

THE DIGITAL EURO

A FEW MATTERS FOR THOUGHT

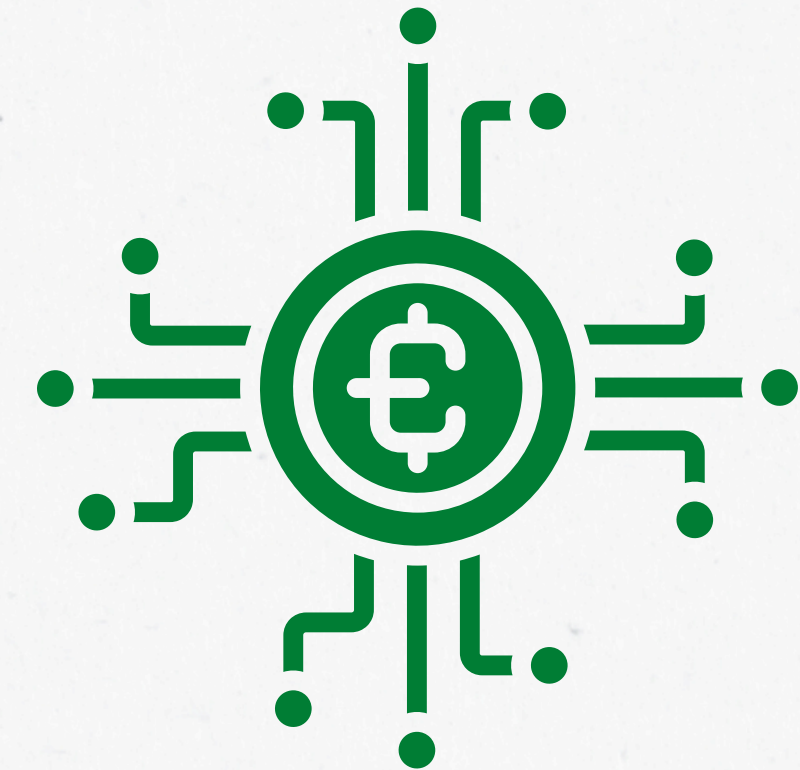
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THE EUROPEAN PROJECT FOR CASH DIGITALISATION

- ECB Report, October 2020
- Investigation Phase, Oct. 2020 – Oct. 2023
- Preparation Phase, Oct 2023 – Fall 2025
- End 2025, further possible decisions.



FUNDAMENTAL DEFINITIONS

The Digital Euro is intended to be a direct liability of the ECB, **equivalent to banknotes (cash)**, with legal tender status – A digital representation of Central Bank money, a **CBDC**

“a digital euro widely available and easy to use” (Panetta, 2023)

“you’d be able to make instant payments anytime and anywhere in the euro area, with a single, free solution backed by the highest security and privacy standards” (Cipollone, 2024)

MOTIVATIONS OF THE DIGITAL EURO (1)

1. Contrast the decline in the use of cash/banknotes caused by digital **private** bank money, mostly cards.

But...there is a “cash paradox” to be explained:

- 2020-2023, Euro Area, Banknotes +27,3% (nominal GDP + 10,6%)
- euro banknotes in circulation **1,560 billion** (4,470€ per capita)
- ECB estimates that:
 - each consumer in the euro area holds cash for 500€ so consumers would globally hold 150 billion
 - about 350 billion€ circulate outside the area



About **1,020 billion** are unaccounted

MOTIVATIONS OF THE DIGITAL EURO (2)

2. Enhance coherence and adaptation to the digitalization of the economy

3. Oppose a shield against entry and competition of other currencies, such as:
private bigtech Stablecoins, foreign CBDCs, ...

4. Give strong evidence of monetary sovereignty

...however, the effective strength of a currency mainly depends on the strength of the underlying economy and on the real public control of the circuits of money transfers

TECHNICAL FORMS OF DIGITAL EURO

A. ONLINE ACCOUNT-BASED DIGITAL EURO

1. The Payment Service Provider (PSP, **authorized** intermediary) opens the encrypted D€ accounts at the ECB on customers' request, after KYC verification
2. The PSP manages all operations according with the holders' orders and communicates them to the ECB for execution, registration and settlement, **shielding customers' identities**
3. The D€ account is a liability of the ECB; the account holder is **identified by a code/alias**
4. The PSP acts simply as a delegate and only on behalf of its customer
5. Through the D€ account the holder can make/receive all payments/transfers
6. The transfer circuit is centralized: owned, controlled, operated by the Eurosystem
7. De facto, **commercial banks** will assume status and functions of PSPs
8. The **basic** services of the D€ will be offered **cost-free**. PSPs will be remunerated by the Eurosystem

COMMENTS AND OBSERVATIONS

- All operations of the online D€ accounts are coded/ encrypted and traceable and will be protected by privacy procedures (but the full anonymity cannot be technically guaranteed)
- PSPs will be able to **improve** the D€ accounts, offering advanced services
- Given its design, the **online** account-based D€ is not an equivalent of cash and banknotes: it provides a larger functionality, but it does not guarantee full anonymity
- **Rather, it appears to be an efficient and competitive substitute of the overnight bank deposit**, with two significant differences:
 - one positive, it is riskless
 - one negative, it can't offer credit facilities (overdraft and credit cards)

TECHNICAL FORMS OF DIGITAL EURO

B. OFFLINE D€ WALLET

- An electronic device which allows P2P in/out transfers offline and in proximity;
- The wallet must be **preloaded** with D€ obtained by paying cash or by transfer from a D€ account at a PSP... **necessary holder's identification**;
- Settlement of offline D€ payments shall occur when the records of D€ (the wallets) are updated.

