

Institutions

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The following presents a snapshot of Central bank digital currency initiatives in the G20 countries according to CBDC Tracker (<https://cbdctracker.org/>; accessed on September 10, 2024).

Argentina (Research stage)

In 2023, the Argentine central bank committed to introducing a digital peso bill as soon as possible, accelerating its work on legislation to implement a Central bank digital currency in the country. However, no specific project has been presented by the authorities yet.

Australia (Research/Proof-of-concept stage)

The Reserve Bank of Australia (RBA) is actively investigating both retail and wholesale CBDC solutions, using research and proof-of-concept trials to assess the benefits and limitations of CBDCs in different contexts. While the projects are still in the early phases, Australia's dedication to studying digital currencies underscores its commitment to remaining at the forefront of this field.

8. Public University of Navarre (UPNA) and Institute for Advanced Research in Business and Economics (INARBE).

In 2020, the “eAUD” (Retail) project was launched as part of a broader research initiative by the RBA to explore the potential use cases for a retail CBDC in Australia. This project focuses on how digital currencies could be used for daily transactions among consumers, addressing the practical applications of a CBDC for retail purposes. Although still in the research phase, the RBA aims to determine whether a retail CBDC would bring benefits such as improved transaction efficiency, financial inclusion, and enhanced payment security. At this stage, no concrete implementation plan has been set, as the project remains focused on understanding the desirability and feasibility of a retail CBDC within the Australian market.

Simultaneously, the RBA also launched a wholesale version of the “eAUD”, focusing on large-scale transactions between financial institutions. The “eAUD” (Wholesale) project was announced in 2020 and quickly moved into the proof-of-concept stage.

Alongside these retail and wholesale explorations, in 2020 the RBA also initiated “Project Atom”, focusing on the use of a wholesale CBDC for atomic Delivery versus Payment (DVP) settlements, where both the delivery of assets and the corresponding payment are made simultaneously.

Brazil (Proof-of-concept stage)

Brazil has been proactive in exploring the potential of a Central Bank Digital Currency (CBDC) since 2017, through its project known as “DREX”, now at the proof-of-concept stage. The overarching goal of the “DREX” project is to assess how a digital currency could benefit Brazil’s financial system, with a focus on key areas such as financial inclusion, economic stability, and the effectiveness of monetary policy.

The Central Bank of Brazil (BCB) recognizes that a CBDC could play a critical role in addressing some of the country’s financial challenges. By providing a more inclusive financial platform, a digital real could help bring underserved populations into the formal financial system, increasing access to banking and payment services. Additionally, the implementation of a CBDC could help promote stability within the financial system by providing a more secure and efficient means of payment that is less prone to the risks associated with cash handling and private digital currencies.

Another major motivation for exploring a CBDC is the potential to enhance the conduct of monetary policy. A digital currency could provide the Central Bank with more precise tools for controlling the money supply and implementing monetary policy, enabling quicker adjustments to interest rates and more effective management of inflation.

In the coming year, the Central Bank of Brazil plans to launch a pilot program to test the practical applications of a CBDC. This pilot will help the BCB better understand the technical requirements, regulatory challenges, and economic impacts of issuing a digital real. The outcomes of this pilot phase will be instrumental in determining the feasibility of a full-scale launch of a Brazilian CBDC in the future.

Canada (Research/Proof-of-concept stage)

Canada has adopted a comprehensive and forward-thinking approach to CBDC development. Through proof-of-concept trials and extensive research, the Bank of Canada has positioned itself to respond to various scenarios, whether that involves the decline of cash or the rise of private digital currencies. While no formal decision to launch a CBDC has been made, Canada's work in this space demonstrates its preparedness to implement a CBDC should the need arise.

In 2016, the Bank of Canada launched "Project Jasper", a proof-of-concept initiative aimed at exploring how distributed ledger technology (DLT) could deliver greater benefits to interbank payments. This project marked the beginning of Canada's exploration into wholesale CBDCs. "Jasper" also tested the potential for cross-border transactions, particularly through its collaboration with the Bank of England and the Monetary Authority of Singapore.

