High Level Product Description

8th ERPB technical session on digital euro

12 May 2023
What is the digital euro?

The digital euro is central bank money for digital retail payments by citizens, businesses and governments in the entire euro area.
A digital euro is a complement to cash and always a liability of the central bank

<table>
<thead>
<tr>
<th>Liability of central bank</th>
<th>Liability of a private entity</th>
<th>Not a liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. <strong>Cash</strong>: physical form, to general public</td>
<td>i. Commercial bank money</td>
<td>i. Crypto-assets</td>
</tr>
<tr>
<td>ii. <strong>Central bank deposits</strong>: digital form, limited access</td>
<td>ii. E-money</td>
<td></td>
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<tr>
<td>iii. <strong>CBDC/Digital Euro</strong>: Complement to cash and Central Bank deposits</td>
<td>iii. Some ‘stablecoins’ that entail a claim/liability on an identifiable entity</td>
<td></td>
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</tbody>
</table>

A digital euro is a complement to cash and always a liability of the central bank.
Why would we need a digital euro?

A payment option allowing everyone to pay digitally everywhere in the euro area.

The evolution of cash in the digital age. Maintaining the role of central bank money as a monetary anchor for the financial system.

A European platform for innovation, allowing intermediaries to build services for their customers that are instantly available across Europe.

Increasing resilience and economic efficiency of European payments and contributing to (open) strategic autonomy.
The digital euro benefits many

Citizens

Merchants

Intermediaries
Zooming in on design decisions that shape a digital euro
User experience for individuals and businesses
A digital euro should be widely available and usable across the euro area

**Availability** for everyone

“It should be simple for people to start using the digital euro, and there should be no need to change bank in order to do so”

**Usability** everywhere for everyday payments

“Legislators assigned the legal tender status to euro banknotes. The digital euro could also be given legal tender status”

**Key objectives**

- Monetary anchor
- (Open) strategic autonomy
A digital euro would complement cash and uphold freedom of choice

The digital euro would **complement** cash, **serve different needs**, and bring **most-liked features of cash** to the digital age:

### Institutional features:
- Central bank liability serving as monetary anchor
- Ability to pay anywhere & broad availability (subject to legislation)

### Instrument features:
- Immediately settled
- Seeks high level of privacy allowed by legislation
- Offline digital euro with bearer instrument features
- Make aware of own spending with digital version of wallet
The digital euro could be used in every day (digital) life

**Person-to-person**
A payment between two people

**PoS**
A payment for goods or services purchased in a **physical store** (point-of-sale payment)

**E-commerce**
A payment for goods or services purchased **online via e-commerce**

**Government payments**
Payments to the government (X2G, e.g., taxes) and by the government (G2X, e.g., allowances and subsidies)

* Including online and offline functionality
A digital euro could first be used by euro area residents and businesses

<table>
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<tr>
<th>Access (First releases)</th>
<th>Individuals</th>
<th>Businesses</th>
<th>Governments</th>
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<tbody>
<tr>
<td>• Euro area residents</td>
<td>• Euro area businesses</td>
<td>• Euro area governments</td>
<td></td>
</tr>
<tr>
<td>• Non-resident euro area citizens via euro area PSP</td>
<td>• Non-Euro area businesses via Euro area PSP</td>
<td></td>
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<table>
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<th>Holdings (Euro area)</th>
<th>Individuals</th>
<th>Businesses</th>
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<tbody>
<tr>
<td>• Euro area residents &amp; citizens same holding limit (decided close to launch)</td>
<td>• Zero daily holding limit</td>
<td>• Zero daily holding limit</td>
<td></td>
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</table>

Digital euro will first be available throughout euro area. Availability in other countries (outside euro area) may be possible in subsequent releases and would always be subject to agreement by the authorities of that country. Accessibility rules will be set out in the legislative framework for a digital euro.
The digital euro may work **online and offline**

The two modalities of digital euro, **online and offline**, complement each other, enabling the broadest range of features and use cases

- Remote and proximity payments using central bank money
- Multiple funding possibilities enabled. No need to prefund.
- Third party validation by a PSP
- Privacy protection comparable to that of existing digital payment means

All use cases covered
The digital euro may work online and offline

The two modalities of digital euro, **online and offline**, complement each other, **enabling the broadest range of features and use cases**

- Proximity, low value, P2P and POS payments using central bank money
- Holdings are stored in secure device and require prefunding
- No third party validating the transaction
- Higher privacy level, subject to appropriate legislation
- No connectivity required for payments; Connectivity required for funding
- Could increase resilience, if substantially used in normal times
- Risk of losing money if secure device is lost/stolen

**Offline**

Closer to cash
A digital euro would support different use cases through a wide range of devices and technologies.

