EUROPEAN CENTRAL BANK

EUROSYSTEM

Form factor options and delivery approach for the digital euro consumer interface

Market Advisory Group

9 November 2022

Digital euro project team

Where do we stand?

Tentative - timing subject to change

July 2021
Governing Council decision to launch investigation phase

Project team on-boarding
Governance set-up

Use case prioritisation
Report on focus groups with citizens and merchants

On-line/off-line availability
Data privacy level
Transfer mechanism

Design options to moderate take-up
Distribution model

Settlement model
Distribution of amount in circulation
Role of intermediaries
Integration and form factor
Funding and defunding
Prototype development

Compensation model
Access to ecosystem
Value added services
Advanced functionalities

Prototyping results

User requirements

Preparation for possible project realisation phase decision making

Selection of service provider(s) for possible project realisation phase

Decision making document including advice on potential issuance digital euro, its design and implementation plan

September 2023
Governing Council decision to possibly launch realisation phase

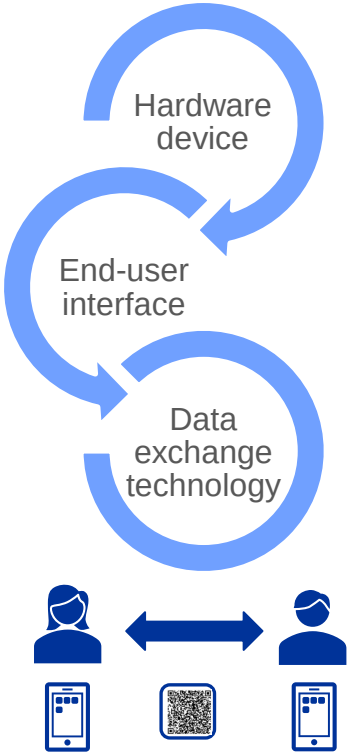
Q4-2021 | Q1-2022 | Q2-2022 | Q3-2022 | Q4-2022 | Q1-2023 | Q2-2023 | Q3-2023

Objective of today's exchange

Present **Eurosystem's analysis of form factor options for a digital euro and delivery approach for the digital euro consumer interface.**

Invite you to **share your input as part of a written procedure (deadline 5 December)** that will feed into the ECB's decision-making on the distribution model that will be brought to the HLTF-CBDC in 1Q 2023.

An introduction: the role of the form factor



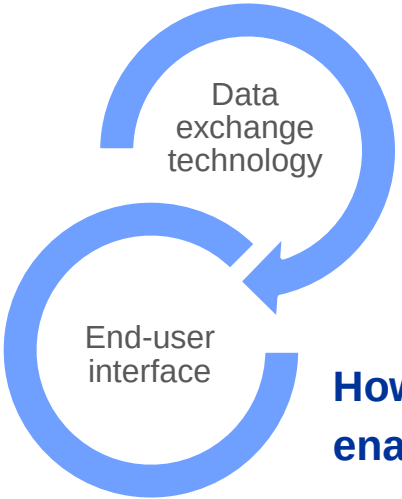
1 Payment initiation

In order to ensure: (i) that **every payer can pay with digital euros to every payee across the EA**, regardless of the intermediaries involved, and (ii) a **consistent UX**, a harmonised and standardised technical interaction between payer and payee will be needed.

2 Authentication

In order to ensure a **consistent and convenient UX** for the digital euro, form factor should be flexible to integrate authentication methods and processes applied by intermediaries, while ensuring that the authentication outcome is standardised across them.

What these decisions are about



What payment initiation technologies will support the digital euro?

How the end-user interface will be delivered to end-users enabling them to pay with digital euros?

Technologies for payment initiation

Available technologies/methods for payment initiation

QR-codes

- Wide accessibility by end-users.
- Broad range of payments contexts and end-user's needs.
- Layer of information can be added to the QR-code.
- Additional circuit besides existing card rails, contributing to resilience.

NFC

- Faster end-user adoption due to familiar payment process.
- Most POS payment contexts, especially fit for purpose at large retailers and/or scenarios in which the speed of the payment process is crucial.
- Ability to address offline payments.
- Does not require the need for a phone, but only a physical card.

Internet via an alias/ proxy

Convenient for initiating remote payments (especially m-commerce, as the consumer has one device only).

Internet via introducing card PAN

Less convenient, since the consumer needs to manually type the data

Deploying QR-codes & NFC

How to ensure the key objective on Strategic autonomy?

