



# Transformation of money: a multi-facet phenomenon

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March 5<sup>th</sup> 2024

# Agenda

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1

CBDC Retail

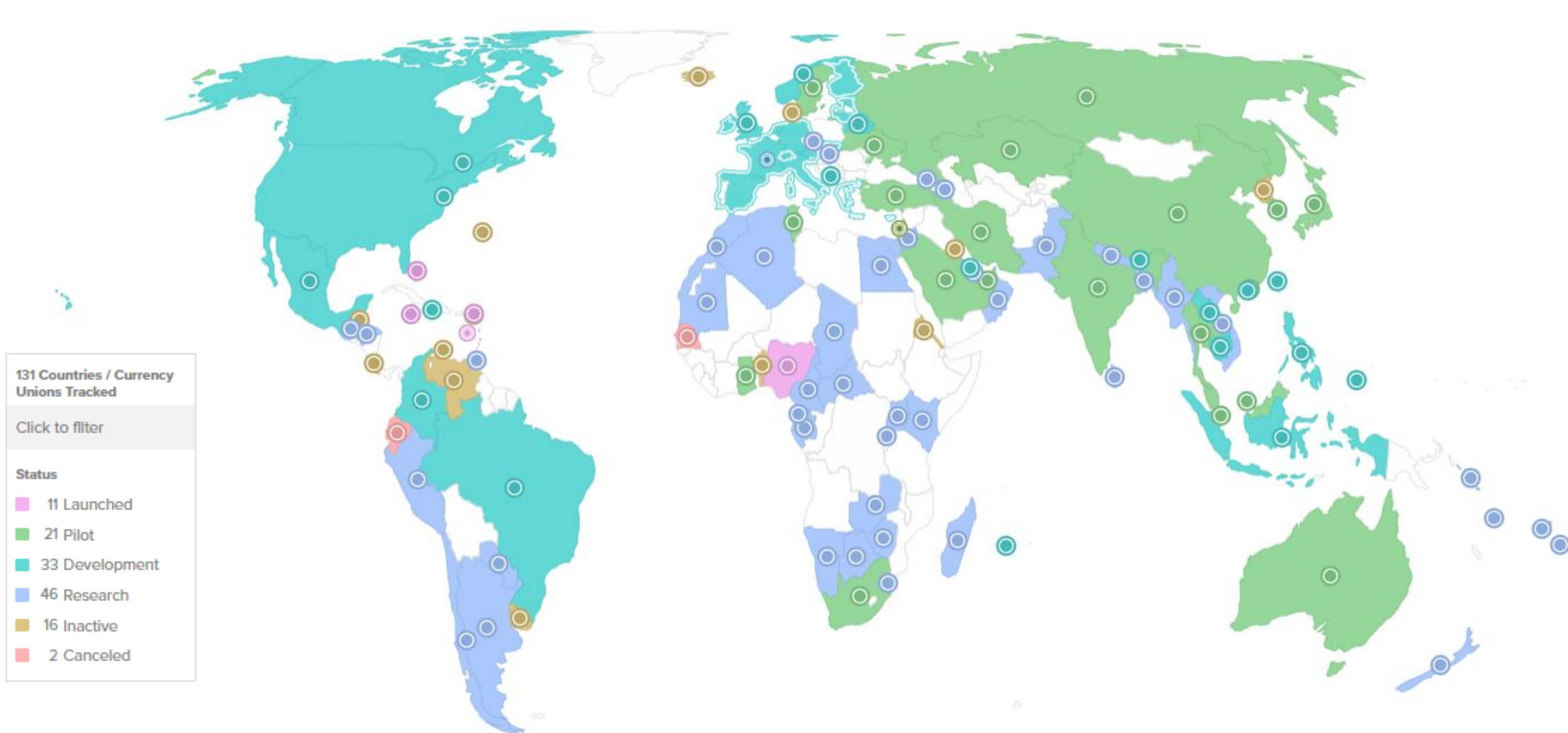
2

CBDC Wholesale

3

Crypto-assets

# CBDCs world map



# Libra...

On 18 June 2019, the members of the Libra Association, registered in Geneva, announced the initiative of the Libra currency, a stable cryptocurrency (so-called stablecoin) that was supposed to enter circulation in the second half of 2020.



In practice, Libra is not just a new cryptocurrency, but a real blockchain platform, with the possibility of developing smart contracts and with the stated goal of providing financial services to **1.7 billion citizens**.

## BLOCKCHAIN



The Libra blockchain will be (at least in a first phase) permissioned. Each of the members of the Libra Association will hold an identified validator node, but the white paper also mentions the future **goal of converging to a permissionless network**. At least for the launch phase, unlike permissionless platforms such as Bitcoin and Ethereum in which anyone can participate in the validation process, in Libra the validators will be dozens of large international companies.

## RESERVE



Libra was designed with the objective of having low volatility: a stablecoin pegged to the **'Libra Reserve'** consisting of a basket of deposits denominated in currencies of different central banks and short-term government bonds will be held in the Reserve for each Libra issued. The return on the securities stored in the 'Libra Reserve' will serve to cover operating costs and possibly remunerate members for their activities.

## LIBRA ASSOCIATION

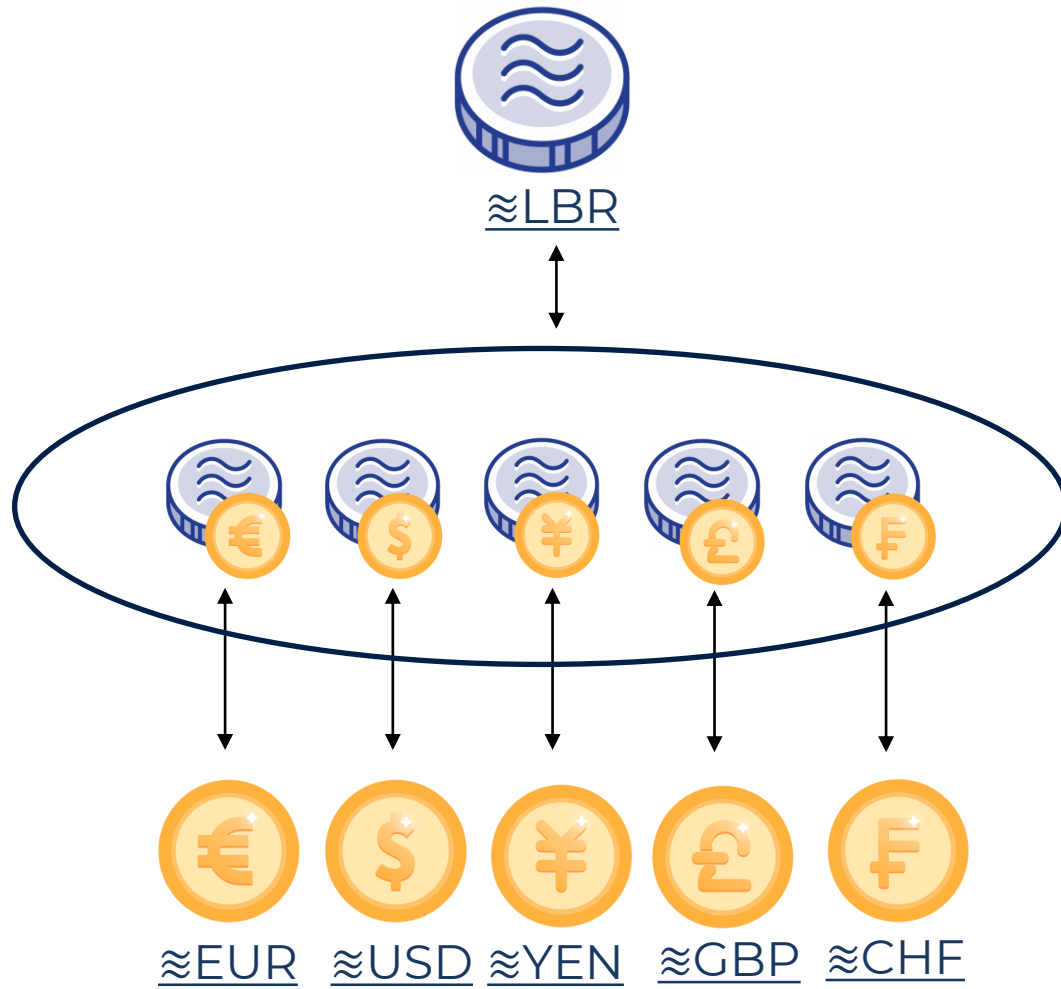


Libra Association is an independent non-profit organisation based in Geneva. The purpose of the association is to coordinate and provide a framework for network and reserve governance.

