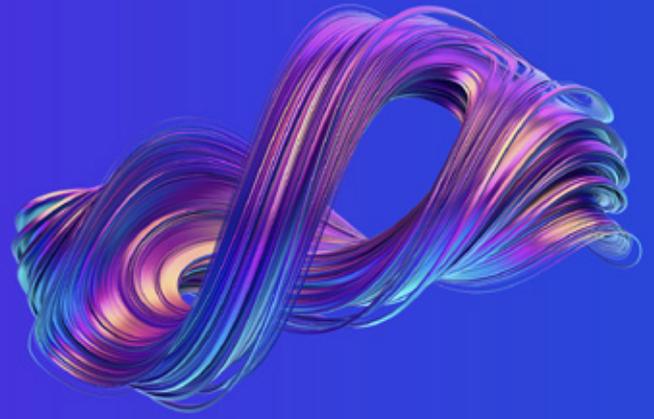


Digital money is moving fast

CBDCs and their impact on banks, citizens and customers



Central banks and the unfolding story of digital currencies

As digital technology continues to shape every facet of modern life, Central Bank Digital Currencies (CBDCs) have become a focal point for governments, financial institutions and businesses.

These are a digital version of a country's currency that offer much potential and promise from enhanced security and efficiency to greater financial inclusion. Along with the opportunities, there are architectural, technical and governance questions still to be addressed. This paper explores some of the factors and desirability, feasibility and viability across the various models in play. Plus, it looks at the implications for central and commercial banks, and the impact on citizens and customers.

The stakes are high — decisions made now by policymakers, central banks, and industry leaders will shape the financial landscape for years to come, affecting businesses, banking institutions and the understanding of money in the digital age. But first, a definition and some recent developments.

What is a CBDC?

In simplest terms, CBDC is a digital version of a country's fiat currency (central bank-issued money). As a digital asset, CBDCs are issued and regulated by a central authority, typically a government, and managed by a central bank. Unlike decentralized cryptocurrencies such as Bitcoin, CBDCs are centralized, state-owned and legal tender.

The spectrum of CBDC models

Globally, central banks are piloting various CBDC models, ranging from direct to indirect issuance frameworks. On the direct issuance end, as in the Eastern Caribbean islands, the model is for users to open direct accounts with the central bank. This places the central bank as the primary financial institution, directly involved in consumer affairs.

On the indirect issuance side, for example in China and Nigeria, CBDCs are issued onto third-party platforms with commercial banks acting as intermediaries. Commercial banks become settlement agents, distributing the CBDCs, and taking responsibility for operational matters such as AML/KYC. Between these examples there are several other models, each with its own set of benefits, opportunities and challenges.

The impact on businesses and commercial banks

CBDCs could simplify payments, cut transaction costs (especially for cross-border trade) and provide financial services to currently underserved populations. Yet,

they also could mean costly and complex changes to existing payment systems, and introduce risks such as cyberattacks and fraud.

For commercial banks and their customers, the landscape is also shifting dramatically. CBDC models with a direct route for digital transactions could curtail the traditional role of commercial banks as intermediary. As a result, there's increased competition among banks to roll out value-added products and services that drive customer loyalty — raising even bigger questions around the impact of CBDCs on banks' long-term profitability. At the same time, if CBDCs are designed to work through existing banking channels, they could become a new product offering for banks to administer, thereby opening up new revenue streams.

CBDC momentum: Navigating the array of models

Central banks globally are at various evolutionary stages with CBDCs, so there are currently many models and approaches. Governments and financial institutions are conducting real-world tests to explore the desirability, feasibility and viability of each type.

These digital currencies promise to reshape domestic and international financial systems, but their success hinges not just on individual attributes. They must also be able to interact seamlessly with other CBDC systems. Interoperability, as highlighted in a 2023 World Economic Forum paper¹, is critical to ensure that CBDCs can fulfil their potential in a globalized economy.

