

● **LIVE** Webinar:

DEMYSTIFYING CBDCs AND THE DIGITAL EURO



Flagship Advisory Partners is a multi-national strategy consulting and M&A advisory boutique focused exclusively on payments and fintech.

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- Banks
- Fintechs
- Retailers
- Lenders

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- Payment schemes
- Processors
- OEMs & integrators
- Solution providers

Payment Acceptance Providers

- Merchant acquirers
- PSPs
- Payment facilitators
- ISOs & distributors

Merchants & Brands

- Retailers
- Travel providers
- Digi. goods/services
- B2C/B2B firms

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- SaaS
- Commerce platforms
- Marketplaces

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- Portfolio analysis
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- Product design and solutioning
- GTM strategy
- Pricing strategy
- Global expansion



Operational Transformation

- Operating model strategy
- Strategic partnerships
- Vendor selection
- Cost and process optimization
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- M&A strategy
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WHY CLIENTS CHOOSE FLAGSHIP



Deep expertise

Our 30+ professional have unparalleled experience in payments and fintech as trusted advisors and operational executives



Leading Edge

Global perspective on the forefront of market innovation and evolution, especially at the intersection of payments and tech



Unique skills

Qualitative and quantitative skills and unique IP based on experience with strategy consulting and M&A support



Proven track record

We deliver winning strategies for dozens of clients across c. 70 projects per year



Personal commitment

We personally design unique solutions with the highest level of quality and responsiveness

PRESENTERS



Erik Howell

- Co-Founder and Partner at Flagship Advisory Partners
- Unique experience as both executive and advisor
- Advised 100+ clients at First Annapolis & Accenture



Stanislav Dubský

- Manager at Flagship Advisory Partners
- Specialized in card issuing, processing, and operations
- Previous role as Card Project Manager in Banking



Alessandro Mighetto

- Senior Analyst at Flagship Advisory Partners
- Supported clients in market research and due diligence
- Previous experience in consulting, finance, auditing

Executive Summary:

| Central Bank Digital Currencies (CBDC) | | | Digital Euro (D€) | | | Conclusion |
|---|--|---|---|---|---|---|
| Characteristics | Motivations | Element of Success | Value Chain | 4-Party Model | Compensation Model | Impact on Stakeholders |
| <p>A Central Bank Digital Currency (CBDC) is a digital form of a nation's currency created and overseen by the central bank.</p> <p>It can be:</p> <ul style="list-style-type: none"> ○ Retail: for public use to replace cash ○ Wholesale: for interbank settlement | <p>Central banks have diverse motivations for issuing CBDCs:</p> <ul style="list-style-type: none"> ○ Financial Inclusion ○ Stronger Currency ○ Sovereignty ○ Payment Efficiency ○ Monetary Policy | <p>A successful CBDCs implementation requires the intersection of technology, legal frameworks, ethics, cybersecurity, and user-centric integration within existing payment systems.</p> | <p>ECB will be responsible for the back-end infrastructure covering (issuing, ledger management, and settlement processes), whilst PSPs and commercial banks will provide the onboarding, servicing, and payments infrastructure.</p> | <p>Digital Euro transaction flow will be a four-party scheme.</p> <ul style="list-style-type: none"> ○ Merchant-Initiated: similar to card payments at POS/e-commerce gateways ○ User-Initiated: similar to account-to-account (A2A) payments. | <p>ECB's goal is to develop the market's most affordable and convenient digital payment solution.</p> <p>However, ECB has not disclosed the compensation model (interchange) and dispute rules, which are closely linked to PSPs' motivations to support the D€.</p> | <p>Still unclear, as there are many open questions on design, particularly on economic model</p> <p>Could potentially be very large, but customer needs that D€ addresses also unclear</p> <p>ECB currently in the process of conducting tenders for suppliers</p> |



Discussion Topics

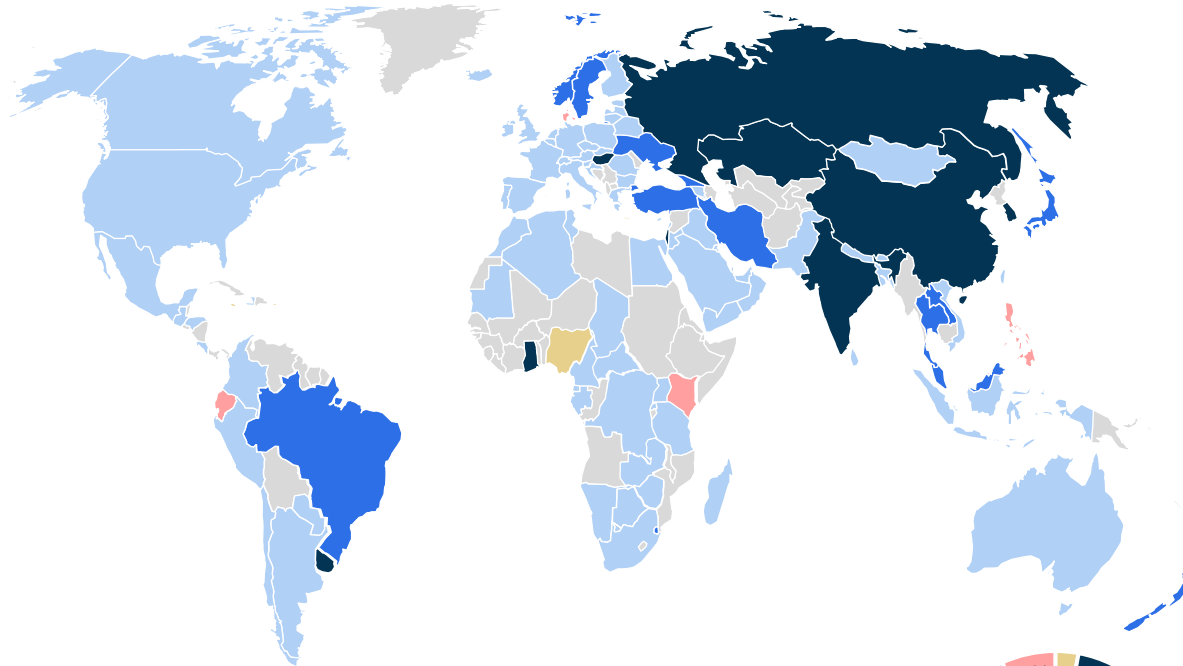
Central Bank Digital Currencies (CBDC)

Digital Euro (D€)

Conclusion

A Central Bank Digital Currency (CBDC) is a digital representation of a country's national currency issued directly by the central bank to end users and maintained through the central bank's ledger.