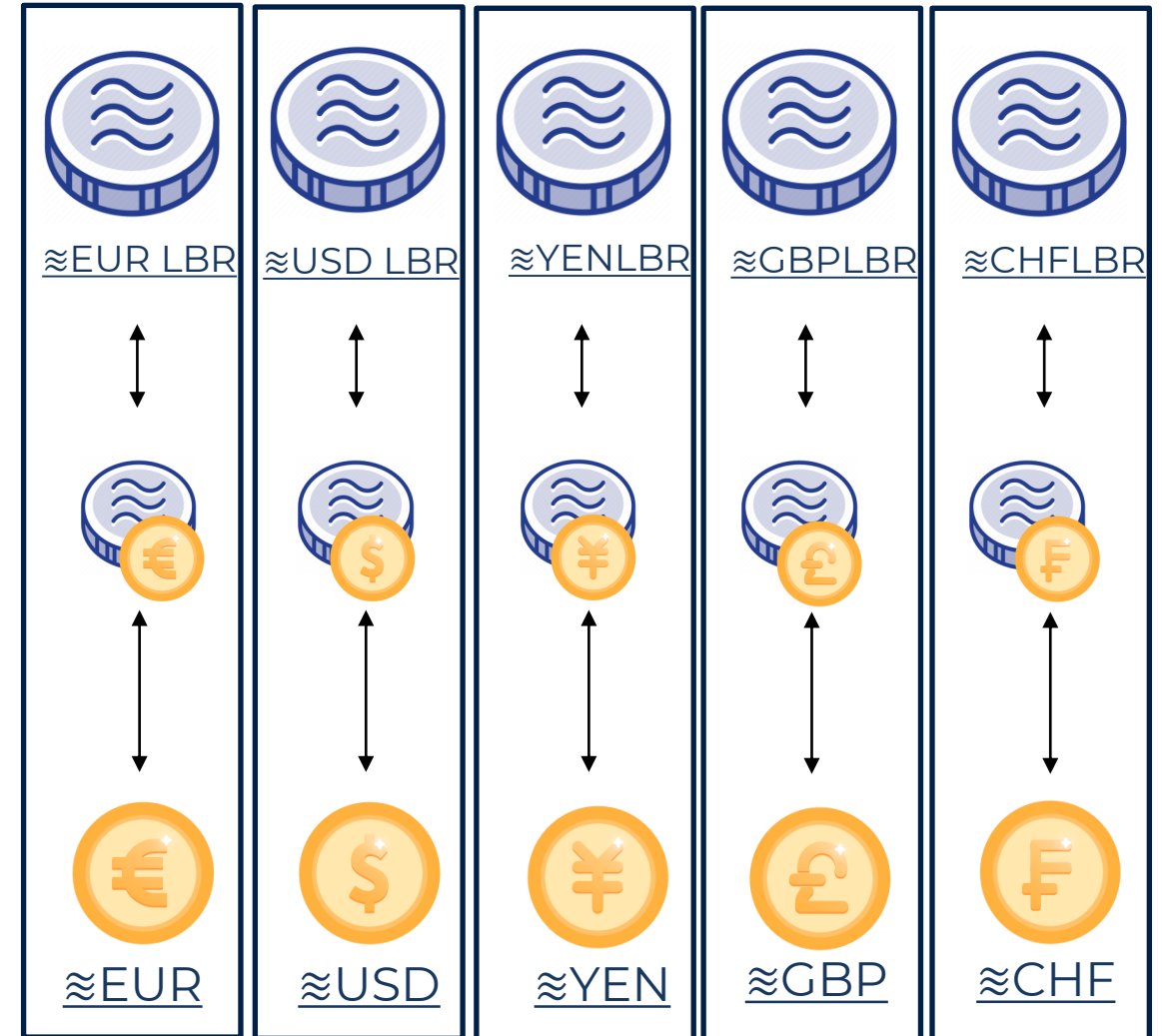
The Libra Association is also the entity through which the Reserve is managed and is the only entity that can create (issue) and destroy money.

## ...(Libra architecture)...

### LIBRA COIN



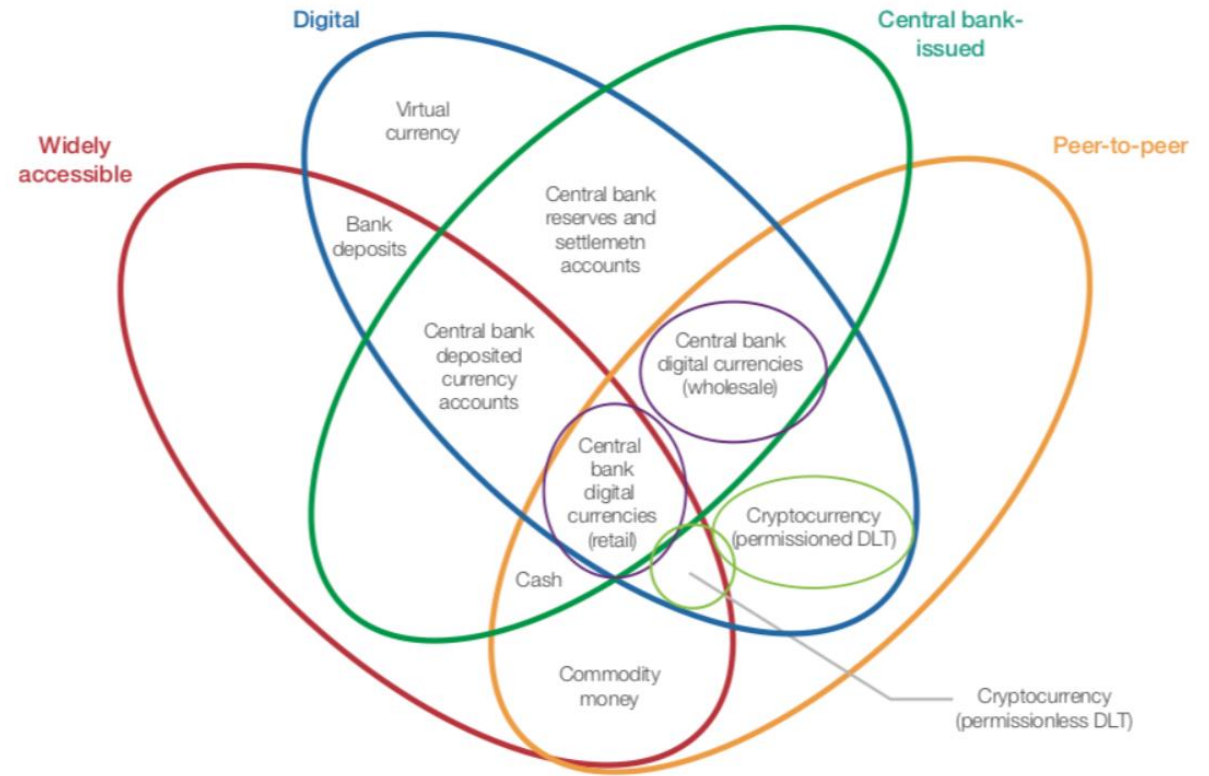
### Stablecoins pegged to official currency