¹ Central Bank Digital Currency Global Interoperability Principles, June 2023
https://www3.weforum.org/docs/WEF_Central_Bank_Digital_Currency_Global_Interoperability_Principles_2023.pdf

Main CBDC models follow the four following archetypes:

Wholesale CBDC for domestic use

Focusing first on Wholesale CBDCs aimed at domestic financial institutions, these have significant potential to revolutionize domestic payment systems and interbank settlements. While they are feasible and advantageous for these specific sectors, it's worth noting that their scope and impact are confined to a specialized market within the financial industry.

Retail CBDC for domestic use

Turning to Retail CBDCs, which are intended for the general public, these offer notable benefits from a consumer standpoint. However, their introduction poses considerable challenges in terms of feasibility. Specifically, there are concerns about how these might disrupt existing commercial banking systems and potentially destabilize financial markets.

Retail CBDC for cross-border use

Using Retail CBDCs for cross-border transactions offers advantages, but these are largely theoretical at this stage. While they could offer benefits to individual consumers engaging in international trade, several obstacles stand in the way, such as foreign exchange management, consumer protection and regulatory compliance.

Wholesale CBDC for cross-border use

Finally, of the various options, Wholesale Cross-Border CBDCs are emerging as the most balanced in terms of desirability, viability and feasibility. These digital currencies hold promise for significantly streamlining international trade by eliminating inefficiencies in traditional banking systems, allowing multiple currencies and assets to be settled and various access policies to coexist.

As central banks worldwide explore various CBDC models, Wholesale Cross-Border CBDCs have emerged as a top priority for many, due to their desirability, viability and feasibility. This shift marks a transition from years of theoretical study to the actual process of productization. Before diving into the critical questions central banks must consider, let's first outline the broader opportunities and risks of adopting CBDCs.

Preparing for a CBDC future: Opportunities and risks

On the upside, a key advantage of CBDCs is their potential to make payments more efficient and reduce settlement times. They offer central banks cost-saving opportunities and better control over monetary policy. For consumers and businesses, they present a risk-free digital alternative to cash and can extend financial inclusion to underserved areas. Central banks also gain a competitive edge in the evolving digital landscape.

But there are downsides including acceptance — consumers and merchants need to be willing to use and accept CBDCs. Also, banks might be saddled with new costs and risks, requiring upfront technology investments. Security and data protection are also critical concerns for central banks. And while CBDCs could simplify taxation, they present regulatory challenges that could make oversight difficult.

The current momentum is leaning towards Wholesale Cross-Border CBDCs, but there are key questions that central and commercial banks must address. These range from legal and regulatory considerations to implications for monetary policy and financial stability.



Innovation in digital currencies is likely to change the business model of commercial banks, and their relationship with central banks. As banks start to prepare for the increasingly imminent era of CBDCs, a number of important questions warrant attention from both sides. ”

Antony Ruddenklau

Global Head of Fintech and Innovation
KPMG International

Crucial questions for central banks

1. What is our adoption strategy?

Central banks need to carefully consider their adoption strategy for CBDCs as compared to traditional money. This involves examining the current payment landscape and planning how it will accommodate CBDCs. Setting realistic goals based on detailed business cases can help guide design and policy decisions.

2. What is our role and who do we serve?

It's essential to clarify the level of central bank involvement and the roles that commercial banks and other financial institutions will play in the CBDC ecosystem. Assumptions shouldn't be made that all businesses will automatically act as distributors. The CBDC's design should also meet the specific needs of various users, whether they're private citizens, commercial banks or corporations.

3. What happens if there's a run on CBDCs?

Because CBDCs can be remunerated, they offer advantages but also pose risks, such as potential runs on commercial bank deposits during a crisis. Design features like individual holding limits and tiered remuneration need to be considered to maintain financial stability.

4. How good is our cybersecurity?

The security and resilience of the CBDC infrastructure is paramount to prevent potential cyberattacks and technical glitches, which could disrupt national and international financial systems. Robust security measures and protocols are crucial for mitigating these risks.

5. What are our resource and capability requirements?

Managing CBDCs will likely demand significant resources and capabilities, even from well-governed central banks. New decision-making processes, change management practices, and partnerships will likely be needed for effective CBDC implementation.