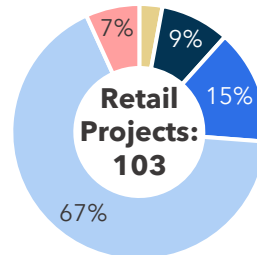
Retail Central Bank Digital Currencies (CBDC) Overview (non-exhaustive; as of March '24)



CBDC STATUS

- **Launched**
- **Pilot**
- **Development**
- **Research**
- **Canceled**
- **No data available**

CBDCs officially fully launched
 CBDCs developed and tested in a real environment
 Advanced research stage and published proof of concept
 First explanatory CBDC research conducted
 CBDCs canceled or decommissioned











| Country | Motivation | Commentary |
|----------------|-----------------------------|--|
| Nigeria | Financial Inclusion | Central bank aims to improve x-border payments, informal sector accountability, and boost financial inclusion to 95% by 2024 . |
| China | Stronger Currency | e-CNY's could enhance central bank payments, backup retail systems, and strengthen its international trade finance position . |
| Russia | Sovereignty | Digital Ruble aims to cut costs, speed up payments, and reduce dependence on USD, helping to evade US sanctions . |
| USA | Stronger Currency | FED and government agencies are exploring if a CBDC would protect privacy and reinforce US leadership in the global financial system. |
| European Union | Monetary Policy Tool | Digital Euro could ensure safe payments, foster innovative services, strengthen EU payments, and aid the ECB in monetary policy . |
| Denmark | Alternative to Cash | CBDC would not benefit the existing payment infrastructure and could pose risks of systemic bank runs . |
| Ecuador | Financial Inclusion | Due to mistrust in the central bank and government defaults, adoption remained extremely low (0.0003% penetration after 2 years). |











The involvement of intermediaries depends on the technological issuance set-up.

Central Bank Digital Currencies (CBDC) Overview (non-exhaustive)

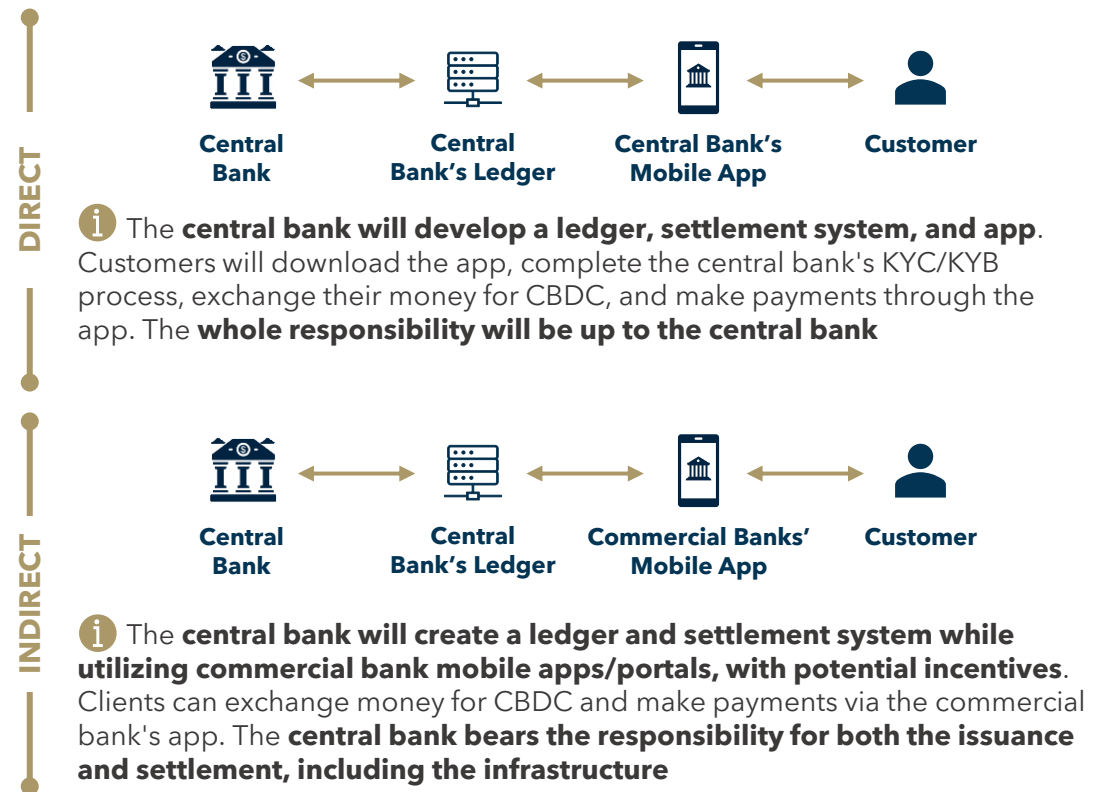
CHARACTERISTICS

| | Retail | Wholesale |
|------------------|---|--|
| Used for |  In-store Payments  Remote Payments |  Interbank, x-border settlements |
| Used by |  Individual  Business |  Financial Institutions |
| Can be viewed as |  Digital form of Physical Cash |  Electronic Bank Reserves |

PAYMENTS APPLICATION

| Form Factors | Use Cases | Rails |
|--|--|---|
|  Cards ¹  QR Code |  POS  E-Comm |  Cards ¹ |
|  Mobile  PC |  P2P  X-border |  A2A |

CBDC ISSUANCE MODELS



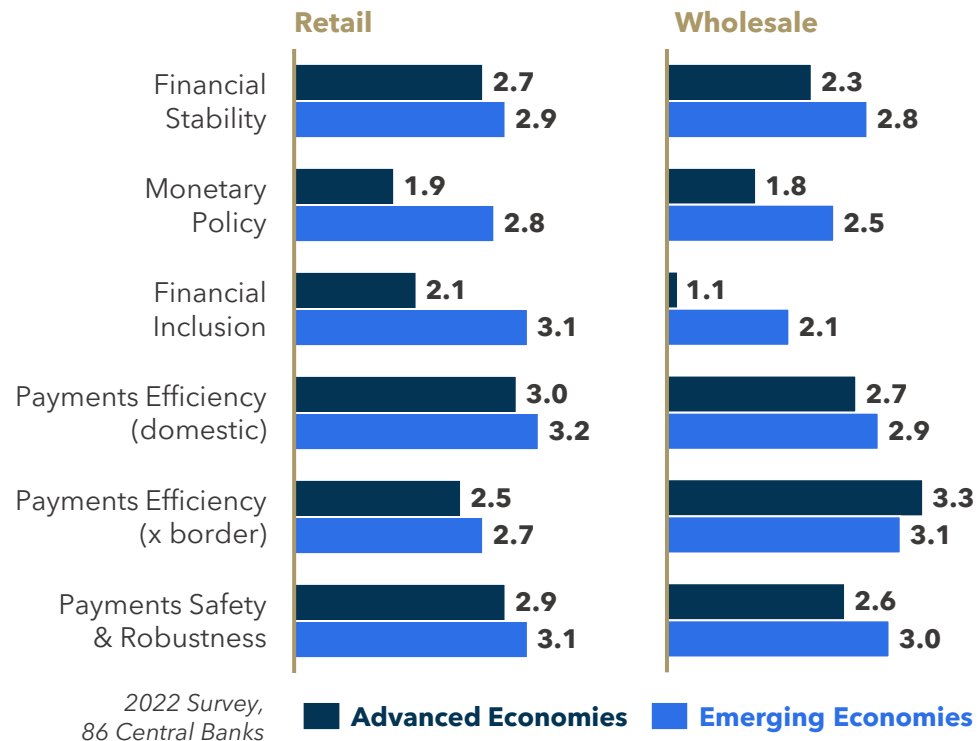
Financial stability, Payment efficiency, and safety are the top 3 priorities for Central banks.