# ... a wake up call for central banks

## Central bank biggest fears:

- Losing monetary anchor
- Losing monetary policy intervention
- Citizens paying with foreign/ private currency





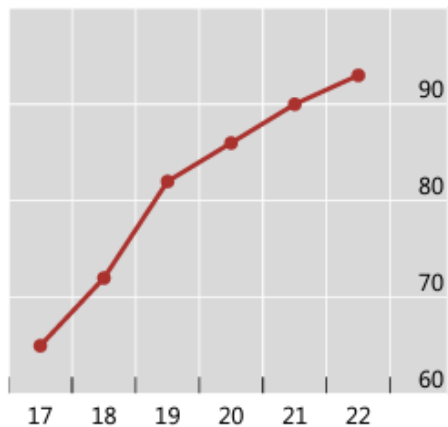
In July 2023, the BIS published the results of the CBDC survey, updating the data from the previous survey in May 2022. **Responding central bank jurisdictions account for 82% of the world's population and 94% of global economic output.**

## Central bank involvement in CBDC work advances further

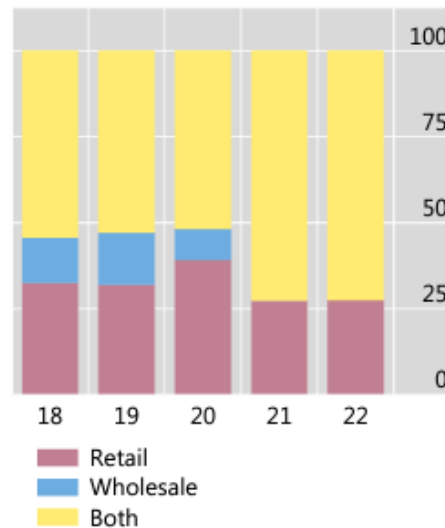
As a percentage of respondents

Graph 2

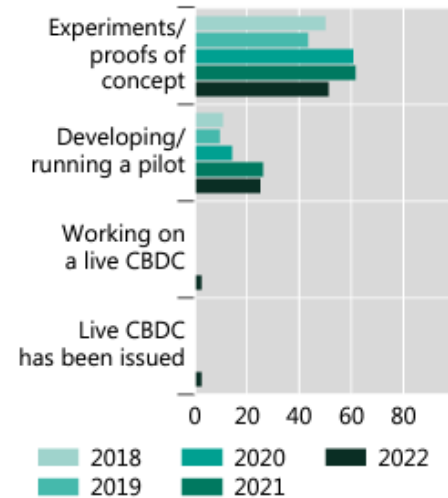
A. Engagement in CBDC work



B. Focus of work<sup>1</sup>



C. Type of work in addition to research<sup>1</sup>



<sup>1</sup> Share of respondents conducting work on CBDCs.

Sources: BIS central bank surveys on CBDCs and crypto, 2017–22.

## What emerge from the study:

1

In 2022, the share of central banks engaged in some form of CBDC activity rose to 93% (first graph on the left). In 2021, the share was 90%.

2

As in 2021, central banks focus only on retail CBDC or are involved in both retail and wholesale CBDC. No central bank experiences wholesale CBDC without the retail component (centre chart).

3

More than half of the central banks are conducting concrete experiments or are working on a CBDC pilot project (graph on the right).

# CBDCs issued and currently active

	Sand Dollar	DCash	eNaira	JAM-DEX
Central Bank	Central Bank of the Bahamas	Eastern Caribbean Central Bank	Central Bank of Nigeria	Bank of Jamaica
Issuance date	October 2020	March 2021	October 2021	July 2022
Use case	Retail	Retail	Retail	Retail
Architecture	Intermediate	Intermediate	Intermediate	Intermediate
Infrastructure	Hybrid	DLT	DLT	Traditional
Main reasons	<ul style="list-style-type: none"> <li>• Financial inclusion</li> <li>• AML/CFT measures enhancement</li> </ul>	<ul style="list-style-type: none"> <li>• Financial inclusion</li> <li>• AML/CFT measures enhancement</li> <li>• Facilitating banking activities in remote territories</li> </ul>	<ul style="list-style-type: none"> <li>• Financial inclusion</li> <li>• Facilitating remittances</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce cash storage and its handling costs</li> </ul>
Note	/	<ul style="list-style-type: none"> <li>• Active in 8 countries</li> <li>• Between January and March 2022, the system was switched off, due to technical problems</li> </ul>	<ul style="list-style-type: none"> <li>• Depending on the identity level provided, the transaction limit varies</li> </ul>	/
	<a href="#">Link</a>	<a href="#">Link</a>	<a href="#">Link</a>	<a href="#">Link</a>

Currently, none of these projects are attracting the interest hoped for by the relevant central banks, which are working to restructure the platforms or at least reposition them to increase the rate of use by citizens.



# Digital euro: what is and which benefits can bring

*Digital euro would be a central bank liability made available in digital form for use in retail payments*

**Possible advantages in a range of scenarios, particularly:**



Declining use of **cash** as a means of payment



**Sovereignty** concerns related to foreign CBDCs or private means of payment



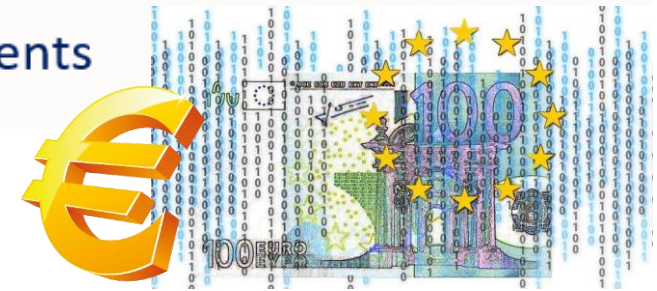
Supporting **digitalisation** in the European economy



**Bottom line:** To maintain public access and full **usability** of central bank money in a world in

which consumers and firms turn more and more to electronic payments

Fonte: [www.ecb.europa.eu](http://www.ecb.europa.eu)



# Investigation phase and preparation phase



The ECB conducted the **investigation phase** of the digital euro project **between October 2021 and October 2023**, with the aim of deepening and addressing the central aspects regarding the design and the associated deployment model.



