g., tokenizing fixed income, stocks, currencies, real estate, etc.).

As the market evolves and new tools for accessing tokenized products emerge, the adoption curve is expected to steepen. In Brazil, the anticipated launch of "Drex" is eagerly awaited by the market, as it will serve as a tool for the settlement of digital assets, further facilitating Brazilian investors' access to blockchain-registered assets. Tokenization initiatives using the same rails as Drex set to ensue at an accelerating pace. Stakeholders are already exploring strategies to tokenize and experiment with the possibilities, and evaluate the opportunities.

Regulatory Support

New advancements in the provision of an infrastructure for a regulated DLT, as well as regulatory clarity, create a promising environment for innovation in the financial sector. The Central Bank is currently coordinating a working group that is expected to produce a detailed report on the tokenization of financial assets and securities. Major financial institutions are developing and testing new application in partnership with Brazilian regulators, improving digital assets' efficiency while contributing for the development of a legal framework.

Bolsa OTC Brasil is a great example of this collaboration, a project primarily focused on the tokenization of private credit instruments (CCBs, CCIs, and CCCBs) with a goal to test issuance, distribution, and settlement improvements through blockchain technology. Approved by the Central Bank at the end of 2021, this initiative originated from the LIFT (Financial and Technological Innovations Laboratory) program, which initially selected 8 projects to offer financial products on the platform. Notably, big financial institutions like Bradesco have utilized its infrastructure, tokenizing a CCB issuance in a transaction worth BRL **10 million** in January 2023.



Tokenization in Brazil's banking sector

Brazilian banks in particular looking to enable the tokenization of as many assets as can be made feasible. In February 2023, there was a successful completion of the first tokenization of a security by a traditional Brazilian bank, BTG Pactual, under the project named "ReitBZ". Backed by real estate in Brazil, ReitBZ was issued in the Cayman Islands to distribute the token for international investors. Launched in May 2019, the project raised **BRL 23 million** and distributed a total of **BRL 4 million** in dividends to its shareholders, yielding an average return of **137.5%** over Brazil's basic interest rate during its tenure. The project successfully tested an international distribution of a tokenized real-world asset, and the use of digital wallets for dividends' payments in digital currencies.

Another notable development in this realm is the recent collaboration between Itaú, one of the largest banks in Brazil, and the digital assets company, Liq. Together, they have issued the first RWA token of TIDC (Credit Rights Tokenized Investment). This move signifies the growing acceptance and integration of tokenized assets in mainstream banking and underscores the potential of blockchain technology in revolutionizing the financial landscape.

Tokenization across sectors in a Regulatory Sandbox Environment

The Brazilian Securities and Exchange has launched a Regulatory Sanbox where a number of promising tokenization projects are being developed. This has promoted significant progress in Brazil's tokenization sector encompassing the stock market. The regulatory sandbox has already approved projects involving issuance, public distribution and trading, in an OTC market, of securities issued or represented by tokens on blockchain networks, such as SMEs' stocks and bonds.⁵⁰

For instance, BEE4, a tokenized stock trading platform currently in CVM's sandbox, held its inaugural trading session in September 2022, with a daily trading volume of **BRL 332,000**, surpassing the company's projection by **50.9%**. Leveraging this technology, Eletron Energia, a company specializing in energy optimization with an estimated total project value of BRL 162 million, is also set to conduct a tokenized IPO in January 2024. The anticipated minimum capital raise is BRL 3.33 million, and the company will be the fourth to embark on a tokenized IPO journey, following Mais Mu, Plamev Pet, and Engravida.

Tokenization in Carbon Markets

In the realm of carbon credits, as the demand for carbon emission offsets surges among major corporations, the carbon credit market is projected to be worth approximately **USD 50 billion** by 2030, as per the "ESG Under Pressure" report by Reuters. Tokenization can enhance both the transparency of asset conditions and their liquidity, democratizing access to this market and playing a pivotal role in its growth. Taking advantage of the huge potential to generate carbon credits in Brazil, Ambipar, a leader in environment management in Brazil, has built a company called Ambify with the goal of tokenizing and distributing carbon credits in Brazil.



CONCLUSION

For all the developments stated above, Brazil is positioning itself to be a country with significant market opportunities in blockchain and digital assets, and it arguably may be the most overlooked crypto market in the world. The population is willing to take risks and try new technologies, which lowers the hurdle for crypto adoption.

The Drex ecosystem is establishing itself not just as a platform to send tokenized national currencies back and forth, but also as a backbone for a much more widespread tokenized financial system. These developments, with the active collaboration of regulators, are being designed to positively affect the lives of everyday Brazilians in many ways. The cost of doing business remains high in Brazil, largely driven by intermediating transactions. Hence the cost reductions and increased efficiencies of blockchain related projects can be among the most value adding in the world if structured correctly, with much value to be generated across the Brazilian society. Standardization and composability of financial services over blockchain platforms can significantly lower the bar for fintechs to enter the market.

