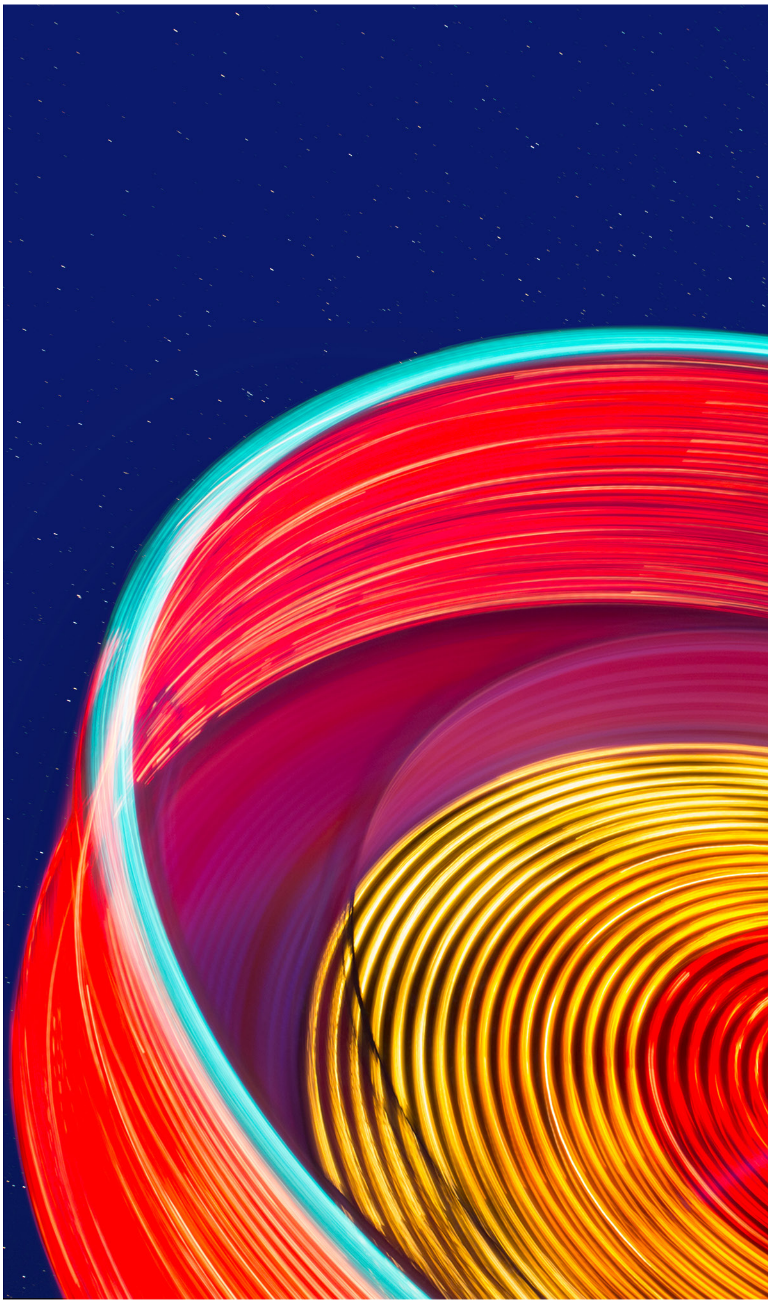
Harnessing digital currencies

How banks can prepare their IT estates to leverage the power and potential of CBDCs
Case in point - Digital Euro

Capgemini

In brief

- With 70% of central banks aiming to issue a CBDC within the foreseeable future, and the Digital Euro on the near-term horizon, digital currency momentum is building.
- As CBDC adoption will likely be mandatory for banks, it's imperative for banks to get started with strategically addressing the many business and technology implications.
- Learning from examples of Digital Euro preparations, we have identified here three critical steps that banks need to complete to succeed.