Central Bank Digital Currencies (CBDC) Overview (non-exhaustive)

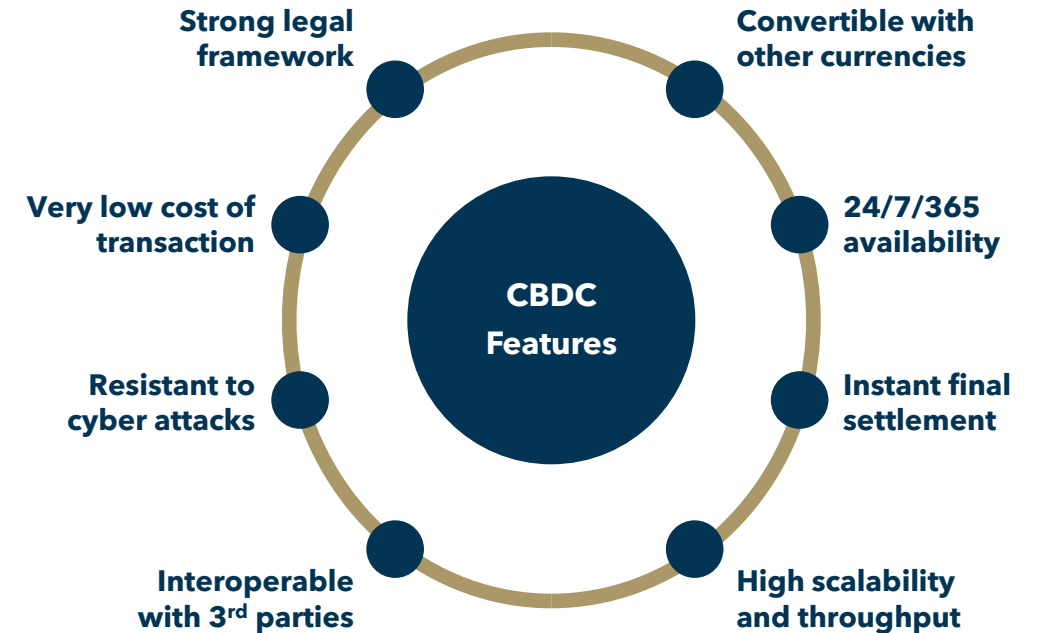
CENTRAL BANKS MOTIVATIONS

How important are the following aspects in (potentially) issuing a CBDC?

(Average importance - 1 (not so important) - 4 (very important))







ELEMENT OF SUCCESS

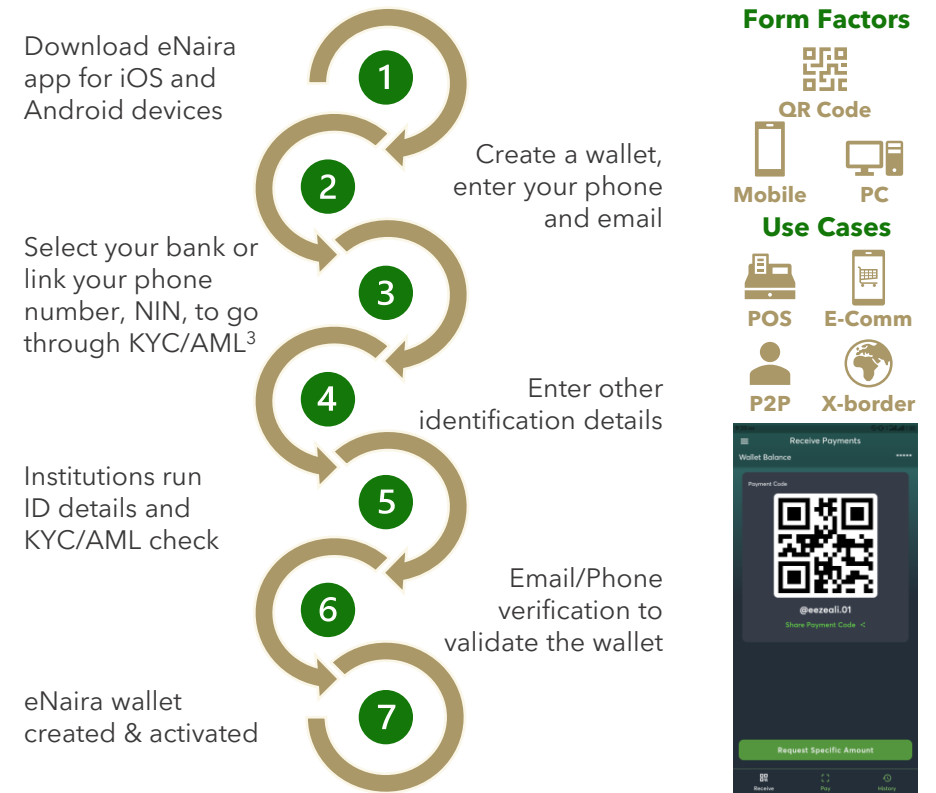


Nigeria's target is to reach 95% financial inclusion rate by 2024, allowing citizens to open an account with a phone number or a National Identification Number.

NIGERIA eNaira Overview
(non-exhaustive; as marketed on websites; as of March '24)

| | |
|-----------------------------------|---|
| Type & Status | CBDC Retail Launched in October '21 eNaira app updated in Oct '22 |
| Design Model | Direct CDBC architecture based on distributed ledger technology (DLT)  |
| Technology Partners |  |
| Purchasing Payment Wallets |  ¹  ² |
| CBDC Stats | As of Mar '23, 13M active wallets (12x from Oct '22, 6% penetration). As of Sep '23, e-Naira in circulation account for N10.26B (+302% YTD) |

NIGERIA eNaira Account Onboarding & Use Cases
(as marketed on websites)



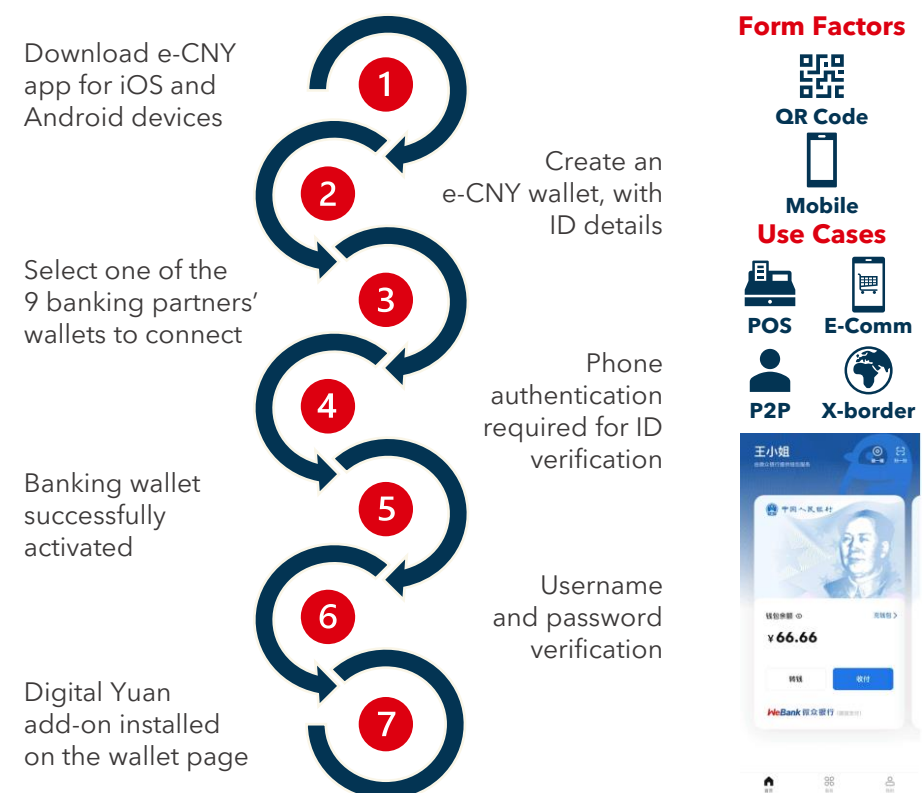
Notes: ¹ Accepts eNaira payments for merchants in Nigeria only from Sep '22 and charges a 1.4% fee, capped at NGN 2,000 (~\$2.70) per transaction; ² Accepts eNaira POS and e-commerce transactions from Jun '22; ³ Citizens can create an eNaira account without having an existing bank account. They can use a phone number or NIN (National Identification Number). According to the profile, citizens are divided into tiers with daily transaction limit and maximum cumulative daily balance.
Sources: Central Bank of Nigeria, Flutterwave, Vanguard, Bloomberg, Flagship Advisory Partners research