Business-critical questions for commercial banks

1. How will we ensure interoperability?

Commercial banks can be partially responsible for the technical infrastructure that supports CBDCs, so it's crucial that their systems are designed to be interoperable with digital currencies. This can facilitate the seamless movement of funds within the evolving payment landscape.

2. What infrastructure investment do we need?

Implementing CBDCs may require significant changes to core operations, affecting retail banks, payment service providers and merchants alike. While modernizing their payment processes, these organizations should also continue to maintain their existing operations.

3. How could our liquidity and capital requirements be impacted?

Maintaining adequate liquidity and capital buffers is essential when implementing CBDCs. Advance planning is needed to help ensure that continuous risk assessment is in place, along with the ability to anticipate any policy changes.

4. Is anti-money laundering (AML) compliance assured?

CBDCs need to be integrated into banks' existing AML frameworks. This will likely require adapting or developing new AML controls and monitoring processes to stay compliant with regulations.

5. Is disruption likely?

The introduction of a retail CBDC could see central banks becoming competitors in the payments industry. This has the potential to destabilize funding bases for commercial banks. Furthermore, the introduction of new risk-free assets could disrupt capital markets. Careful design choices are especially important for retail CBDCs to mitigate these risks.

Real-world spotlight: cbdc project examples

Here are examples that offer insights into how different regions are approaching the complexities and opportunities of CBDCs. Plus, they show the diversity in approach and different stages of CBDC projects across the world.

China: e-CNY

China's e-CNY has become a major public testing arena for CBDCs. Since its trials started in 2020, the program has expanded to 26 cities and includes 5.6 million merchants. Although it's not yet as widespread as China's dominant payment platforms, e-CNY is gaining traction. Consumers use it for shopping and dining, while businesses are utilizing it for tax payments and payroll.²

Thailand: Project Inthanon-Lionrock

This is a collaborative effort between the Bank of Thailand, key financial players, and a technology partner. Aimed at proof-of-concept for wholesale fund transfers domestically and internationally, the project allows peer-to-peer transactions between banks in Thailand and Hong Kong, China (SAR). Completed in 2019, further joint research is underway. The Bank of Thailand has also introduced a prototype for a business payment system building on this project.³

Singapore: Project Orchid

Led by the Monetary Authority of Singapore, Project Orchid is a phased initiative focusing on retail CBDCs. The first phase, known as Purpose Bound Money (PBM), sets rules for programmable digital currency. PBM is digital cash constrained by specific conditions and is only transferable upon meeting those conditions. Current trials are exploring applications like distributing governmental and commercial vouchers and facilitating disbursements without the need for bank accounts.⁴

United Kingdom: BritCoin

The UK is in the exploratory phase of developing a CBDC, unofficially termed "BritCoin". While not yet in the public testing stage, the Bank of England has partnered with key financial institutions and technology companies to assess the potential risks and benefits. Their primary focus is on ensuring the CBDC would be a secure, efficient means of payment that complements existing monetary structures, rather than replacing them. A white paper outlining the proposed features and mechanics of the digital currency is currently under review.⁵

United States: Digital Dollar Project

The United States is also in the research phase for a CBDC through the Digital Dollar Project, led by the Federal Reserve and in partnership with private-sector financial entities. While no public pilot has been initiated, preliminary studies are examining the impact of a digital dollar on monetary policy, financial inclusion and national security. The Federal Reserve aims to issue a report summarizing its findings and potential next steps in the near future.⁶

Bahamas: Sand Dollar

The Bahamas broke new ground by launching the world's first fully deployed national digital currency, the Sand Dollar, in 2020. The Sand Dollar aims to facilitate financial inclusion, especially in the more remote islands of the Bahamas. While it is not yet widely adopted, the Sand Dollar is usable for both consumer and business transactions, including mobile payments and even government services.⁷

European Union: Digital Euro

The European Central Bank (ECB) is in the exploratory phase of developing a digital euro. With a focus on complementing physical cash rather than replacing it, the digital euro aims to ensure that consumers have access to a safe and secure digital currency. The ECB has initiated public consultations and is working on a phased approach. While a final decision is pending, the project signifies the EU's strategic move toward digitalizing its financial ecosystem.⁸