In 2017, Canada expanded its CBDC research with the "Digital Loonie" project, which focused on the conditions under which a retail CBDC might be introduced. The Bank of Canada considered launching a CBDC if the use of banknotes continued to decline or if private digital currencies became widely adopted as alternatives to the Canadian dollar. The Digital Loonie project emphasized the importance of being prepared in advance, as creating a general-purpose, cash-like CBDC would take several years.

Building on these efforts, in 2019, the “Jasper-Ubin” project was launched as another proof-of-concept initiative, aiming to explore how a wholesale CBDC could improve cross-border transactions and interbank payments, leveraging DLT to enhance the speed, security, and transparency of these transactions.

China (Pilot stage)

China has been a global leader in the development and deployment of CBDC projects. The People’s Bank of China (PBOC) began exploring CBDCs as early as 2014, making it one of the earliest central banks in the world to do so. The country’s primary project, “e-CNY” (also known as the Digital Yuan), was launched as a pilot with the goal of creating a more efficient, secure, and inclusive retail payment system. The People’s Bank of China’s early adoption, rapid expansion, and ongoing innovation in the CBDC space have positioned the country as a global leader in the digital transformation of financial systems.

The “e-CNY” project is designed to provide a digital alternative to traditional payment methods while preserving monetary sovereignty. It is intended to serve as a backup infrastructure for private-sector payment platforms like WeChat Pay and Alipay, ensuring competition and promoting interoperability in China’s vast digital payments market. Additionally, e-CNY aims to increase financial inclusion by providing an accessible payment method for people in remote areas or those underserved by traditional financial services.

Since its launch, e-CNY has expanded rapidly. Piloted in several major cities and promoted through large Chinese banks, the digital currency has been integrated with popular apps like WeChat and Alipay, allowing users to make NFC payments and even offline transactions. As of the latest updates, the total value of transactions conducted with e-CNY has surpassed 1.8 trillion yuan, underscoring its broad and growing usage.

One of the distinctive features of e-CNY is its potential to enhance cross-border payments. To this end, the digital yuan has already been integrated into cross-border platforms such as “mBridge”, launched in 2022, which is specifically aimed at improving international trade settlement.

The People's Bank of China has also been forward-thinking in terms of user adoption strategies. Initiatives such as wallet-opening machines for tourists and the potential introduction of features like expiration dates to encourage spending reflect China's commitment to increasing the everyday use of e-CNY. The system has also been designed with privacy in mind, incorporating controlled anonymity to ensure user privacy while maintaining transparency for government oversight.

Euro area (Pilot/Research stage)

The European Central Bank (ECB) has been working on several initiatives regarding the implementation of a CBDC within the Euro Area, focusing on both retail and wholesale CBDCs. These projects aim to modernize the financial infrastructure and improve the resilience and efficiency of the European payment system.

Announced in 2021, the "Retail Digital Euro" project is currently in the research phase. The goal of this initiative is to provide European citizens with access to a safe form of digital money, reflecting the fast-changing dynamics of the digital economy. A digital euro would not replace cash but rather complement it by offering an alternative in the digital realm. The primary motivation is to ensure that, as digital payments continue to expand, the public retains access to central bank-backed money, the safest form of currency.

In 2022, the ECB announced a pilot for the "Wholesale Digital Euro". This project focuses on enhancing the efficiency of large-scale financial transactions, particularly between financial institutions. The main motivations behind this pilot are to consolidate and further develop ongoing work by Eurosystem central banks and to gain insight into how different solutions could facilitate interactions between TARGET real-time gross settlement (RTGS) services and DLT platforms. This would enable faster, more efficient cross-border payments and improve interoperability within Europe's financial system.

Related to the ECB's CBDC efforts is "Project Stella", launched in 2016 as a joint research initiative between the European Central Bank and the Bank of Japan. This project explores the potential of using DLT to improve financial market infrastructure, particularly for payments and securities settlements.

India (Pilot stage)

India has made significant progress in its exploration of a CBDC through its “Digital Rupee” initiative, led by the Reserve Bank of India (RBI). Announced in 2020, the project has already moved into the pilot phase, with a focus on both retail and wholesale applications of the Digital Rupee.