Unlike the setup in Nigeria, nine Chinese banks serve as intermediaries responsible for offering the application and front-end infrastructure.

CHINA 数字人民币 e-CNY Overview
(non-exhaustive; as marketed on websites; as of March '24)

| | |
|-----------------------------------|--|
| Type & Status | CBDC Retail Pilot started in Apr '20 in 4 cities, extended to 23 in Sep '22. On Dec '23, the app has been updated: users can link bank accounts and debit cards to purchase Digital Yuan in-wallet |
| Design Model | Indirect CDBC architecture based on a centralized system managed by People Bank of China (PBoC) |
| Banking Partners | |
| Purchasing Payment Wallets | |
| Pilot Stats | As of Aug '23, 260M active wallets (PBoC claimed) capped at ¥10,000 (~\$1,000), max. ¥2,000 per trx. |

CHINA 数字人民币 e-CNY Account Onboarding & Use Cases
(as marketed on websites)





Discussion Topics

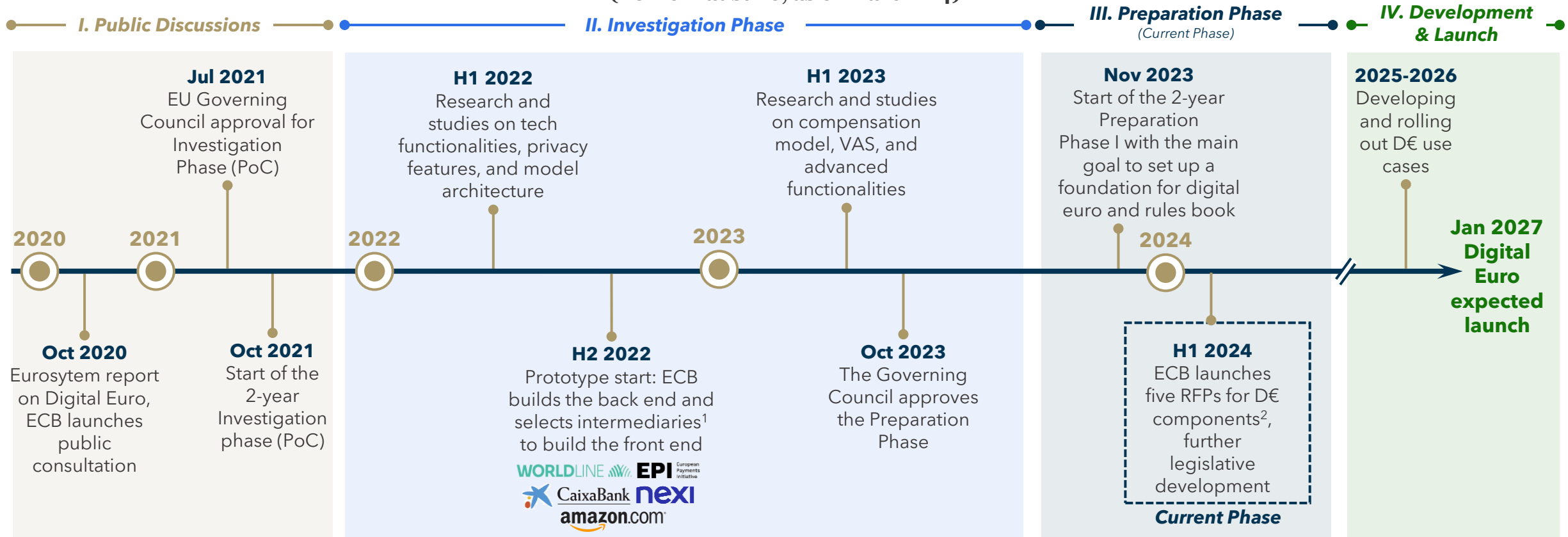
Central Bank Digital Currencies (CBDC)

Digital Euro (D€)

Conclusion

ECB works on the digital Euro initiative already 3 years and we are currently in the preparation phase where ECB will lay down the foundations of D€ and select providers.

Digital Euro (D€) Timeline of Key Events (non-exhaustive; as of March '24)



Notes: ¹ Intermediaries were selected to build front-end architecture between July 2022 and February 2023;

² ECB is looking for vendors that can help to build Risk and fraud management solutions, SDK, Offline solution, Secure exchange of payment data, and Alias lookup. They are a 4-year contract with a start date in 2025.

Sources: Flagship Advisory Partners research

ECB will leverage the infrastructure of banks and PSPs and will take care of back-end part including settlement, ledger and connectivity layer.

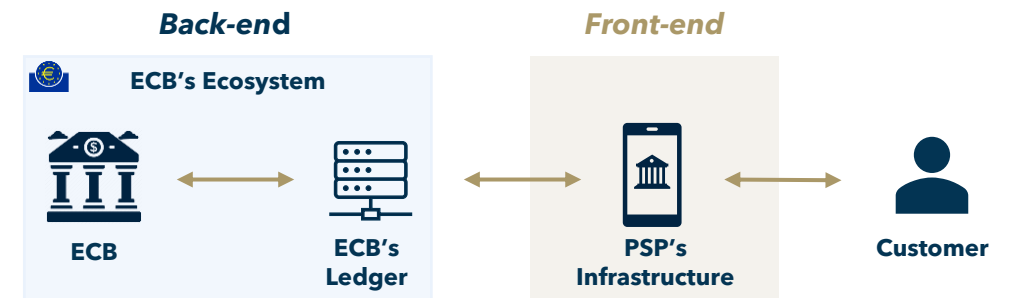
Main Motivations of ECB

(based on prototype research and results as of December '23)

| | |
|--|---|
| <p>Alternative to Cash</p>  | <ul style="list-style-type: none"> Payments are becoming more digital, leading to a decrease in cash usage. Potential to reduce society's dependence on cash, as an alternative means of payment. |
| <p>Monetary Policy Tool</p>  | <ul style="list-style-type: none"> The declining use of cash is weakening the leverage of national banks. Digital Euro should prioritize secure payment systems, encourage innovation in services, and assist the ECB in executing monetary policies. |
| <p>Payment Efficiency</p>  | <ul style="list-style-type: none"> Making the EU payment landscape more competitive and resilient to non-EU providers. A digital euro would also offer a foundation for further innovation by private payment service providers. |