Eastern Caribbean Islands: DCash

The Eastern Caribbean Central Bank (ECCB) launched DCash in 2021, a digital version of the Eastern Caribbean dollar, aimed at reducing the use of physical cash and facilitating quicker and cheaper cross-border transactions. Pilots started in four member countries, and the initiative represents a significant move towards modernizing the Caribbean's payment systems. While still in its early stages, DCash is being accepted by a growing number of merchants and individual users for a variety of financial transactions.⁹

Nigeria: eNaira

Launched in 2021, Nigeria's eNaira marks a strategic initiative to introduce a digital currency in Africa's most populous nation. It aims to facilitate easier and more secure transactions, increase financial inclusion, and improve remittances. Despite being a relatively new project, the Central Bank of Nigeria has started onboarding merchants and has plans for extensive public and private sector participation.¹⁰

² <https://www.technologyreview.com/2023/08/03/1077181/whats-next-for-chinas-digital-currency/>

³ <https://www.ledgerinsights.com/thailand-digital-baht-cbdc-pilot-underway/>

⁴ <https://www.thebanker.com/Singapore-s-Project-Orchid-lets-interoperable-currency-bloom-1689068489>

⁵ <https://www.bankofengland.co.uk/the-digital-pound>

Supporting CBDC development:

CBDCs are rapidly gaining momentum, so there's a need for meticulous planning, in-depth analysis, impact assessment and a keen eye on balancing risks and ambitions. And as the concept of CBDCs becomes more widely accepted globally, specialized expertise will become paramount.

KPMG firms can provide that insight and experience which includes:

1. Strategic vision

Understanding the impact of CBDCs on regional trends, user behavior, and risk versus opportunity is crucial. This is essential for aligning with an organization's strategic goals.

2. Use case identification

Identifying appropriate use cases for both retail and wholesale digital currencies is essential, including guidance on choosing the most effective models for implementation.

3. Infrastructure readiness

Preparations for infrastructure changes are mandatory, particularly the modernization of legacy IT systems. This should be aligned with both business and technology strategies.

⁶ <https://www.forbes.com/advisor/investing/digital-dollar/>

⁷ <https://cointelegraph.com/learn/sand-dollar-bahamas-digital-currency-a-beginners-guide>

⁸ https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html

⁹ <https://www.dcashec.com/>

¹⁰ <https://enaira.gov.ng/>

4. System security and resilience

Building robust security measures for CBDC systems is non-negotiable. This involves adhering to leading security standards to help ensure both security and resilience.

5. Capability building

Working collaboratively with internal teams to understand the full implications of CBDCs, particularly in governance, risk, and compliance, is vital for successful implementation.

6. System convergence and interoperability

Anticipating how customers may use CBDCs is crucial for ensuring seamless integration across multiple stakeholders, systems and user touchpoints.

This comprehensive approach ensures that both central and commercial banks can navigate the complexities of CBDC implementation effectively.

Contact us for more information on how banks can position themselves to flourish in the era of CBDCs:

Anton Ruddenklau

Global Head of Financial Services
Innovation and Fintech
KPMG International
E: antonyruddenklau@kpmg.com.sg

Aymeric Salley

Director, Financial Services Advisory
KPMG in Singapore
E: aymericsalley@kpmg.com.sg

kpmg.com



The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2023 Copyright owned by one or more of the KPMG International entities. KPMG International entities provide no services to clients. All rights reserved.

KPMG refers to the global organization or to one or more of the member firms of KPMG International Limited ("KPMG International"), each of which is a separate legal entity. KPMG International Limited is a private English company limited by guarantee and does not provide services to clients. For more detail about our structure please visit kpmg.com/governance.

The KPMG name and logo are trademarks used under license by the independent member firms of the KPMG global organization.

Designed by Evalueserve.

Publication name: Digital money is moving fast | Publication number: 138922A-G | Publication date: September 2023