With consumers, businesses, and governments keenly interested in fast, easy, cost-effective, and secure digital transactions, momentum continues building for central bank digital currencies (CBDCs).

As digital currencies backed by central banks are generally safer than other forms of virtual money, like cryptocurrency or stablecoin, many currency unions and countries are expected to make adoption by banks mandatory, including in the Eurozone and, likely, the UK.

In response, banking innovators are already establishing their CBDC strategies, readying their technology infrastructures, and even piloting different aspects of digital currency. To help financial institutions harness the power and potential of CBDCs, with Digital Euro as the leading example, this article will look at key steps every bank should address in order to remain competitive in the inevitable digital currency future.

Progress continues worldwide

Although the attention of many banks, particularly those in the EU and UK, has focused on meeting other digitalization imperatives, CBDC progress is moving forward apace.

Worldwide, the number of countries developing a CBDC now tops 100, with 19 of the Group of 20 (G20) countries in the advanced stages. [3] Three countries have fully launched a CBDC, the Bahamas, Jamaica, and Nigeria[3], with 70% of central banks planning to issue a CBDC within the next decade[4].

In all, 36 wholesale and retail CBDC initiatives are underway. This includes the Digital Euro[5], for which the European Central Bank (ECB) is currently well along the development timeline. On its heels, the UK is expected to introduce a Digital Pound.

3 key steps for CBDC success

Despite the progress, there is still peril involved with CBDCs. The most clearly demonstrated example was the Eastern Caribbean Currency Union, consisting of 8 countries, where the Eastern Caribbean Central Bank (ECCB) halted its digital currency rollout due to technical difficulties, forcing the development of a new pilot.[6]

For banks, the primary takeaway from ECCU experience is the importance of starting early and taking a strategic approach to developing and executing digital currency offerings. To ensure the expected mandates can be met, risks are minimized, and value is derived, here are the three key steps every bank needs to take:

1) Understand the regulatory environment

With many jurisdictions still working on the underlying legislation, such as in the EU, their associated central banks have yet to finalize regulations.

However, the most essential regulatory elements are already well established, giving banks a solid starting point for developing a strategy and beginning their execution phases. Most importantly, banks cannot delay their digital currency efforts in order to ensure compliance with the expected mandates later this decade.

2) Develop a comprehensive CBDC strategy

Like any transformation, successfully preparing for CBDCs requires a comprehensive business and technology strategy.

Critical decisions start with whether to merely comply with CBDC mandates or leverage digital currencies for competitive advantage by layering value-added services on top of basic digital currency offerings. As this determination affects all others, successful banks will make this decision their highest strategic priority.

Another concern is digital distribution channels, as central banks plan to introduce CBDC apps for banks to support. In response, banks can either create a single channel, by fully integrating a CBDC's app with the bank's app, or pursue a multichannel approach, where each app stands alone. In the Eurozone, a multichannel approach would require customers to juggle the Digital Euro app, the pending SCT-Inst Wero app, and the bank's app.

A third pivotal factor is customer loyalty. As digital currencies significantly reduce friction for changing institutions, robustly addressing loyalty will be key to attracting and retaining account holders.

For many banks, developing a comprehensive strategy will pose a challenge due to already-stretched technology calendars. As an example, European and affected UK banks are implementing PSD3, PSR, ISO 20022, and SEPA Instant Credit Transfer (SCT Inst). Banks tempted to resolve the situation by treating CBDCs tactically will be burdened with a protracted evolution as they work to properly implement digital currencies.

3) Address the top IT gaps

Unsurprisingly, CBDC introduction is spawning a host of unique technology requirements, adjustments, and modernizations. The most critical are:

Architectural modifications, as digital currency accounts will be a mirror of the central bank, rather than actually holding funds. This is fundamentally different than the current architecture of most banking core systems, necessitating a considerable overhaul.

Account number adjustments to accommodate changes in the naming system for digital currencies. For example, the Digital Euro includes a unique identifier called a Digital Euro Account Number (DEAN). In addition to account numbers being structurally different than today's IBAN, digital currencies can permit aliases, like a mobile phone number, requiring banks to also manage an account mapping table.