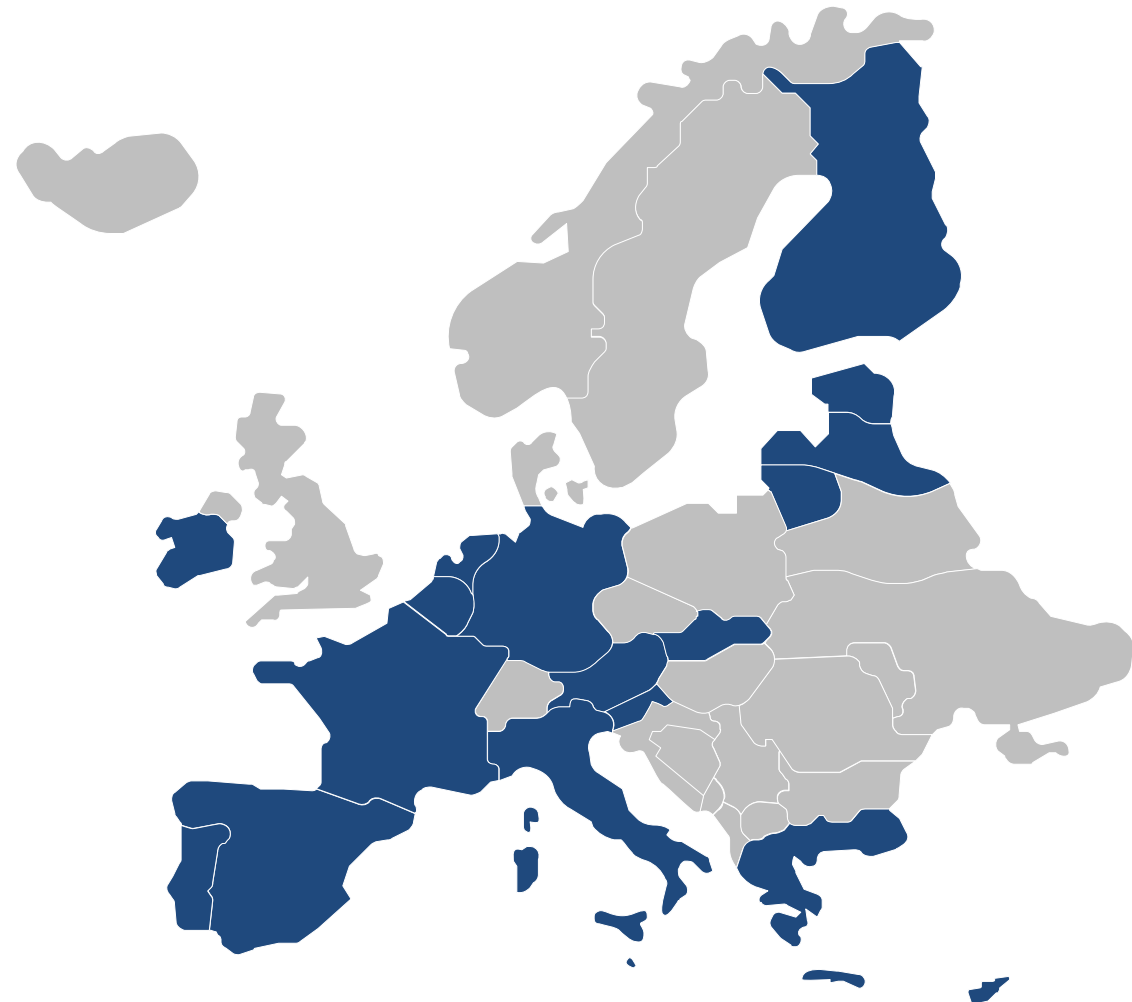
The investigation phase **benefited from the experimental work done by the ECB and national central banks** in the euro zone, which involved participants from academia and the private sector.



The **ECB established the MAG, ERPB and RDG**, which brought the views of users and distributors of the digital Euro during the investigation phase of the project.



**On October 18, 2023**, the Governing Council of the ECB announced the start of the **preparation phase**, with the aim of realizing the environment within which the digital euro could be issued, including through the development of the **Rulebook** and the selection of providers for the development of the platform and infrastructure.



# Possible impacts of issuing a CBDC

## Impact on monetary policy

- Control of monetary variables
- Holding outside the euro area

## Impact on bank deposits and credit

- Banking disintermediation
- Mechanisms to prevent excessive use of digital Euro as a store of value

## Payments

- Coherence with cash
- Consistency with electronic instruments already offered in the market

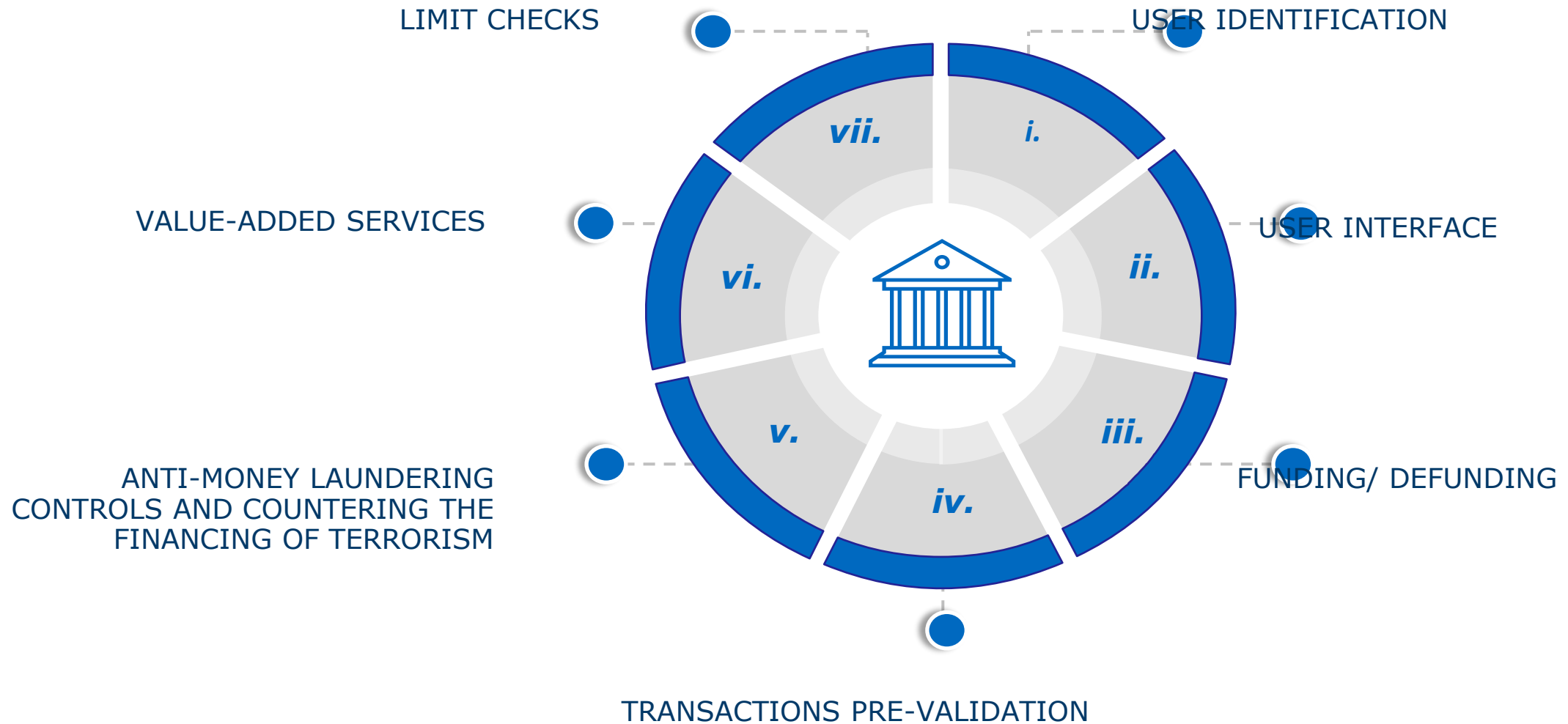
## Financial stability

- Avoiding the spread of CBDCs and private stablecoins issued by other countries

## Role division between Eurosystem and private sector



# Potential roles for banks



# Where do we stand?



- ★★★★ 1. The digital (retail) euro will happen.
- ★★★★ 2. The digital euro will be legal tender.
- ★★★★ 3. It will be distributed by banks.
- ★★★★ 4. Basic services will be free for citizens.
- ★★★ 5. The digital euro will be remunerated at an interest rate.
- ★★★★ 6. There will be a maximum holding limit (to counterbalance the risk of not disintermediation of banks).
- ★★★★ 7. It will also be available offline.
- ★★★☆☆ 8. It will comply with the current AML regulation.
- ★★★☆☆ 9. It will be DLT-based.
- ?? 10. It will be a vehicle for innovation.