The main objective of India’s CBDC project is to increase efficiency and reduce risks within the country’s financial system by leveraging features such as instant settlement and programmability, which allow for the automatic execution of transactions, including the return of funds at specific times without delays.

Currently, the RBI is gradually rolling out the Digital Rupee in a controlled manner, testing its application across various sectors and use cases. By conducting a phased implementation, the central bank aims to identify potential challenges and ensure the stability of the Digital Rupee before a full-scale launch.

Indonesia (Proof-of-concept stage)

Indonesia has been actively exploring the implementation of a CBDC through the “Digital Rupiah” project. Initiated by Bank Indonesia in 2018, the project entered the proof-of-concept phase with the aim of complementing the country’s existing banknotes and coins. However, at the time, Bank Indonesia clarified that there were no immediate plans to move forward with a pilot project or trial, and the issuance of the “Digital Rupiah” was still a distant possibility. At present, the project remains at the proof-of-concept stage.

The project aligns with Indonesia’s broader digital transformation agenda, which is reflected in initiatives such as the Blueprint for Indonesian Payment System (IPSB) 2025 and the Blueprint for Money Market Development 2025. These frameworks are designed to modernize the country’s payment systems and financial markets, ensuring that Indonesia remains competitive in the rapidly evolving global economy.

Japan (Research/Proof-of-concept stage)

Japan has made significant strides in developing its own CBDC through multiple initiatives, most notably the “Digital Yen” project. The Bank of Japan (BoJ) began conducting research on the Digital Yen in 2021, marking an important step as Japan seeks to keep pace with global advancements in digital currencies.

The “Digital Yen” project has now moved into the proof-of-concept phase, with the Bank of Japan working closely with private-sector banks to test the system’s capabilities. The upcoming program represents an end-stage trial, with a strong focus on real-world application and feasibility. The central bank will conduct trials to test deposits and withdrawals from accounts, ensuring the currency can function as a viable alternative to physical cash.

As the Bank of Japan pushes forward with its CBDC efforts, a local digital currency forum is simultaneously working on creating a digital currency for Japan’s private sector. This initiative is intended to complement the central bank’s work, highlighting the cooperative effort between public and private sectors to modernize Japan’s payment infrastructure and keep up with the evolving global financial landscape.

Beyond the Digital Yen, Japan has also engaged in research projects exploring the broader applications of DLT. One such project is “Project Stella”, a joint research initiative launched in 2016 with the ECB.

Mexico (Research stage)

Mexico has been making progress in the exploration of a CBDC through the “Moneda Digital del Banco Central (MDBC)” initiative, led by Banco de México (Banxico). The project entered the research phase in 2021.

The main objective of Mexico’s MDBC project is to provide a digital alternative to the national currency, enhancing the accessibility of financial services for the population. Financial inclusion is a key focus of this initiative, as the digital currency is expected to allow citizens to open accounts more easily, facilitating their entry into the formal financial system. This could help address the significant portion of the population that is currently underserved by traditional banking infrastructure.

Mexico aims to launch the digital currency by the end of the year, following extensive research and analysis on how it could be incorporated into the country's existing monetary system. Banxico has indicated that the asset will be designed to complement the use of physical currency, providing a secure and efficient alternative that will contribute to the overall digitization of financial services in Mexico.

Russia (Pilot stage)

The “Digital Ruble” project, initiated by the Bank of Russia in 2019, is a key initiative aimed at modernizing Russia's financial system using a CBDC. The project has now successfully completed the pilot phase.

One of the primary objectives of the “Digital Ruble” is to reduce costs associated with financial transactions. By providing a digital alternative to physical cash and traditional bank transfers, the Digital Ruble has the potential to lower transaction fees, making financial services more accessible and affordable for the general public. The digital currency is also expected to increase the speed of payments, ensuring faster and more efficient transactions, particularly for businesses engaged in domestic and international trade.