Finally, there is a strong angle toward inclusion across the innovation and transformation initiatives leading up to the expected VASP framework. Stakeholders, particularly regulators, recognize that financial markets will change fundamentally, as well as the importance of keeping risk management in check. Therefore the high emphasis on supporting blockchain projects has been to provide better financial services for the population, and open the market for new fintech companies to provide their services in the country. In many ways, Brazil can be considered a case study in responsible government-promoted innovation

BRAZIL

- 1 <https://www.gov.br/cvm/en>
- 2 <https://www.gov.br/susep/pt-br>
- 3 <https://www.bcb.gov.br/en/about>
- 4 R\$ 18.5 billion as reported, converted to USD as of Nov 15, 2023
- 5 R\$19 billion as reported, converted to USD as of Nov 15, 2023
- 6 R\$25.7 billion as reported, converted to USD as of Nov 15, 2023
- 7 R\$1.1 billion as reported, converted to USD as of Nov 15, 2023
- 8 R\$242 million as reported, converted to USD as of Nov 15, 2023
- 9 R\$5.5 billion as reported, converted to USD as of Nov 15, 2023
- 10 R\$1.5 billion as reported, converted to USD as of Nov 15, 2023
- 11 <https://www.mercadocripto.livecoins.com.br/corretoras>
- 12 R\$35 million as reported, converted to USD as of Nov 15, 2023
- 13 Month in which the most recent figures are available for this report
- 14 <https://conteudo.cvm.gov.br/legislacao/oficios-circulares/sin/oc-sin-0223.html>
- 15 CNPJs according to reporting form
- 16 <https://newsletter.brazilcrypto.io/p/episode-73-daniel-de-paiva-gomes#details>
- 17 <https://conteudo.cvm.gov.br/legislacao/pareceres-orientacao/pare040.html>
- 18 <https://borainvestir.b3.com.br/>
- 19 2.13 billion reais as of Nov 15, 2023
- 20 7 million reais as of Nov 15, 2023
- 21 9 million reais as of Nov 15, 2023
- 22 R\$16.2 billion as reported, converted to USD as of Nov 15, 2023
- 23 R\$10 billion as reported, converted to USD as of Nov 15, 2023
- 24 <https://www.gov.br/receitaefederal/pt-br/assuntos/orientacao-tributaria/declaracoes-e-de-monstrativos/criptoativos>
- 25 R\$15.4 billion as reported, converted to USD as of Nov 15, 2023
- 26 R\$838 million as reported, converted to USD as of Nov 15, 2023
- 27 R\$66,000 as reported, converted to USD as of Nov 15, 2023
- 28 R\$21,000 as reported, converted to USD as of Nov 15, 2023
- 29 R\$72,000 as reported, converted to USD as of Nov 15, 2023
- 30 R\$15,300 as reported, converted to USD as of Nov 15, 2023
- 31 R\$500 million to R\$1 billion as reported, converted to USD as of Nov 15, 2023
- 32 <https://www.prnewswire.com/news-releases/btg-pactual-launches-btg-dol-the-worlds-first-dollar-backed-stablecoin-from-a-bank-301789477.html>
- 33 <https://cointelegraph.com/news/brazil-rolls-out-blockchain-based-digital-id>
- 34 The city of Buenos Aires in Argentina also announced a similar initiative that allows residents to access identity documents through a digital wallet: <https://cointelegraph.com/news/buenos-aires-blockchain-based-digital-identity>
- 35 <https://www.ledgerinsights.com/brazil-central-bank-financial-regulator-blockchain-regtech/>
- 36 <https://exame.com/future-of-money/maranhao-primeiro-estado-rede-blockchain-brasil/>
- 37 <https://prefeitura.rio/cidade/carioca-podera-pagar-iptu-com-criptomoeda-em-2023/>
- 38 <https://www.cnnbrasil.com.br/economia/prefeitura-do-rio-autoriza-criptomoedas-para-pagamento-do-iptu-2023/>
- 39 Mercosur also has 7 associate member states (Bolivia, Chile, Colombia, Ecuador, Guyana, Peru, and Suriname)

40 [https://www.serpro.gov.br/menu/noticias/noticias-2020/aduanas-mercosul-conecta](https://www.serpro.gov.br/menu/noticias/noticias-2020/aduanas-mercosul-conecta-das-blockchain)
41 [https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instru](https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/instruments-and-tools/tools/wco-wto-paper/2_brazil.pdf?la=en)
42 <https://www.digitalizetrade.org/projects/mercosur-blockchain-aeo-data-exchange>
43 Refer to GSMI interactive regulatory map for full update of regulatory developments in
Brazil
44 <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/brazil>
45 <https://finance.yahoo.com/news/brazils-central-bank-prepares-public-150826077.html>
46 https://www.bcb.gov.br/en/about/bcbhashtag?modalAberto=about_agenda
47 <https://www.bcb.gov.br/site/liftchallenge/en>
48 <https://cointelegraph.com/news/brazilian-cbdc-drex-official-name-and-logo>
49 Therefore, while it was reported that a local developer discovered the Drex code could al
low a central authority to freeze funds or reduce balances, it can be expected that regula
tors are continuing to evaluate risks and establish safeguards.
50 [https://www.gov.br/cvm/pt-br/assuntos/noticias/cvm-finaliza-primeiro-processo-de-admis](https://www.gov.br/cvm/pt-br/assuntos/noticias/cvm-finaliza-primeiro-processo-de-admis-sao-do-sandbox-regulatorio)
sao-do-sandbox-regulatorio

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