Note: stars indicate the probability of occurrence (in yellow) or not occurrence (in red)



# Critical, but constructive: ABI's Position paper



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*Italian banks believe that the **digital euro** could become a cornerstone of the European digital economy, especially if it enables supervised intermediaries to develop innovative value-added services, allowing them to meet currently unmet needs or simplify existing processes.*

*In this way, it will be possible to: i) offer a basic service free of charge to consumers that is easily accessible; ii) provide advanced services alongside it, which can enable interested parties to carry out truly innovative payment processes; iii) fully implement a two-tier model, where a core set of components managed by the central bank acts as a catalyst for market development as a whole, enabling commercial banks to offer basic and value-added services competitively and independently from non-European players.*



# ABI key principles

Shared principles that constitute the position of the Italian banking industry in response to the ECB consultation on the Digital Euro:



01

**the importance of safeguarding the intermediation role of banks for the economic system;**

02

**the need for the D€ to be functionally different from an electronic payment instrument** in order to complement and not compete with commercial bank money, bank initiatives and investments (especially in the field of payment services);

03

the preference for the use of Distributed Ledger Technology - DLT to exploit the great potential of this new technology and provide functionalities based on distributed technologies: a **D€** built on DLT, thanks to its **programmability**, could balance, on one hand, the full control and governance of issuance by the ECB/Eurosystem and, on the other, allow banks to provide and offer new services, or services already offered in a much more efficient way.

# The role of commercial banks – developing use cases



## SAFE RETURN

The process of returning a purchase made through an e-commerce. Thanks to the implementation in a distributed ledger of instructions that are binding and executable only on the occurrence of predetermined conditions (so-called Smart contract), it is possible to make the process of returning purchased goods more reliable and consumer-friendly. At the time of delivery of the returned goods by the client, the sum of money can be blocked and kept in an escrow account, which only releases it after confirmation or rejection of the return.

Execution of payments for products on consignment. The case provides for the transparent management of the execution of payments for products on consignment in the so-called short supply chains, using the functionality of "split transaction" (atomic and instantaneous transactions). At the time of purchase, a single transaction is divided so that payment is directed to the seller of the product and to the various producers making up the supply chain.

## PAY & SPLIT



## CULTURE PASS

Culture Pass is related to the bonuses provided by the Government to support some kind of expenses: the development of this case will lead to the creation of specific smart contracts linked to the Digital Euro, which will allow to encode the logic and purpose of expendability of these tokens, making it possible to use the bonus only in compliance with the terms and conditions indicated by the issuing entity. In addition, a simplified prototype linked to the management of sums to minors (pocket money) will be developed, in order to limit the usability only to the categories of purchases allowed by law.

Performance of multiple payments expected at the time of purchasing a property through the granting of a mortgage. The execution of payments (to the seller, to the agency, to the notary, to the seller's bank to pay off a previous mortgage, etc.) through the enabled functionality of making a single transaction divided into multiple payments will simplify and automate the management of transactions towards the various actors involved in the process of buying and selling a property.

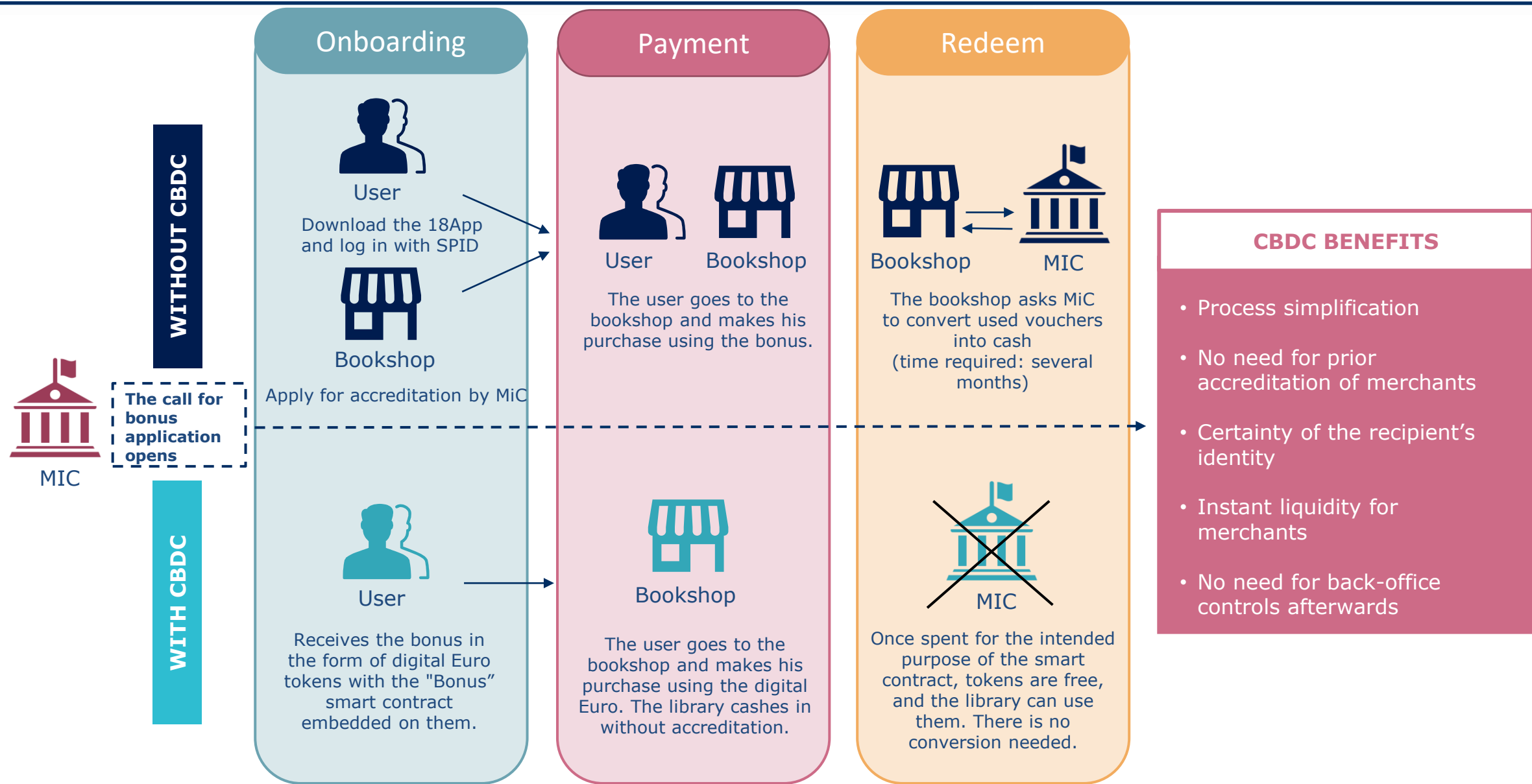
## SIMPLY HOME



## PROGRAMMABILITY

The value of using the Digital Euro in the cases presented is focused on the transfer of value that was not previously possible through the programmability of payments.