FURTHER COMMENTS AND OBSERVATIONS

- **Wallet holders** buying and transferring D€ **are traceable**, however protected by high privacy standards, which do not imply anonymity
- ECB knows where all issued D€ are located, in wallets or accounts
- ECB knows the aliases of wallets and accounts holders, whose privacy is protected by the PSP;
- Existing NFC technology **cannot support D€ transfers** between wallets
- Advanced studies of the Sweriges Riksbank confirm that no reliable technical solutions are available for wireless connections among electronic wallets.

FINAL CONCLUSION

Apart from technical feasibility, also the offline D€ wallet is not a cash equivalent for it lacks anonymity

...ALL THIS SAID LEAVES A FEW PROBLEMS ON THE TABLE...

1. Both proposed forms of D€ do not attain the original objective, which was the digitalization of cash. Therefore, the D€ - not being a “cash equivalent” - is **unlikely to substitute the existing stock of cash**.
2. Then the issuance of D€ will derive from the transformation of bank oversight deposits if their holders will have convenience to use D€
3. A large transformation of bank deposits into D€ accounts would:
 - **destabilize banks: loss of reserves** consequent to deposits transformation
 - **reduce banks' revenues** gained from payment services
 - **reduce the capacity of banks to grant new loans**

SOME TECHNICAL NOTATIONS

- The Bank financial structure is traditionally founded on the fractional reserve model;
- The impact of the D€ can be appreciated;
 - With a static approach: the final contraction of bank assets/liabilities will be a multiple of the initial reserve loss
 - With a dynamic approach: during the transition period the loss of deposits and reserves will cause the alteration of regulatory ratios, liquidity distress, bank crises
- The availability of D€ accounts **could prompt depositors to “run” on banks** (flight to a safe asset, to riskless public money)
- **Bank runs will take a new form**, much more dangerous: outflows from commercial banks to the Central Bank
- Risk of overall shrinking of the banking system size

**THE CRITICAL QUESTION IS:
THE AMOUNT OF D€ THE PUBLIC WILL DEMAND
IN SUBSTITUTION OF BANK DEPOSITS**

**THE COMPETITIVE STRENGTH AND CHALLENGE OF D€ ACCOUNTS MUST BE
CHECKED AND REGULATED**



*“Introduction of a digital euro would ensure that central bank money continues to play a key role, **side by side with commercial banks** money payments, in maintaining a well-functioning payment system and financial stability and ultimately trust in the euro currency (...)”*
(ECB 2023b, point 1.1).

THE ECB WILL IMPOSE TWO RESTRICTIONS

- D€ account balances **will not earn interest**
- **strict holding limits** will apply to all D€ accounts:
 1. A cap ranging from 1,000 to 3,000€ on personal account balances;
 2. A **zero cap** on accounts held by **non-personal entities**:
Corporations, businesses, public administrations will not be allowed to hold D€.

**THE UNLIMITED USE OF D€ AS A MEANS OF PAYMENT
WILL BE ALLOWED BY THE WATERFALL/REVERSE MECHANISM.**

THE WATERFALL MECHANISM

ANY D€ ACCOUNT WILL TRANSFER AND RECEIVE ANY D€ AMOUNT:

- any out-going payment **exceeding the lower limit** will be funded by an automatic and cost-free transfer from a **linked bank deposit (reverse-waterfall)**
- any in-coming payment exceeding the upper limit will be de-funded with an automatic and cost-free transfer to a linked bank deposit (**waterfall**)

BECAUSE OF THE WATERFALL ARRANGEMENT:

- The D€ will not be a store of value
- ...funding and de-funding of D€ accounts will continuously imply conversion of bank private money into D€, and vice versa

COMMENTS AND CRITICAL ISSUES

- The specialization of the D€ as a means of payment solves just half of the problem: the D€ account appears to be a tough competitor of bank sight deposits
- Banknotes and bank deposits will maintain full scope money functions as a means of payment and store of value
- Complex relationship between D€ account and bank sight deposit, competing and interconnected within the same bank:
 - ECB will remunerate banks for offering basic D€ services at no price
 - The private bank will be delegated by ECB to manage digital public money, while offering also its own digital private money



SOME KEY FIGURES TO FRAME THE REAL SITUATION

Assumption: 200 million of Euro Area citizens – out of a 350 million population - open a D€ account with an average balance of 1,500€ and maintain a digital wallet of 500€, for a global amount of 400 billion of issued D€

The money supply (M1 = monetary base + overnight deposits) would roughly be 10,560 billion

Monetary base: 400 billion D€ + 1,560 billion banknotes, totaling 1,960 billion

Overnight deposits at MFI (net of D€ issued) 8,600 billion overnight deposits at MFI

Non-cash Payment in the Euro Area (2023) amounted to **220,000 billion**

Then, the ECB would issue d€ for 20% of the monetary base, less than 4% of the money supply, and would confront non-cash payments 550 times greater

**CLEAR EVIDENCE THAT THE D€ WOULD HAVE, AT PRESENT,
A CLEAR PROBLEM OF SCALE**

THAT LEAVES A FEW UNANSWERED QUESTIONS



- Is there a way out of the scale problem?
- Which is the minimum scale of D€ stock and flows for a sustainable public payment circuit?
- This scale is compatible with banking system stability?
- Could the untested waterfall procedure enforce a praxis of 1:1 convertibility of bank private money in D€, guaranteeing the former?
- How could the D€ issuance innovate bank crises, bank runs and their management?

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