Additionally, the introduction of the Digital Ruble is designed to foster the development of innovative products and services within the financial industry. By providing a secure, digital platform for payments and financial transactions, it could encourage the growth of new financial technologies and services.

Saudi Arabia (Pilot/Research stage)

Saudi Arabia has been involved in several significant CBDC projects, demonstrating its commitment to advancing digital currency technologies for both domestic and international financial systems. The initiatives led by the Saudi Arabian Monetary Authority (SAMA) reflect the country's forward-thinking approach to enhancing the efficiency of payments and financial settlements using digital currencies.

A major area of exploration for Saudi Arabia is the development of a wholesale CBDC. This research forms part of Saudi Arabia's broader efforts to modernize its financial infrastructure and remain competitive in the global financial landscape.

In addition to its work on wholesale CBDCs, Saudi Arabia has also been researching the potential of a retail CBDC since 2019. The goal of this research is to evaluate the feasibility and advantages of a retail CBDC in Saudi Arabia, particularly in terms of improving financial inclusion and the efficiency of payments for individuals and businesses.

In 2019, the "Aber" initiative was launched as a joint project between the Saudi Arabian Monetary Authority (SAMA) and the United Arab Emirates Central Bank (UAE CB). The primary goal of Aber is to create a digital currency that can be used for cross-border financial settlements between Saudi Arabia and the UAE. The digital currency is limited to central banks and select financial institutions, with the purpose of improving the efficiency of international remittances. In November 2020, the two central banks published the results of the pilot project, demonstrating the feasibility of using a digital currency for financial settlements between the two nations. It also highlighted the potential for a digital system to serve as a backup for domestic payments in the event of a disruption. While the Aber project has shown promise, the timeline for full-scale implementation of the CBDC has not yet been announced, and specifics about the underlying technology and blockchain structure remain undisclosed.

In 2022, Saudi Arabia joined the "mBridge" project, a pilot initiative aimed at improving international trade settlement using CBDCs.

South Africa (Research stage)

Since 2019, the South African Reserve Bank (SARB) has been engaged in research surrounding the development of a CBDC. The central bank is investigating the role that a CBDC could play in enhancing South Africa's financial infrastructure. A key objective of this research is to evaluate whether a digital currency can serve as electronic legal tender, complementing physical cash in the economy.

South Africa's approach to a CBDC is deeply rooted in ensuring security, which stems from the high prevalence of internet banking fraud in the country.

Also launched in 2019, "Project Khokha" is a major research initiative that examines the potential of DLT to support South Africa's CBDC infrastructure.

South Korea (Proof-of-concept/Research/Pilot stage)

South Korea has been steadily advancing its exploration of CBDCs through several initiatives led by the Bank of Korea (BOK). These efforts include research, proof-of-concept projects, and pilot phases aimed at developing both retail and wholesale CBDCs, as well as exploring regulatory requirements for cross-border payments.

In 2020, South Korea moved forward with a pilot for the "Digital Won", the country's retail CBDC. The pilot completed its second phase in June 2023, during which the Bank of Korea tested various features of the Digital Won, such as its use in offline payments and cross-border remittances. While the pilot yielded positive results regarding these functionalities, the Bank of Korea encountered performance issues with the blockchain technology underpinning the Digital Won. These challenges suggest that further refinement and development will be necessary before a full-scale launch of the Digital Won can be considered.

In 2023, the Bank of Korea initiated research into a wholesale CBDC, focusing on understanding how such a CBDC could enhance the efficiency and security of interbank settlements and broader financial market transactions. Although the project is still in the research phase, it marks an important step in South Korea's efforts to modernize its financial infrastructure.

Also launched in 2023, "Project Mandala" is a research initiative focused on compliance policies and regulatory requirements for cross-border payments, aiming to explore how a CBDC could streamline these processes.

Turkey (Pilot stage)

Turkey has been actively exploring the implementation of a CBDC through its “Digital Lira” initiative, launched by the Central Bank of the Republic of Turkey (CBRT) in 2018. The project is currently in the pilot phase, with the goal of establishing a robust financial sector that can support the financing needs of the real economy while promoting financial innovation and strengthening Istanbul’s position as a global financial hub.