# A first example – culture pass



# Digital euro in the Metaverse innovative service

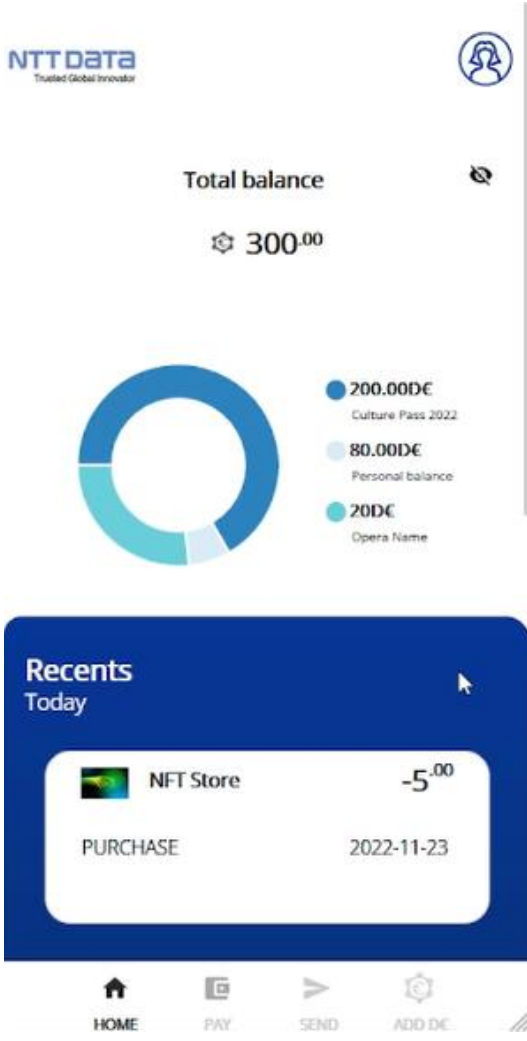
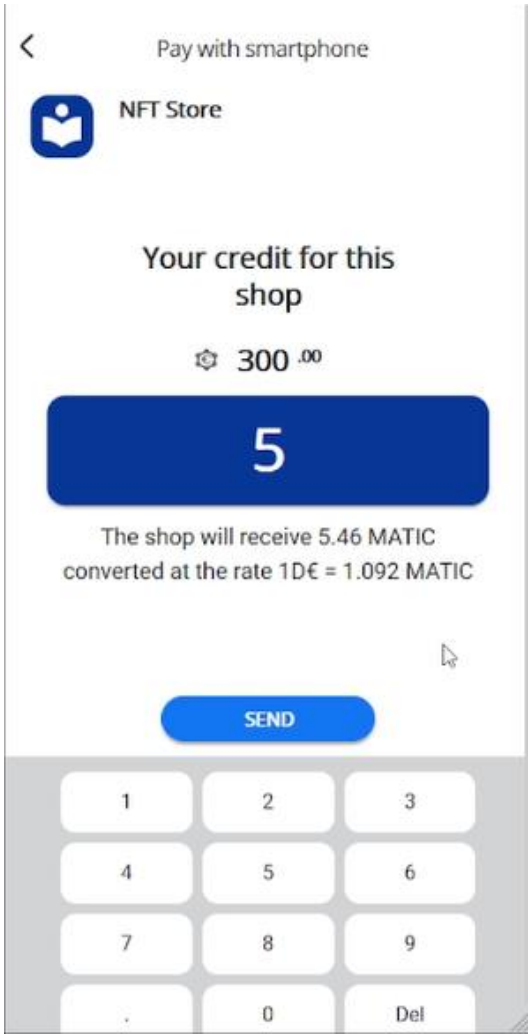
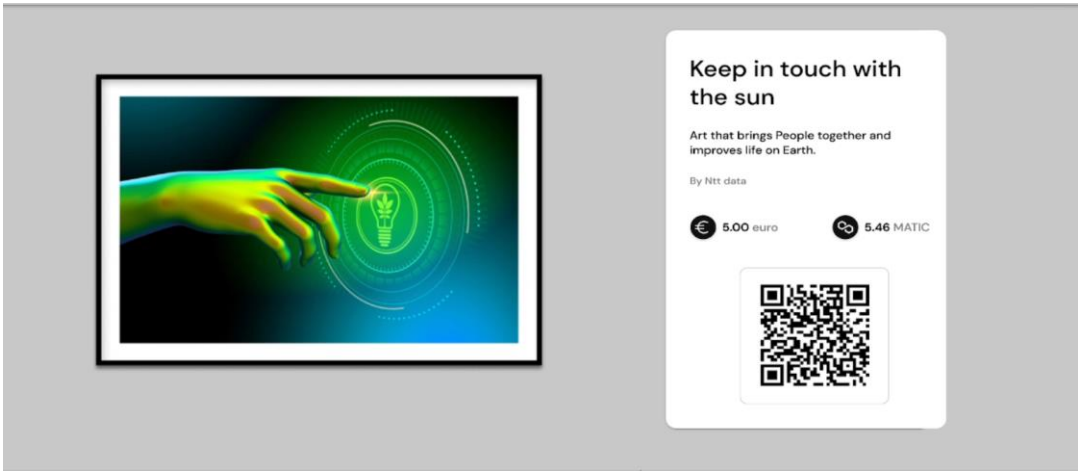
With a view to continuing to contribute to the definition of a suitable tool for the future, in collaboration with NTT DATA and taking advantage of what had already been achieved during the experimentation path on the digital Euro, a new use case was built focusing on the **purchase of products and services in the metaverse**.

Specifically, a space in the metaverse and a set of non-fungible tokens was developed for the use of a digital **Euro-denominated wallet for the purchase of a NFT (Non-Fungible Token)**. The bank can offer a service to protect the customer, in this case the young and very young, by avoiding direct exposure to crypto-assets; the customer, in fact, could only hold central bank digital currency, while the bank offers the online conversion and purchase service.

To help better understand the context, the main examples of companies (banking and non-banking) that have already invested in one or more virtual worlds, offering various types of experiences to the users of such platforms, were also shown.



# Digital euro in the Metaverse innovative service





# Agenda

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1 CBDC Retail

2 CBDC Wholesale

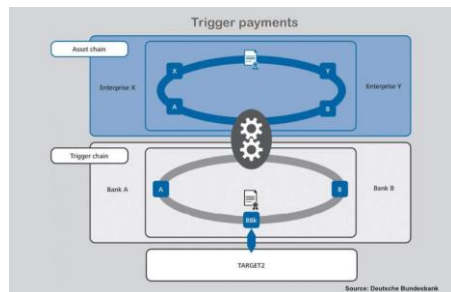
3 Crypto-assets



# Eurosystem work on wCBDC – Interoperability solutions

As a part of the activities carried out by the Eurosystem regarding **wCBDC**, three main possible interoperability solutions have been identified, studied and designed by three different National Central Banks.

## Trigger Solution

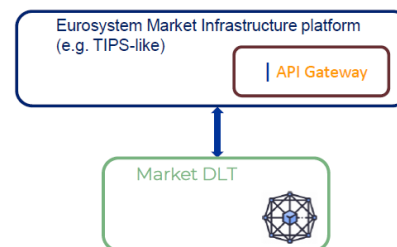


**Asset leg:** smart contract on a market DLT locks asset/payment and triggers the payment transaction via the Trigger Chain (Eurosystem DLT platform acting as “technical bridge”)

**Cash leg:** settlement of the payment occurs in the current TARGET Services (i.e. RTGS component of T2)

**DvP/PvP:** confirmation of payment in CeBM in the TARGET Services is forwarded to the market DLT (via the Trigger Chain) for the delivery of the asset/payment on the market DLT

## TIPS Hash-Link

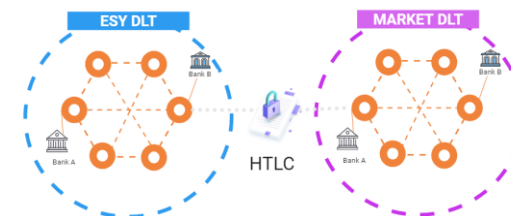


**Asset leg:** smart contract on a market DLT locks asset/payment and forwards payment transaction via an API and an interoperability mechanism (hash link)

**Cash leg:** settlement of the payment takes place via TIPS-like platform (which could become part of the central bank-run infrastructure and services in the future)

**DvP/PvP:** confirmation of payment in CeBM in the TARGET Services results in the delivery of the asset/payment on the market DLT

## Full DLT



**Asset leg:** smart contract on a market DLT locks asset/payment and forwards payment transaction to the DL3S DLT (Eurosystem DLT platform for CeBM settlement) via an interoperability mechanism

**Cash leg:** settlement of the cash leg occurs in the DL3S DLT (which could become part of the central bank-run infrastructure and services in the future)

**DvP/PvP:** interoperability mechanism is responsible for finalising the delivery of cash leg (in form of cash token) on the DL3S DLT, which releases the asset/payment on the market DLT

# Eurosystem exploratory work

Within the Eurosystem's work on **wCBDC** (wholesale Central Bank Digital Currency), a **public call for interest** has been initiated for the participation in the **exploratory phase**, which involves a series of experimentation activities. Below are the key details:



- **Participation Modes:** It's possible to participate in two ways: "trials" (with actual central bank digital currency regulations) or "experiments" (using simulated regulations).
- **Participation Waves:** There are two waves: one from May (the application deadline was set for January 31st) and another from July, both to November 2024.
- **Interoperability Solutions:** Participants can conduct experimentation activities using one or more interoperability solutions provided by National Central Banks.
- **Focus Areas:** The experimentation is primarily focused on Delivery vs Payment (DvP) cases, but Payment vs Payment (PvP) cases will also be considered on a case-by-case basis.