**Use cases**

- **Connectivity**
- **Consumer device**
- **Consumer interface**

**Data exchange technology**

**Use cases**

- **Consumer device**
- **Consumer interface**

**Data exchange technology**

**Note:** Likely different time-to-market

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*Allows for payment request/pay-by-link. Since the usefulness of alias/proxy functionality depends on user adoption of this feature, ways to ensure sufficient adoption are being investigated.*
Visualising digital euro end user experience
What does the end user experience look like?

<table>
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<tr>
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<th>How?</th>
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- **What?**
- **How?**
- **Where?**
(De-)funding with (reverse) waterfall would offer payment convenience

- **Manual funding and defunding** options (in both the **online and offline solution**) and **automated funding and defunding** options (including waterfall and reverse waterfall functionalities for the **online solution**)

- Event-driven functionalities should be activated upon the **end users’ choice**

- Funding and defunding functionalities should be available on a **24/7/365 basis** and take place **instantly**

- Funding should be possible from accounts held at **PSP other than the digital euro servicing PSP**

- **The (reverse) waterfall** can make the digital euro a convenient payment instrument mitigating the user experience impact of holding limits
Stand-alone app or integration into intermediary wallets can deliver the end-user interface

Supervised intermediaries would integrate the digital euro into their end-user interfaces/wallets

- Each supervised intermediary could **upgrade their existing channels** (e.g. mobile banking applications, online banking, dedicated payment wallets) to offer digital euro services and functionalities for all use cases.

In addition, a ‘digital euro app’ would be provided to access the digital euro services of the supervised intermediaries

- A ‘digital euro app’ with a **homogeneous ‘look and feel’** where basic functionalities would be accessible but performed by supervised intermediaries.
- It would increase the choice for end-users and intermediaries (e.g. smaller ones) and contribute to ensuring **financial inclusion**.
Digital euro services can be obtained through payment service providers

I. Onboarding according to access rights
II. Simple as possible from an end-user perspective
III. On PSP side existing onboarding procedures should be re-used

A. User is known to the PSP → Re-use available data, nearly no data requirement
B. User is unknown to the PSP → Use existing default onboarding process

IV. One account/wallet per citizen

Imposing holding limits requires identification
How to implement (unique) personal identifier still needs to be investigated
Digital euro would allow easy portability to facilitate freedom of choice and increase resilience.

Easily porting the digital euro holdings from one PSP to another guarantees freedom of choice and increases resilience. Eurosystem and scheme will offer support and set common rules for market participants.

Standard portability procedure

Old PSP A

Digital euro account number remains the same

Pulls relevant data as AISP e.g. payment history

New PSP B

Old link

New link

Exceptional cases where the old PSP would not be accessible will be further analysed.
A digital euro would never be programmable money

**Conditionality of payments:** the ability to initiate a payment automatically when predefined conditions are met

**Programmable money ≠ conditionality of payments:**

- Central banks issue money, not vouchers (F. Panetta, 2023)

- Designing a digital euro as programmable money, intended as units of digital euro that can only be used for buying specific types of goods and/or services or only within a certain period/geography, **is not in line with the guiding principles of the digital euro** endorsed by the Governing Council.

- “A digital euro should […] be convertible at par with other forms of the euro, such as banknotes, central bank reserves and commercial bank deposits.” (Eurosystém, 2020)
Making digital euro available: a public-private collaboration
Supervised intermediaries will play a key role in the distribution of digital euro and making the digital euro as a public good accessible to citizens:

- Managing interaction with digital euro end users
- Funding and defunding of user’s digital euro holdings
- Initiating, processing and managing of digital euro transactions
- Potentially offering value added services to improve user experience
Services the Eurosystem will provide to support the digital euro experience

A supervised intermediary cannot deliver a rewarding user experience on an individual basis without **services supporting the safety, performance, and broad acceptance** of the digital euro.

<table>
<thead>
<tr>
<th>Settlement and funding enabler</th>
<th>Eurosystem responsible for recording liabilities. Multi-currency backend availability. Dedicated Cash Account for funding and to support intermediaries’ liquidity management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital euro application</td>
<td>End-users with option to use uniform entry point, on which their PSP would provide basic digital euro services</td>
</tr>
</tbody>
</table>
| Supporting services (e.g., alias lookup, dispute and fraud management)      | • Alias lookup to minimize use of data in settlement component. Not to be operated by Eurosystem  
• Dispute management to facilitate the swift resolution of disputes involving business transactions paid via digital euro, linking PSPs  
• On top of fraud prevention and detection done by intermediaries centralized fraud prevention and detection services to increase the effectiveness of fraud prevention and detection for digital euro |
A scheme approach will ensure pan-European reach and common payment experience

If a citizen is provided with a digital euro payment instrument by one intermediary in one country, they should be able to use this instrument without barriers to pay at any merchant in the euro area, independent of the intermediary and the country of the merchant.

