RETAIL CBDC ARCHITECTURE

Conference—Central Bank Digital Currencies: New Opportunities for Payments

National Bank of Ukraine
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Recent CBDC developments

Riksbank

Swiss Digital Exchange

Eurosystem

Digital Dollar Project
CBDC

New format of central bank money fully fungible with bank notes and reserves and integral part of the monetary base

Value based-approach where units of value—tokens—are stored locally

Tokenised central bank money to serve as settlement medium in retail and/or wholesale transactions

Permissioned DLT-networks best suited to issue CBDC
CBDC functionalities

Portability: Central bank money to be digital and able to live outside the central bank like a bank note

Programmability: Smart central bank money to facilitate conditional functionalities

Access: Central bank money to be usable irrespective of space and time to facilitate a more equitable distribution
CBDC issuance and distribution

Issuance in exchange for reserves (similar to bank notes)

Distribution depends on use case

Access to CBDC remains critical policy choice question
Retail distribution: One-tier account model

- Central bank:
  - Deposits CBDC

- Commercial bank:
  - Deposits CBDC
  - Instructs central bank to deposit CBDC against current account balances

- Account holder 1:
  - Instructs central bank to deposit CBDC against reserves in account of account holder 1
  - Instructs central bank to pay account holder 2 CBDC against account holder 1 CBDC balances
  - Deposits CBDC

- Account holder 2:
  - Receives CBDC
Retail distribution: One-tier token model

Central bank

Commercial bank

instructs central bank to deposit CBDC against reserves in account of account holder 1

deposits CBDC

instructs to deposit CBDC against current account balances

Electronic wallet holder 1

transfers CBDC

Electronic wallet holder 2

Central bank
Retail distribution: Two tiers token model

- Central bank
- Deposits CBDC against reserves
- Commercial bank 1
  - Electronic vault
  - Deposits CBDC
  - Instructs bank to debit current account
  - Electronic wallet holder 1
  - Mobile App
  - Wearable
- Commercial bank 2
  - Electronic vault
  - Deposits CBDC proceeds in current account
  - Merchant
  - Pays with CBDC at point of sale
- Electronic wallet holder 2
  - Card
- Merchant
  - Pays with CBDC
  - Card
- Mobile App
  - Wearable
CURRENCY SUCCESS FACTORS

- Intrinsic Value
- Credibility of Issuer
- Functionality
### DLT-enabled projects

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<td>Payment</td>
<td>DLT-augmented RTGS system</td>
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<td>Privacy</td>
<td>Proof of concept with central banks of Eurosystem</td>
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<td>Custody</td>
<td>Solution for key management for banks and financial market infrastructures</td>
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<td>Securities settlement</td>
<td>Advisory of a large trading platform to enable end-to-end trading and settlement</td>
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<td>Regional payments integration</td>
<td>Conceptional work on using CBDC for settlement in cross-border and off-shore transactions</td>
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