Operating Model Digital Euro

(based on prototype research and results as of December '23)



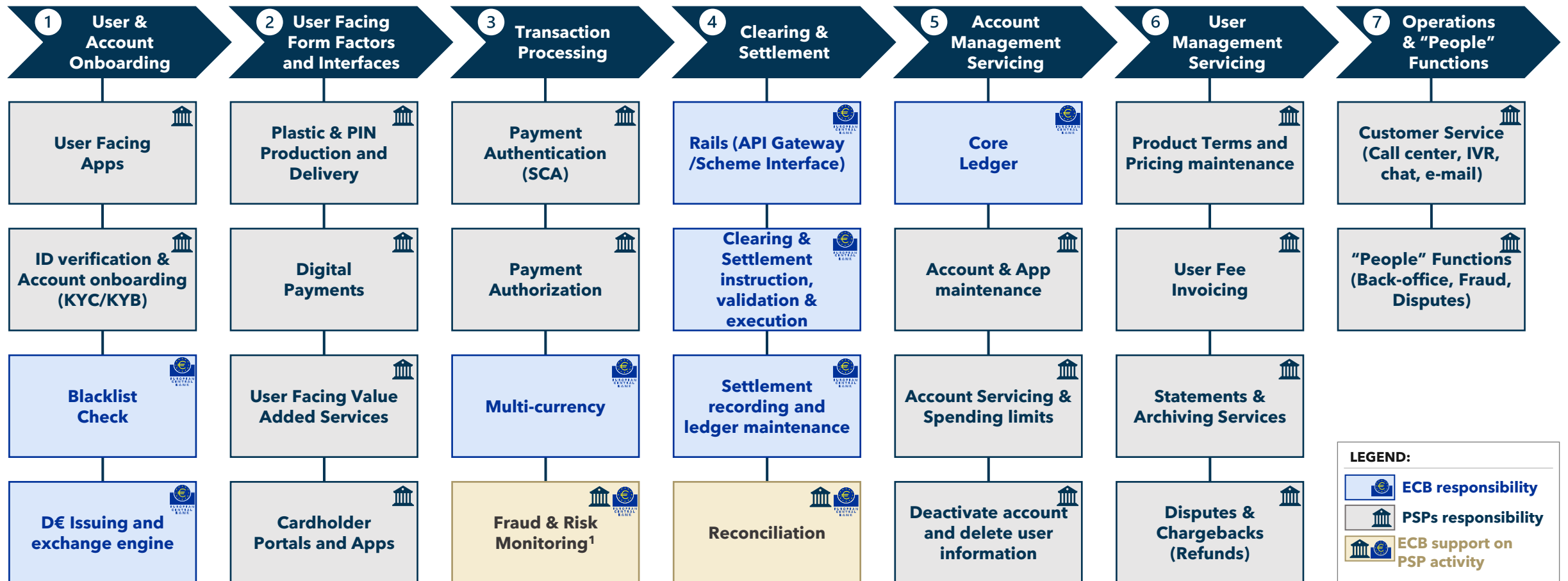
- ECB will **issue D€** to customers and **create a ledger and settlement system**.
- PSPs/Commercial Banks** will provide **infrastructure for onboarding, servicing, and payments**.
- Clients can **exchange money for D€** and make payments via PSPs and Commercial Banks

Form Factors



PSPs will play a critical role in distributing Digital Euro to users, and will have key operational responsibilities across almost all steps within the value chain.

Digital Euro (D€) Value Chain (based on Prototype research and results as of Dec '23)



LEGEND:

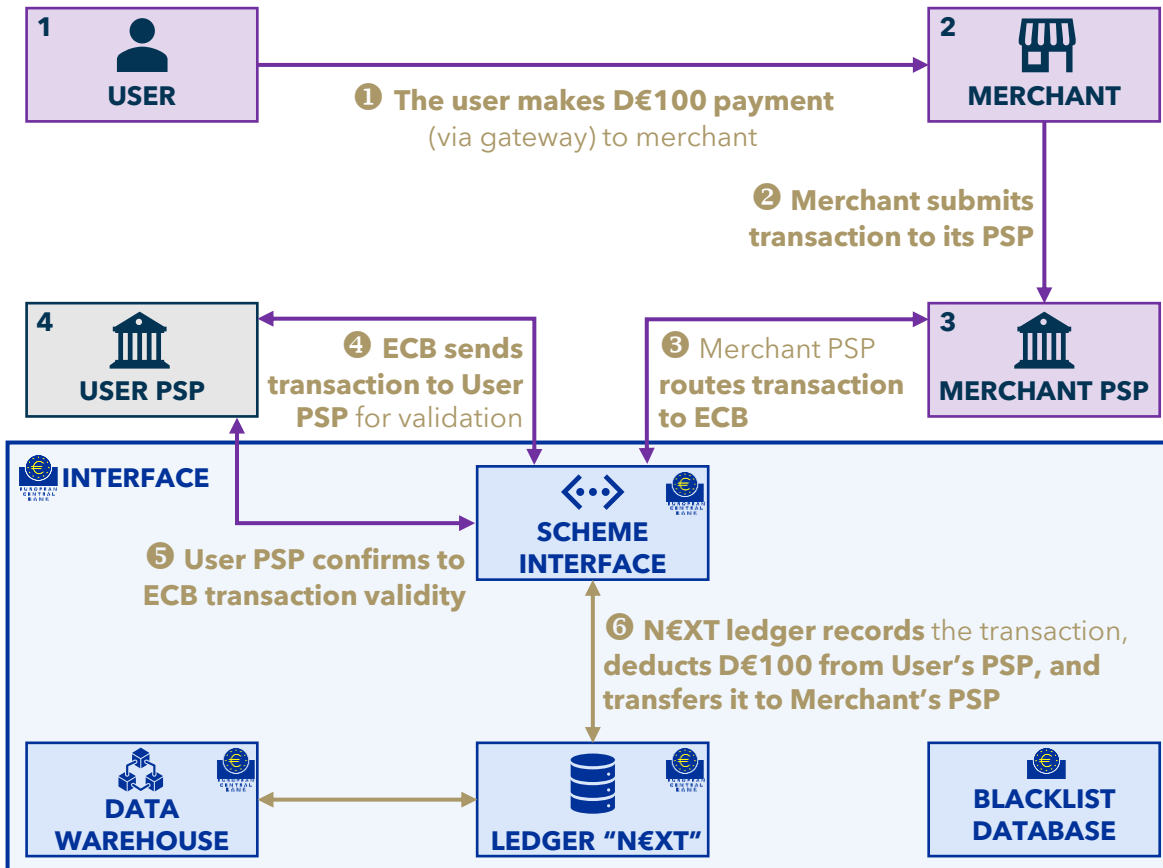
- ECB responsibility
- PSPs responsibility
- ECB support on PSP activity

Note: ¹ ECB proposed establishing a centralized fraud detection organism to secure the information exchange among PSPs, perform fraud monitoring, and risk scoring for transactions. It would complement the PSP offering to prevent malicious actors.