## Expected deliverables



**Compare the 3 Interoperability-type solutions** from a business, operational and technical perspective  
➤ relying on the **experience and input** provided by **market participants** during trials and experiments



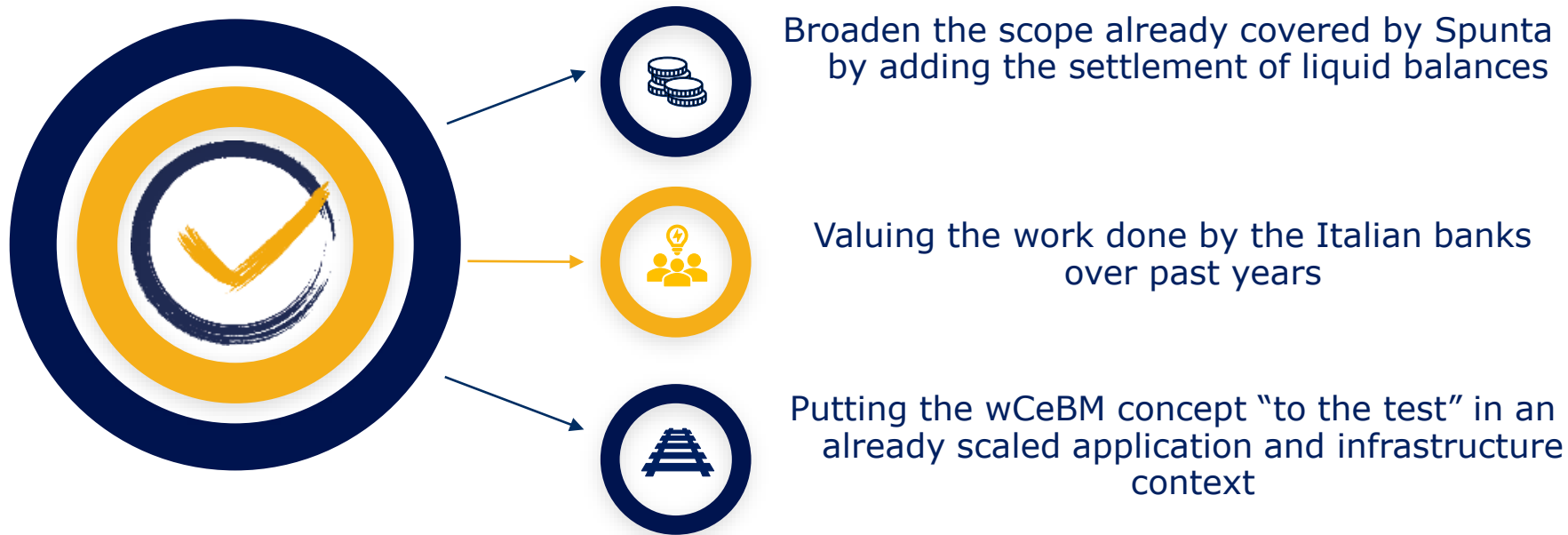
**Understand concretely the added value of new technologies to wholesale settlement and capital markets:** potential expected gains (if any) compared to existing infrastructures (e.g. efficiency, competition, market access) and potential negative implications (e.g. fragmentation)  
➤ based on the **business cases** put forward by **market participants** in trials and experiments.



**Learning strategy** and **detailed learning objectives** to achieve this

# LEONIDAS in a nutshell

ABI Lab launched the Leonidas project in 2023, in collaboration with ABI, NTT, R3 and a group consisting of 17 banks. The initiative was selected as part of the second Call for Proposals - focused on the use of DLT for banking and financial services - of "Milano Hub", the innovation center created by the Bank of Italy to support the digital evolution of the financial market.



## LEONIDAS

Liquidation  
Effective  
ONchain  
Dlt  
Asset on  
Spunta



# Agenda

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1 CBDC Retail

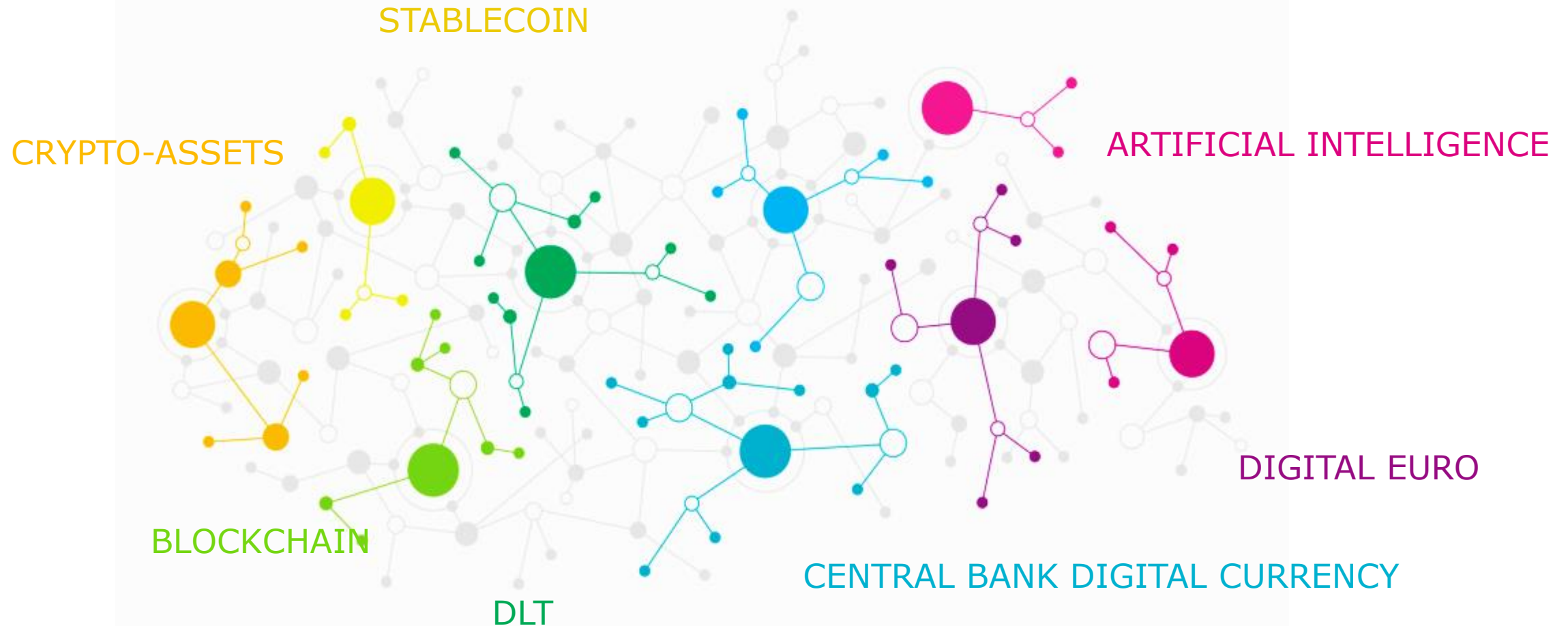
2 CBDC Wholesale

3 Crypto-assets

# Misleading use of terms



*A misuse of terms does not help to provide clarity, whereas working on definitions is a methodologically prerequisite.*