Options for standards

QR-codes

A. **Build on European non-proprietary based standards** (e.g. EPC QR-codes)
B. Develop a new standard for the digital euro

NFC

A. **Adopt European specifications** (e.g. CPACE)
B. **Adopt open global specifications** (e.g. EMVCo new contactless kernel)[1]
C. Develop a new kernel for the digital euro

Implementation considerations

NFC antenna access restrictions in iOS devices

Indicative timelines for NFC implementation suggest widely deployment by 2027-2028

[1] Its timeline is still unclear

Prioritised technologies for payment initiation

	P2P	e-commerce & C2G	POS & C2G
QR-code	✓	✓	✓
NFC	🔍	✗	✓
Internet via an alias/ proxy	✓	✓	✗
Internet via introducing card PAN	✗	✗	✗

Green = option prioritised for the release
Orange = option that needs further investigation (offline payments)
Red = option not technically feasible or not prioritised for the digital euro

The following technologies should be prioritised for the initial release:

- "Alias/proxy" functionality for P2P and e-commerce

  Addresses both remote and proximity (P2P payments), providing a convenient end-user experience

- NFC for POS

  Provides a highly convenient end-user experience, responding to retail environments in which speed is critical and potentially enabling offline payments and a physical card

- QR-codes for P2P e-commerce and POS

  Caters all use cases and different needs due to its flexibility; ensures wider accessibility for mobile payments at POS

⚠ NFC implementation should not delay the initial rollout of QR-code implementation.

Delivery approach for the digital euro consumer interface

Delivery proposal for the end-user interface

Integrated end-user interfaces

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

Digital euro app

- 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.**

A deep dive into the integrated end-user interfaces

Integrated end-user interfaces

Scope

- The intermediary would be responsible for providing all services to end-users.
- The **minimum requirements** for integrated solutions will be **defined in the digital euro scheme**.
- It is expected that intermediaries would also **leverage the integrated solution** to offer **value-added services** and be responsible for **any additional operation in relation to the customer**.

Objectives

- Maintaining the **direct relationship** between intermediaries and their customers, thereby favouring **front-end innovation**.
- Leveraging intermediaries' **current distribution channels**.
- Allowing end-users to access digital euro services through their **existing applications/interfaces**.

It is expected that most of supervised intermediaries, and their clients, will opt for the integrated end-user interface, and therefore that this would be the most common way to access digital euro services.

A deep dive into the digital euro app

Digital euro app

Scope

- **Intermediaries will keep their role in digital euro distribution** and perform all services.
- **The digital euro app would act as a gateway** towards the services offered by the intermediary by:
  - **Instructing** to intermediaries the **initiation of payments**
  - **Displaying basic information** provided by the intermediary to the end-user (e.g., balance in the D€ account at the intermediary) and **presenting core notifications** pushed by intermediary to the end-user (e.g. payment confirmation/failure).

Objectives

- Responding to the **preferences of users** calling for an **independent access channel** and **financial inclusion**.
- Providing the market with the **minimum required development**, ensuring that **all intermediaries** are able to keep their roles in digital euro distribution in a **consistent** and **efficient** way (i.e. leveraging economies of scale).
- Ensuring a **strong digital euro branding** and **recognisability** in the market, favouring word-of-mouth marketing and network effects.

Future outlook and discussion

Way forward

Further investigation & work on…

- The preferred way forward option for QR-code and NFC standards.
- The requirements and functioning of the prioritised delivery approach for the digital euro consumer interface

Consultation of Eurosystem committees

Outreach to external stakeholders

Finalization of Eurosystem views in Q1 2023 based on the outcome of Eurosystem committees' consultation, discussions with external stakeholders and further internal analysis

Review of combined design decisions ("Bringing it all together") in Q2 2023 and feedback by stakeholders on overall design prior to Governing Council decision making thereafter

For feedback

We invite **reflections by participants**, including the following questions:

1. Would you consider to prioritise any other payment initiation technologies for the initial release of the digital euro in light of end-user experience and merchants preferences?
2. What are the major considerations for rolling out QR-codes in all prioritised use cases by 2026, including the impact on merchants acceptance?
3. How an EA wide rollout for NFC at POS by 2026 could be achieved? Which NFC standard option do you believe would better contribute to strategic autonomy and to the European retail payments market integration, while minimising costs for market participants?
4. What would be the potential drawbacks of the prioritised delivery approach and how could they be overcome?

Thank you for your attention!