Processing speed improvements to attain velocities of less than three seconds, far faster than current performance capabilities, for meeting experience expectations. Even banks preparing for SCT-Inst will have work to do, as its requirement is five to 20 seconds.

Payment engine modernization, due to all CBDC settlements occurring in the central bank's ledger. In a nutshell, banks must prepare for digital currency accounts that can be funded and defunded directly from multiple private accounts or commercial accounts. This means every transaction will be broken down into multiple components for a bank's payments engine to orchestrate and validate against the digital currency's holding limit. Further, the funding source and defunding targets can be at another institution. Even the sequence of processing steps will likely differ from current norms.

In addition, a bank's payment engine will be required to connect with a centralized fraud detection function and there will be new privacy-enhancing techniques, like pseudonymized data. However, the pseudonymization of this data may occur outside the payment engine.

Offline operation enablement by providing the ability to transfer value between devices absent any digital ledger connection and, possibly, communicating the transactions to the central bank's ledger later.

One offline option was recently piloted by ANZ Bank in cooperation with the Reserve Bank of Australia (RBA). It leveraged blockchain and near-field communication (NFC) to create a payment model resembling a hybrid of traditional cash and card transactions.

Swift interoperability development for connecting to the organization's new interlinking solution currently being established. Having recently completed a second phase trial with 38 institutions and two consulting partners, the Swift interlinking solution aims to connect CBDC networks, existing payment systems and other networks, such as bank-led tokenized deposit networks.

Transaction history and reporting upgrades to accommodate the CBDC processes known as the reverse waterfall and waterfall. Essentially, if a customer's digital currency account contains insufficient funds for completing a transaction, the needed balance will be funded from one or more external accounts, including bank accounts. Similarly, if a customer's account rises above the holding limit, the account will be defunded automatically to one or more external accounts. Although banks will need to track and report on each event in the chain, customers will likely prefer to view the various underlying transactions as a single event.