The Eurosystem pursues a scheme approach to distribute digital euro:

- Digital euro scheme would define a set of common rules, standards and procedures which would ensure pan euro area reach.
- Promote a harmonised end-user payment experience.
- Provides the flexibility to respond to user preferences and habits.
- Allows for the most degrees of freedom for the market to distribute the digital euro and develop innovative front-end solutions.
Principles of the compensation model ensure fair and adequate incentivization for distribution

1. Free basic use by private individuals
2. Network effects generating economic incentives for acquirers and merchants
3. Comparable economic incentives for distributing PSPs
4. Eurosystem bears its own costs, as with production and issuance of banknotes
What a compensation model could look like subject to legislation

- **Consumer**: Can pay free-of-charge, pays for goods, has costs for providing the service, receives fee from Merchant Bank, does not pay fee to Eurosystem.
- **Merchant**: Pays a fee for the transaction, receives fee from merchant, pays fee to Consumer Bank, does not charge fees.
- **Consumer Bank**: Receives fee from Merchant Bank, pays fee to Consumer Bank, does not pay fee to Eurosystem.
- **Merchant Acquirer**: Does not pay fee to Eurosystem.
- **Scheme & Settlement (Eurosystem)**: Does not charge fees.
The compensation model would foster network effects necessary to achieve the key objectives.

- **4-party model**
  - Best performing compensation model in the market

- **Public good features**
  - Wide usability across euro area
  - Free basic use by private individuals
  - Eurosysteem bears its own costs
  - Potential safeguards (e.g. price caps)

- **Adoption incentives for end-users**
- **Adoption incentives for PSPs**

- **Network effects**
Individuals should be able to make basic use of digital euro for free

1 Free basic use by private individuals

Core services*

- **User management**: On-/Offboarding, payment instrument management, linking to commercial bank account, user lifecycle management processes
- **Liquidity management**: Funding, defunding, and (reverse) waterfall
- **Transaction management**: Transaction initiation, authentication, payment confirmation/rejection notification, refunds, dispute/exception/fraud management, recurring payments

*According to digital euro scheme
A digital euro would be designed to avoid causing financial instability.

People can convert as many deposits into cash as fits their storage-risk appetite. The digital euro seeks to maintain this healthy equilibrium between deposits and cash.

**Tools to limit holdings**
- Limits on individual holdings (with “waterfall” function as an option)

**Respecting deposit outflow limits**
- Intermediaries’ standard practices for limiting deposit outflows will remain unaffected to aid liquidity planning*

**Price-based tools**
- Tiered remuneration being reconsidered

**Parameterisation and activation**
- Preference for simplicity and effectiveness.
  - Parametrisation closer to digital euro issuance

*Transaction limits for specific payments in line with well-established fraud management measures are also considered.
Privacy is of outmost importance in a digital euro ecosystem

<table>
<thead>
<tr>
<th></th>
<th>Online</th>
<th>Offline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline privacy</strong></td>
<td>Intermediary sees transaction data, as with current digital payments</td>
<td>Even intermediary may not see transactions</td>
</tr>
<tr>
<td><strong>Role of co-legislators</strong></td>
<td>Co-legislators to explore higher privacy for lower-value payments</td>
<td>Subject to co-legislator exempting proximity payments from monitoring</td>
</tr>
<tr>
<td><strong>Settlement</strong></td>
<td>Eurosistem will settle without seeing holdings nor tracking payments to single user</td>
<td>Settlement in the devices of users while reconciling the least amount of anonymized data for security</td>
</tr>
</tbody>
</table>
Digital euro users would have control over the use of their data

User preference on data sharing may never jeopardize the usability of digital euro

| Minimize use of personal data needed | • Eurosystem will minimize any use of data to what is strictly necessary to perform essential tasks (e.g., settlement)  
| | • PSPs cannot use data for any purposes beyond of what is necessary to perform digital euro core services or required by regulation (such as AML/CFT), unless users consent |
| Informed decision | Digital euro users should be able to make an informed decision on whether they want to share further data with their PSP |
| Core services always available | If users decide not to opt-in, they should not bear any limitations in the availability and usability of digital euro core services |
Financial and digital inclusion
Digital financial inclusion has been a key consideration from the early onset