The main objective of the Digital Lira project is to create a strong institutional structure that can respond to the financing needs of the Turkish economy at a low cost. In addition, the project seeks to offer a variety of financial instruments to a broad investor base through reliable institutions. The overarching vision is to support Turkey’s ambition of making Istanbul an attractive global financial center.

For the first phase of the pilot study, the CBRT is developing a prototype “Digital Turkish Lira Network” and conducting closed-circuit pilot tests in collaboration with technology stakeholders. These initial tests are designed to evaluate the feasibility and functionality of the digital currency in a controlled environment.

Additionally, the CBRT intends to diversify the scope of the project to include other important aspects of financial technology. This includes further testing the integration of blockchain technology, exploring the use of distributed ledger systems in payments, and examining how the Digital Lira can interact with instant payment systems.

United Kingdom (Research stage)

The United Kingdom has been actively engaged in research on CBDC projects, spearheaded by the Bank of England (BoE). These projects aim to explore various CBDC models and understand the practicalities of implementation for both the public and private sectors.

The “RSCoin” project, which began in 2015, was one of the first CBDC research initiatives undertaken by a central bank. The Bank of England introduced “RSCoin” as part of its “One Bank Research Agenda”. Since then,

the BoE has continued to explore the architecture of CBDCs, examining different models to identify the most effective design.

In 2018, the BoE initiated the “Digital Pound” project, researching how a CBDC could work across the entire end-to-end user journey. The goal is to refine the functional requirements for both the Bank of England and private sector entities, ensuring that the eventual design of the CBDC is user-friendly and secure. The project emphasizes making the concept of a CBDC more tangible for internal stakeholders within the BoE and external players in the financial sector. By studying the user journey, the BoE is working toward a more practical and applicable digital currency, one that integrates smoothly with the existing financial infrastructure.

Also in 2018, the BoE launched a broader CBDC research initiative aimed at investigating the various implications of introducing a digital currency. The BoE is considering several design options, including how CBDCs would coexist with physical cash and how they could potentially reshape the UK’s financial landscape.

The architecture of the future CBDC remains undecided, as the BoE is still weighing the trade-offs between a direct model – in which the central bank directly manages transactions – and a hybrid model, where private institutions play a key role in processing payments.

United States (Proof-of-concept/Research stage)

The United States has been exploring the potential for a CBDC, with several key initiatives led by the US Federal Reserve. These projects range from research into the underlying technologies of CBDCs to proof-of-concept trials aimed at understanding the real-world applications of a “Digital Dollar”.

Initiated in 2020, the “Digital Dollar” project is currently in the research phase. In August 2020, the Federal Reserve published findings from its “FooWire” trial, which highlighted the potential of DLT for payment systems.

Additionally, the Federal Reserve Bank of Boston partnered with researchers from MIT’s Digital Currency Initiative (DCI) to embark on a multi-year collaboration aimed at building and testing a hypothetical open-source CBDC platform.

Launched in 2022, “Project Cedar Phase II” is part of a collaboration with “Project Ubin+”, a proof-of-concept project focusing on cross-border cross-currency transactions using wholesale CBDCs as settlement assets. The goal is to design a system that can achieve atomic settlement, a mechanism where both sides of a transaction are settled simultaneously, reducing the risks associated with cross-border payments.

The project aims to establish connectivity across multiple heterogeneous simulated currency ledgers to significantly reduce settlement risks, a major issue in international transactions.

In 2023, the Federal Reserve began further research into a “Wholesale Digital Dollar”, focusing on large-scale financial transactions between financial institutions.

Overall, the United States has adopted a cautious and thorough approach to exploring the potential of a “Digital Dollar”. Through a combination of research and proof-of-concept trials, the Federal Reserve is gradually building a body of knowledge that will inform its future decisions regarding the possible implementation of a CBDC. However, the Federal Reserve has not yet made a formal decision regarding the launch of a digital currency. The research continues to focus on understanding how a CBDC could integrate into the existing financial system and what challenges would need to be addressed for a full-scale implementation.