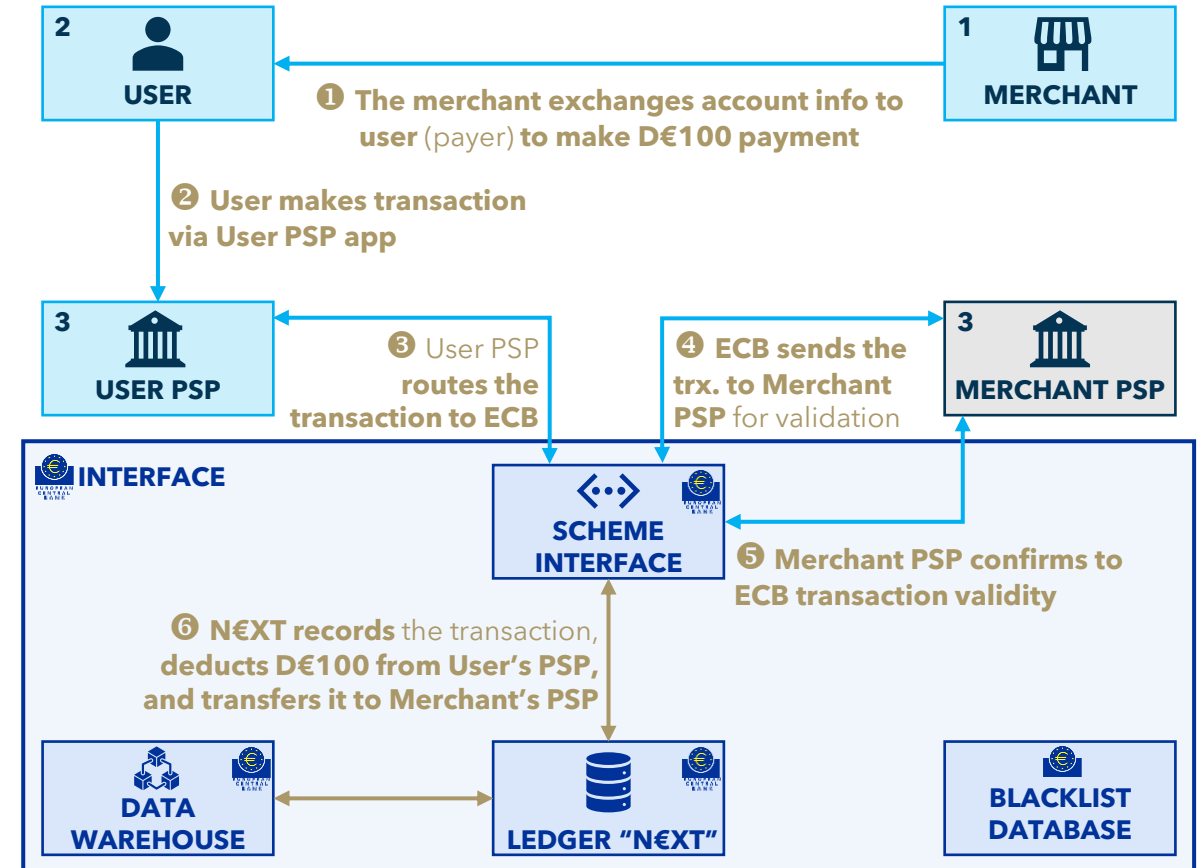
Sources: European Central Bank (ECB), Flagship Advisory Partners research

Transaction flow is similar to the card transaction flow and ECB plays the role of scheme.

Digital Euro (D€) Merchant-initiated Transaction (illustrative; based on Prototype research and results as of Dec '23)

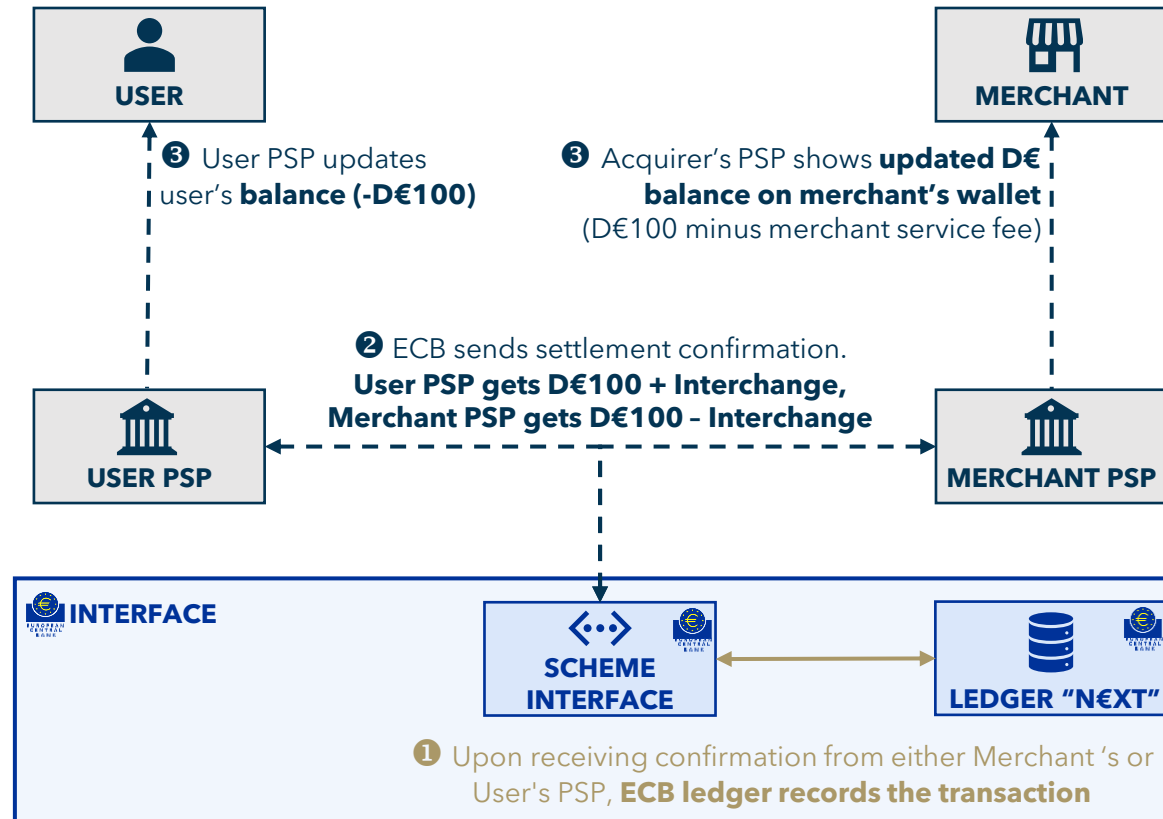


Digital Euro (D€) User-Initiated Transaction (illustrative; based on Prototype research and results as of Dec '23)



The settlement is similar to card schemes.