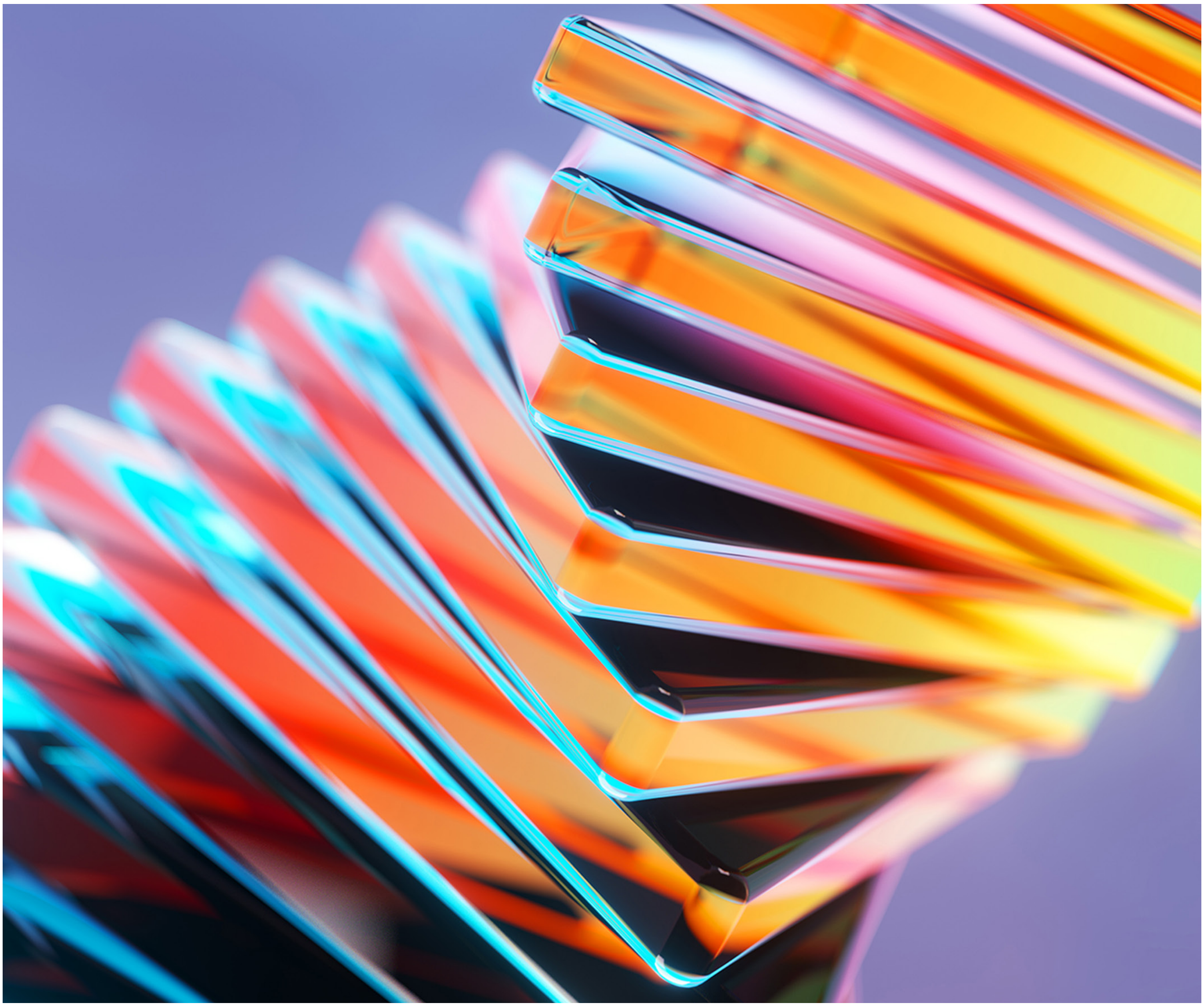
Leverage trusted partnerships to achieve CBDC goals

To navigate the many CBDC nuances, banks can turn to partners with critical digital currency experience and expertise. The right partners can assist with:

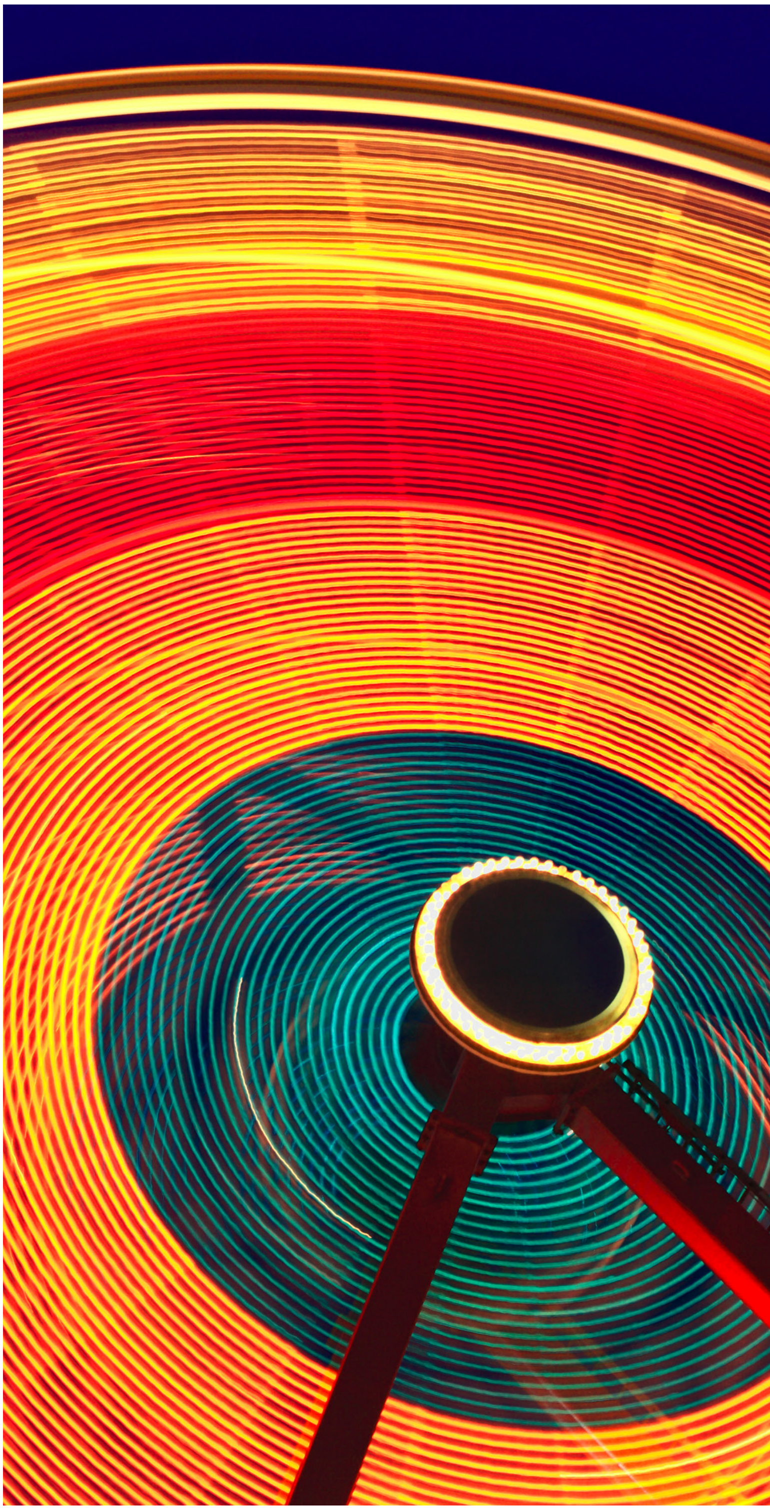
- **Strategy development:**
  Helping to design a comprehensive plan that establishes goals and addresses the myriad business and technology considerations.
- **Impact analysis:**
  Assessing how CBDC adoption will affect a bank's applications, revenues, risk, organizational processes, and client relationships.
- **Proof of concept design and completion:**
  To ensure CBDC goals can be realized, one or more pilot phases for each technology solution will be necessary.
- **Staff development and change management:**
  Due to CBDC complexities and the new processes required, robust staff training and change management are vital.

- **Integration and business embedding:**
  Multiple new technologies, and their related business processes, will require integrating into a bank's existing environment, including core systems, payments, and channel apps.

- **Solution Testing:**
  Determine and execute an end-to-end testing and product rollout strategy across all digital currency services offered by the bank and all relevant channels.



In conclusion



The time to start: Now

With strong interest in safer and more equitable forms of virtual money, central banks are forging ahead with CBDCs. As these efforts are expected to include adoption mandates, leading banks are responding by developing CBDC strategies and even beginning early execution phases.

Given the inevitability of CBDCs, along with the associated business and technology implications, financial institutions cannot sit on the sidelines. By starting their journeys now, banks can successfully leverage this new type of virtual money, develop value-added services, and realize benefits from CBDCs.

End notes

[1] CBDC (Central Bank Digital Currencies) - statistics & facts, Statista, Accessed 8/5/2024

[2] Central Bank Digital Currency Tracker, Atlantic Council, Accessed 8/5/2024.

[3] Ibid.

[4] CBDC success depends on public and private sector collaboration, OMFIF, February 2, 2024

[5] Central Bank Digital Currency Tracker, Atlantic Council, Accessed 8/5/2024.

[6] DCash 2.0 - Central Bank Digital Currency Request for Vendor Information, ECCB, Accessed 8/5/2024.

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