“It could increase choice, competition and accessibility with regard to digital payments, supporting financial inclusion”
Report on a digital euro, 2020

“These two aspects [accessibility and availability] are also [...] essential to ensure that the digital euro can support financial inclusion”
ECON speech by Fabio Panetta, 2023

“Everyone needs to make payments. [...] In a society which becomes increasingly digital, a digital form of cash will be needed.
BEUC and AGE consumer associations, 2023
Digital financial inclusion is a key principle of the digital euro

Financial inclusion in the context of a digital euro cannot be decoupled from digital inclusion

Financial inclusion means access to useful and affordable financial products and services

Digital financial inclusion refers to usage of digital financial services to advance financial inclusion

96% of adults in the EU have access to a payment account (euro area: 98.5%) but only about 60% actually use internet for banking services: usability is the key step
A digital euro would employ several tools to enhance (digital) financial inclusion

Form factors
- **app**: easy to use, attentive of needs of low tech savvy and elderly, compatible with European Accessibility Act, translation (at least) in all EU languages
- provision of: **physical digital euro payment card**

Onboarding and portability
- availability of both **fully remote and in person onboarding**
- **easy switching** from a supervised intermediary to another

Functionalities
- **basic services free of charge**
- **customizable account settings** for budgeting and automatic functions
- **simple (de)funding** (also with cash at ATMs), with no need for a smartphone
- **offline** functionality

Advocacy*
- **public approach**
- **legal tender**
- **simplified onboarding**
- support for a **harmonized minimum age** for opening a digital euro account
- targeted educational campaigns

*The Eurosystem can champion these causes in the relevant fora, but responsibility to take action would lie with co-legislators and Member States
The Eurosystem can only advocate for a public approach, which requires coordinated efforts

- dedicated onboarding channel via public or private dedicated licenced entity per member state providing access to digital euro services and the necessary supports to those vulnerable to digital financial exclusion
- availability of human interaction to guide users throughout all steps
- dedicated customer services
- distribution of a physical digital euro payment card
- (de)funding via cash ensured
- above services provided free of charge for eligible individuals
How early-stage feedback informed the holistic design review
Feedback and considerations 1/3

Feedback from participants mainly focused on several key areas:

- Financial stability & holding/transaction limits
- Compensation model, and free provision of basic services
- Privacy & data protection
- Offline availability
- Roll-out approach
- Financial inclusion
## Feedback and considerations 2/3

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Feedback</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Bank Icon]</td>
<td>Concern from credit institutions on financial stability related outflow of liquidity.</td>
<td>Included in the design tools to control the amount in circulation. Parametrization will only happen closer to issuance, allowing for more research in a next phase.</td>
</tr>
<tr>
<td>![Piggy Bank Icon]</td>
<td>Compensation model should ensure fair and adequate incentives for usage as well as distribution</td>
<td>Compensation model has taken this as for all stakeholders as starting point. Investment cost to be further explored on the basis of the design.</td>
</tr>
<tr>
<td>![Privacy Icon]</td>
<td>Privacy concerns, related to both visibility of personal data to the Eurosystem and end2end visibility, were raised</td>
<td>Ensuring high privacy for the digital euro has been a guiding principle in the design</td>
</tr>
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<tr>
<td>Offline usability</td>
<td>Offline usability may lead to issues in terms of compliance, security &amp; fraud, and could be used very seldomly.</td>
<td>Clarified technical features of offline usability, as well as its strategic role.</td>
</tr>
<tr>
<td>Roll-out strategy</td>
<td>The roll-out strategy may be too complex, both in terms of delivery as well as for end users to understand.</td>
<td>A staggered approach is suggested, reducing complexity and hence reducing delivery risk and allowing for gradual take up by end users</td>
</tr>
<tr>
<td>Financial inclusion</td>
<td>Financial inclusion should not only target the unbanked but address digital financial inclusion</td>
<td>In all design decisions financial inclusion is considered, advocating on top for adding a public approach for the digital financial excluded</td>
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We invite feedback on all aspects of the High Level Product Description. It will feed into the final documentation on which basis the Governing Council will assess the digital euro investigation phase.

The written consultation deadline is 16 June 2023.
Thank you
Annex: Digital euro fundamentals and Eurosystem role in settlement
Reverse waterfall will not add to the risk of liquidity outflow of a PSP

- Most PSPs currently have **restrictions on the outflow of customer deposits over time**, e.g., to better manage and predict liquidity needs.

- Funding a digital euro would fall under the same restrictions that PSPs currently apply; they cannot be stricter than restrictions for cash transfers.