Digital Euro (D€) Clearing/Settlement Flow (illustrative; high-level; based on Prototype research and results as of Dec '23)








Compensation model is still not finalized today and will be clarified during the preparation phase.

Digital Euro (D€) Compensation Model (based on Prototype research and results as of Dec '23)

Revenue

Expense

| | Revenue | Expense |
|--|---|--|
|  User | Any service related to Digital Euro must be free of charge for the final user | |
|  User PSP | Interchange Fee <ul style="list-style-type: none"> Still uncertain what is the level of interchange fee, will be clarified during the Preparation Phase | OPEX Service Costs: <ul style="list-style-type: none"> PSPs cannot charge fees related to Digital Euro to the user. PSPs will cover operational costs related to account maintenance etc. |
|  Merchant | | Merchant Service Fee: <ul style="list-style-type: none"> Merchants cannot charge fees to users for D€ usage Merchants will pay interchange fees |
|  Merchant PSP | Merchant Service Fee <ul style="list-style-type: none"> Merchant service fee will be capped and cannot be higher than other comparable payment methods ECB wants to offer D€ as the cheapest payment method in the market. | OPEX Service Costs <ul style="list-style-type: none"> Operational cost to allow merchants to transact with Digital Euro |
|  ECB | | Settlement Costs: <ul style="list-style-type: none"> ECB will bear costs related to issuance, transaction processing, risk and fraud monitoring and settlement |

COMMENTARY

- **ECB will motivate PSPs to support D€ interface by interchange fees** and is still working on a compensation model.
- **The compensation model is still uncertain** and will be clarified during the Preparation Phase (from November 2023).
- Goal of ECB is to offer Digital Euro as the **cheapest payment method in the market.**
- But most important aspect of the whole digital Euro is the **adoption by users which is uncertain at this point.**
- If adoption rates are high, merchants will willingly begin accepting digital euro, thus reducing their expenditure on acceptance costs.
- Merchant PSPs may face the risk of losing revenue and experiencing pricing pressure.



Discussion Topics

Central Bank Digital Currencies (CBDC)











Digital Euro (D€)

Conclusion

CBDCs have a number of advantages for policy makers, but the end customer needs that CBDCs address are still unclear. Impacts on banks and fintechs will be mixed.

CBDC Advantages and Disadvantages (non-exhaustive)

 Central Bank
  Government
  Large Banks
  Small Banks
  Fintechs
  Corporates
  Individuals
 Commentary

| | Central Bank | Government | Large Banks | Small Banks | Fintechs | Corporates | Individuals | Commentary |
|---|--------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|  Transaction Cost Efficiency | Favorable | Favorable | Neutral | Neutral | Favorable | Favorable | Favorable | CBDC could reduce costs compared to current payment systems and potentially impact existing bank revenues. |
|  Technological Innovation | Favorable | Neutral | Neutral | Neutral | Favorable | Favorable | Favorable | CBDCs might facilitate new financial services like P2P transactions, cross-border payments, and micro-lending, enabling further innovation in the payments/banking system. |
|  Financial Inclusion | Favorable | Favorable | Favorable | Favorable | Favorable | Favorable | Favorable | Provides low-cost access to electronic payments to replace cash |
|  Grey Economy | Favorable | Favorable | Favorable | Favorable | Favorable | Neutral | Neutral | If users adopt and replace cash, reduces opportunity for gray economy |
|  Bankruptcy Risk | Favorable | Favorable | Neutral | Neutral | Favorable | Favorable | Favorable | Individuals might choose CBDC deposits over commercial banks due to central banks' immunity from bankruptcy, potentially reducing commercial bank deposits. |
|  Privacy | Favorable | Favorable | Neutral | Neutral | Unfavorable | Unfavorable | Unfavorable | Central banks will access a greater volume of data than their current holdings and data breaches. |
|  Cybersecurity | Unfavorable | Unfavorable | Neutral | Neutral | Neutral | Unfavorable | Unfavorable | CBDC systems are susceptible to cyberattacks, including hacking attempts. |
|  Monetary Policy Tools | Favorable | Unfavorable | Neutral | Neutral | Neutral | Neutral | Neutral | CBDCs have the potential to serve as a monetary policy instrument, potentially reducing the reliance or losing influence of fiscal tools. |
|  Financial Stability | Neutral | Neutral | Unfavorable | Unfavorable | Neutral | Neutral | Neutral | In challenging economic periods, central banks may opt to raise interest rates as a monetary policy tool, aiming to reduce consumer spending. Consequently, this could lead to a shift from deposits in commercial banks to deposits in central banks. |
|  Statecraft | Favorable | Favorable | Unfavorable | Unfavorable | Unfavorable | Unfavorable | Neutral | If users adopt, provides additional tool for policy makers to exert state power |

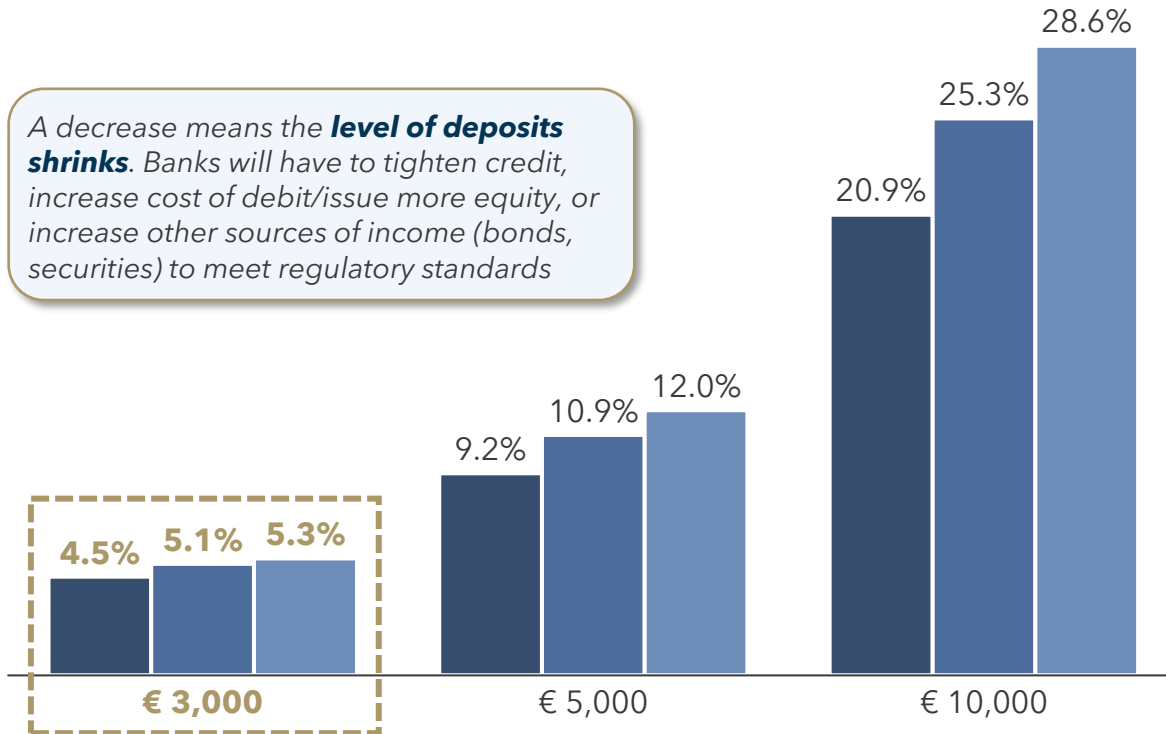
If widely adopted, D€ would move deposits from bank to ECB balance sheets, effectively shrinking the size of the financial system and bank funding for loans.



