How to integrate CBDC with DLTs?

Strategies and Solutions

Lars Hupel
TUM Blockchain Salon
2023-05-12
Central Bank Digital Currency

- Banknotes
- CBDC
- Bank deposits and e-money

Issued by the central bank

Digital money
CBDC worldwide
In 2023, over 20 countries will take significant steps towards piloting a CBDC.
distributed ledger:

append-only store of transactions which is distributed across many machines
Will CBDC run on DLT?

Does it matter?
Roles & Responsibilities in CBDC
Validation & Integrity

Alice  - 10 €
Bob  + 10 €

Central Bank
Distribution & Custody

Intermediaries
Payments & more ...
Programmability in CBDC
Programmable Money
(e.g. HTLC)

Programmable Payments
(e.g. ERC-20)
Digital pound CBDC won’t be programmable to avoid government control perceptions

ECB Says Yes to Programmable Payments, No to Programmable Money

September 21, 2021

Policy

Digital Euro Will Never Be Programmable, ECB’s Panetta Says

Some observers have touted restrictions on how people can spend their money as an advantage of a central bank digital currency.

By Jack Schickler   Jan 23, 2023 at 4:28 p.m.   Updated Jan 23, 2023 at 6:10 p.m.
CBDC & Smart Contracts
Assumptions

1. Central Banks do not care about specific DLT implementations.

2. Central Banks do not care about end-user operations.

3. Commercial players know better about customer needs.

4. DLTs evolve much faster than currency does.
Transacting CBDC directly
Transacting CBDC in a Smart Contract

Private Ethereum

Open APIs

ERC20

Smart Contracts
Decentralized Identifiers

Liquidity management

Open APIs

ERC20 (or similar)
What do we gain?

- Ability to experiment
- Flexibility for new use cases
- Separation of concerns

What do we need?

- Stable currency
- Regulatory control
- Standardization
Questions?
Answers!

Lars Hupel
https://lars.hupel.info
lars.hupel@gi-de.com