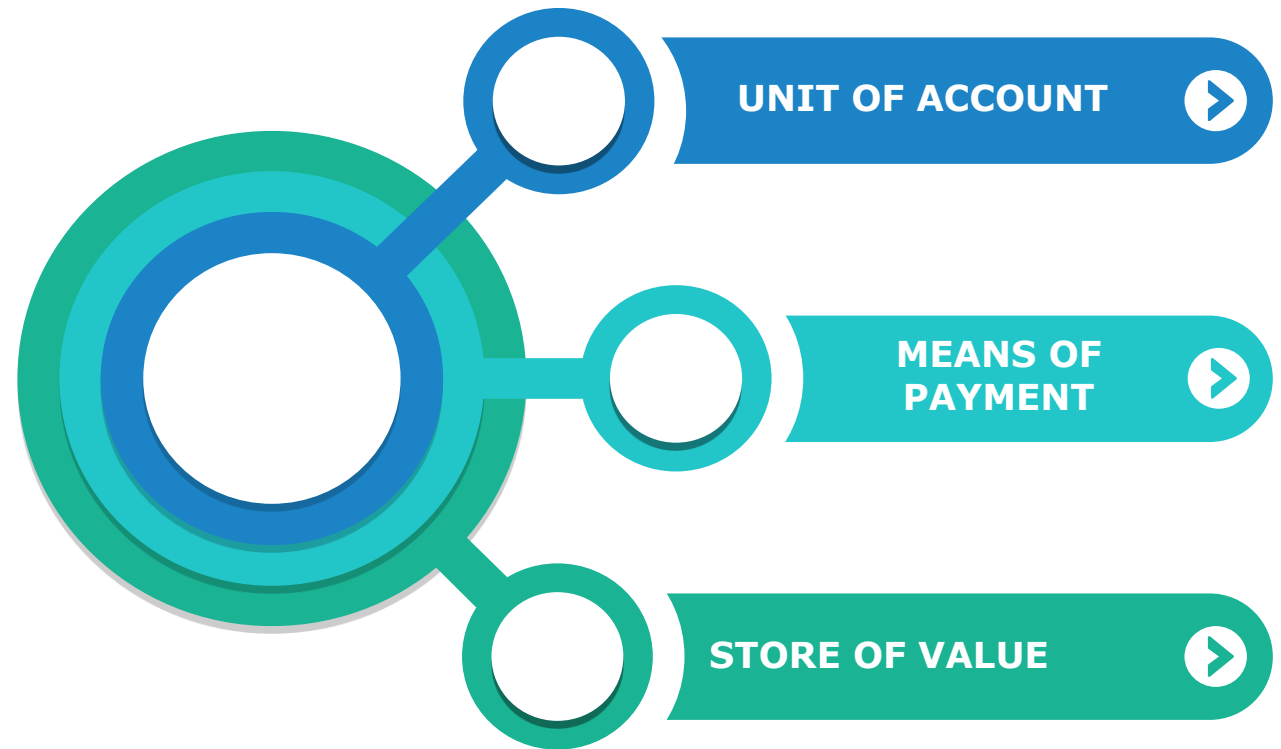
# Misleading use of terms – an example

## «CRIPTO-CURRENCY»

*A term derived from the English word 'cryptocurrency', born from the union of 'cryptography' and 'currency'.*

*This term would therefore seem to suggest a certain similarity with 'currency', although this association is incorrect and misleading.*

## MONEY FUNCTIONS







# Markets in crypto-asset Regulation (MiCAR)

# MiCAR

First European legislation to introduce a definition of crypto-assets and to establish uniform rules for three categories of crypto-assets

**CRYPTO-ASSET** = *means a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology.*



## e-money token

means a type of crypto-asset that purports to maintain a stable value by referencing the value of one official currency

## asset-referenced token

means a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies.

## «Other than»

A category that includes all other crypto assets that are not asset-referenced tokens or e-money tokens.



**Central Bank  
Digital Currency**

**Security Token**

# MiCAR fact sheet

**Asset-referenced token:** means a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies

**e-money token:** means a type of crypto-asset that purports to maintain a stable value by referencing the value of one official currency

Beyond the general definition of crypto-assets, MiCAR distinguishes three sub-categories of crypto-assets

**«Other than» token:** a residual category that includes all other crypto-assets that are not asset-referenced tokens or e-money tokens.

**SCOPE**  
It regulates issuers of crypto-assets by requiring them to comply with general provisions including whitepaper publication obligations, capital and governance requirements, and specific ones depending on the category to which the issuance refers (e.g. specific rules for asset-referenced tokens regarding assets held in reserve).

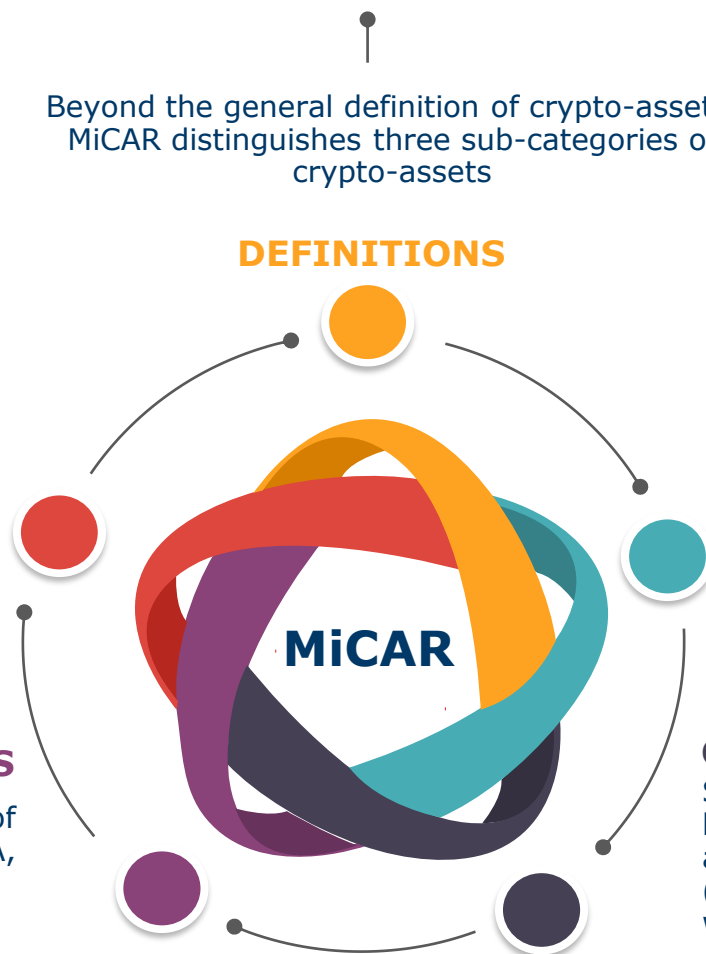
**AUTHORITIES**  
Clear definition of the supervisory powers of the competent authorities, those of ESMA, EBA and the cooperation between them.

## SIGNIFICANT CRYPTO-ASSETS

Asset-referenced tokens and e-money tokens may be considered systemically important and, given their nature and the associated risks specific to their widespread use, stricter requirements are imposed on their issuers. Crypto-asset service providers may also be considered systemically important.

## CASP

Services involving crypto-assets must only be provided by a legal entity that has a registered office in a Member State and has been authorised as a crypto-asset service provided (CASP) by the competent authority of the Member State where its registered office is located.



# MiCAR aka Frankenstein

MiCAR draws inspiration from MiFID suggesting a crypto-assets closeness with financial instruments

MiCAR introduces rules to regulate also stablecoin (e-money token and EMD2) which are primarily payment instruments

ESMA's and EBA's approach recalls the supervisory discipline applicable to banks and to other regulated entities, belonging either to payments or to securities

MiCAR takes inspiration from Prospectus Regulation (white-paper discipline) and from Market Abuse Regulation