Reduction in Average Deposit-to-Asset Ratio per Digital Euro Holdings by Bank Size

Bank Size

- Large** Total Assets higher than €30B
- Medium** Total Assets between €3B and €30B
- Small** Total Assets lower than €3B



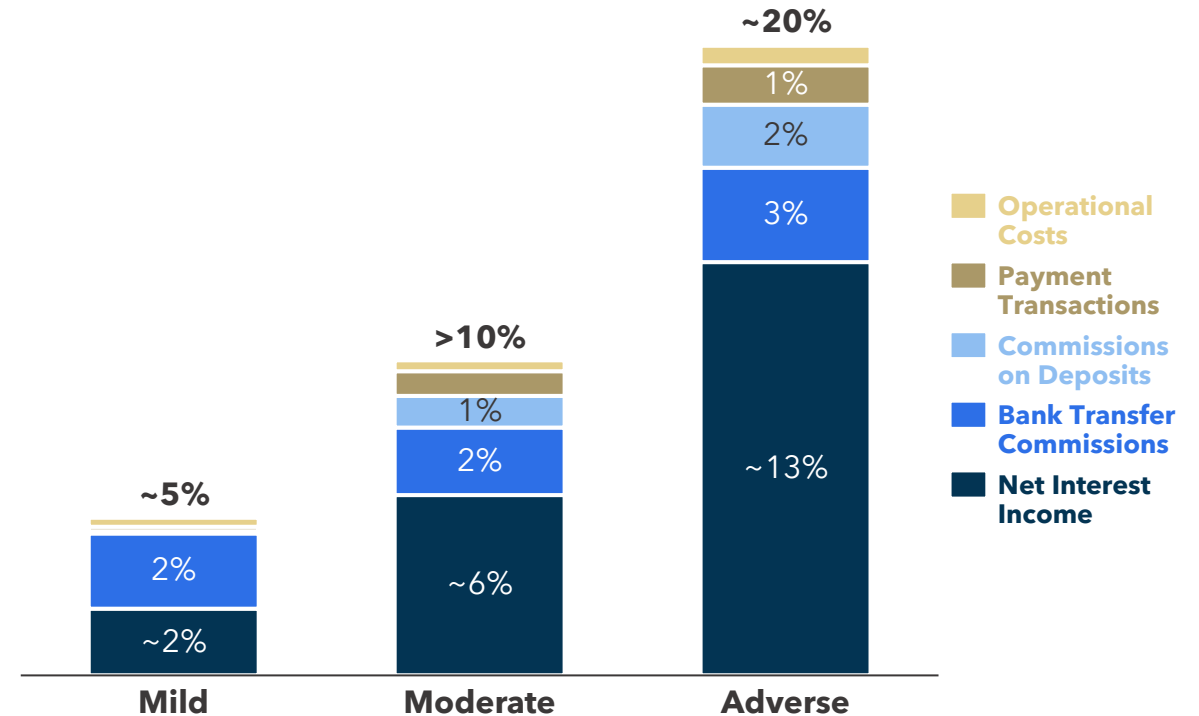
A decrease means the **level of deposits shrinks**. Banks will have to tighten credit, increase cost of debit/issue more equity, or increase other sources of income (bonds, securities) to meet regulatory standards



Estimated Loss on Banks' Profitability per Scenario (€3,000 Cap on Digital Euro Holdings per User)

Scenario

- Mild** Digital Euro adoption is limited, and low costs associated
- Moderate** Middle scenario between the two extremes
- Adverse** Digital Euro has a massive adoption, and huge investments associated



- Operational Costs**
- Payment Transactions**
- Commissions on Deposits**
- Bank Transfer Commissions**
- Net Interest Income**

Although new payment methods are generally positive for merchant PSPs, as-yet unclear revenue opportunities and cost responsibility limit attractiveness of the D€ today.

Why Should Acquirers and Merchant PSPs Join the Digital Euro Ecosystem? (non-exhaustive)

Motivations

- ✓ **Meet demand from merchants** to accept new, innovative, cost-effective payment method.
- ✓ Although the potential to develop new VAS for the Digital Euro is currently unclear, **it could be a unique revenue opportunity.**
- ✓ **There is a new revenue opportunity for POS terminal rental/update** for Digital Euro acceptance.

Concerns

- ✗ **Capped revenue on Merchant Acceptance Fee and cannibalization of portfolio.**
- ✗ **Cost related to building up front-end, integration with ECB back-end, (new) regulation & compliance, etc.**
- ✗ **Regulatory constraints.**

The current business case for issuers to proactively support D€ is low due to unclear interchange model, an additional operational burden, and the risk of deposit outflow.

Why Should Issuers Join the Digital Euro Ecosystem? (non-exhaustive)

Motivations

- ✓ **Potential access to new customers** (unbanked population).
- ✓ Although the potential to develop a new VAS for the Digital Euro is currently unclear, **it could be a unique revenue opportunity.**

Concerns

- ✗ **No details have yet been released on the revenue model.**
- ✗ **Cost related to building up front-end, integration with ECB back-end, (new) regulation & compliance, etc.**
- ✗ **Deposit outflows** affecting stability, liquidity, lending capacity, and profitability (for banks).

A new form of low-cost payment acceptance is good news for merchants, provided that end users (payers) adopt the D€.

Why Should Merchants Join the Digital Euro Ecosystem? (non-exhaustive)

Motivations

- ✓ **Expansion of payment method for e-commerce.**
- ✓ **Instant settlement.**
- ✓ **Less cost in accepting payments** than other comparable digital payment solutions.
- ✓ **No chargeback rights for consumers yet.**
- ✓ **Improved fraud detention** (PSPs and ECB collaborating to strengthen digital security).

Concerns

- ✗ **Rising costs in POS devices with Digital Euro rental and sale due to Digital Euro integration** (since profitability will drop due to the ECB cap, acquirers may increase pricing to the user to cover operational costs).

The most important stakeholders are end users (consumers, businesses). It is not yet clear what customer needs the D€ will solve that will prompt customers to change current behavior and adopt a new payment method that is limited in scope.

Why Should Users Join the Digital Euro Ecosystem? (non-exhaustive)

Motivations

- ✓ **Potentially strong user experience.**
- ✓ **Reduced risk of losing deposits due to a bank failure** (as long as deposits are held on ECB's balance sheet).
- ✓ **Mandated no cost to the user.**

Concerns

- ✗ **No unmet need** (What problem does this solve?).
- ✗ **No chargeback rights for consumers yet.**
- ✗ **Privacy concerns.**
- ✗ **Limited scope** (3,000 Euro cap).
- ✗ **ECB** controls deposits, and ECB **has a different motivation than commercial banks.**
- ✗ **Security concerns** due to **centralized point-of-attack** from hackers.

THANK YOU!

Q&A



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