Programmable payments in digital euro

Euro Retail Payments Board

10 November 2022

Digital euro project team
Where do we stand?

Tentative - timing subject to change

- Use case prioritisation
  - Report on focus groups with citizens and merchants

- Design options to moderate take-up
  - Distribution model

- Compensation model
  - Access to ecosystem
  - Value added services

- Prototyping results

- Advanced functionalities

**July 2021**
Governing Council decision to launch investigation phase

**Q4-2021**
- On-line/off-line availability
- Data privacy level
- Transfer mechanism

**Q1-2022**
- Project team on-boarding
  - Governance set-up

**Q2-2022**

**Q3-2022**

**Q4-2022**

**Q1-2023**

**Q2-2023**

**Q3-2023**

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

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

**autumn 2023**
Governing Council decision to possibly launch realisation phase

- User requirements

- Preparation for possible project realisation phase decision making

Tentative - timing subject to change
Objective of today’s exchange

Present the Eurosystem’s analysis on options available for the provision of programmable payment services in digital euro.

Invite your feedback on the analysis of options for programmable payment services identified by the Eurosystem (followed by written procedure until 5 December) as input for Eurosystem preparations of final decisions on these functionalities by Governing Council in Q1 2023.
Digital euro shall support strategic autonomy and economic efficiency of the euro retail payments market, largely by fostering digital innovation, including **programmability of payments**.

Against the background of **increasing presence of non-European firms** in payment services and accelerating stablecoin development.

Programmable payments are a way to **improve the users’ experience** and meet the service level of existing and future payments solutions.
Programmable payments
Programmability of payments: the ability to initiate a payment automatically when predefined conditions are met (see Digital Euro glossary)

Programmable money ≠ programmability of payments:

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.” (Eurosysten, 2020)
High-level steps in programmable payments

1. **Definition of business logic**
   Conditions to be met before a payment shall be initiated – specific to use case

2. **Payment authorisation**
   Payer authorises supervised intermediary to initiate payment of ‘x’ to ‘payee’ when conditions are met

3. **Execution of business logic**
   Continuous/regular check of whether the conditions for payment initiation are met

4. **Payment initiation / settlement instruction**
   Payer’s intermediary initiates the payment, which is settled in digital euro
Provision of programmable payments in digital euro
Market-led innovation and trust relationship

- Programmable payments refer to an **innovative space** in payment services

  **Definition of business logic is best provided by relying on market initiative(s)**

- Digital euro users shall be **free to decide** what conditions apply to their payments and whom to entrust with the **task of initiating** them

  **The supervised intermediary of the user authorizing a digital euro payment shall ultimately initiate its settlement once predefined conditions are met**
Where to program and execute the business logic?

End-user layer

Intermediaries’ / market platforms’ layer

Dedicated programmability platform layer

Settlement system layer

Beyond reach of digital euro project / scheme

Single intermediaries or market platforms can always provide programmable payments in digital euro independent of Eurosystem decision

Legal/reputational risk and policing complexity. Intermediaries should have role in any task that does not create undue risk to the Eurosystem or bad experience to end users

Higher cyber risk, personal data processing and overhead on settlement performance shall be avoided

Note: layers can use different tech and data structures, TBD at a later stage based on business requirements
Options to support programmability

Intermediaries flagged a lack of common standards for the provision of some programmable payment functionalities across Europe and the possible need to use ad-hoc settlement functionalities.

In the digital euro scheme rulebook

- Intermediaries empowered to flag what standards are missing
- Balanced need to leave highest freedom and initiative to the market with the possibility to foster the rollout of programmable payment use cases across the euro area.

In the back-end infrastructure

For instance, reservation of funds in digital euro

Potential implementation depends on:
- how far the associated end-user services are perceived as contributing to success of the digital euro solution
- level of complexity and costs
Way forward and discussion
Conclusions

Supervised intermediaries know best the market dynamics and the needs of end users. They are best placed to develop programmable payments services, including dedicated programmability platforms.

Digital euro solution will support programmable payments, enabling the provision of such services by supervised intermediaries if necessary.

The Eurosystenm can support programmable payment services by the market via standards in the scheme rulebook and/or adding functionalities to the settlement layer, supporting programmable payments use cases identified by the market.
Way forward

Further investigation on options available for the provision of programmable payment services in digital euro

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

*: See also dedicated call for interest on digital euro programmable payments
We invite reflections on all aspects of the analysis, including the following questions:

- Which key use cases do you see for programmable payment services in the area of retail?
- Whether/to what extent do you see a need for support to the market to provide programmable payment services (e.g., common standards, back-end settlement functionalities)?
- Which core capabilities could a back-end IT architecture for settlement of payments offer to facilitate programmable payment services?
Thank you
What programmable payments entail

**Definition of business logic:** the intermediary sets the range of conditions that an end user may require to be met before a payment shall be initiated (e.g. on 1\textsuperscript{st} day of the month, transfer 100€ from A to B)

**Payment authorisation:** the end user authorises the supervised intermediary to initiate a payment in line with the business logic mentioned above

**Execution of business logic:** the entity taking care of executing business logic checks whether the conditions to initiate a payment are met and the payment shall be initiated by the supervised intermediary of the payer.

**Payment initiation/settlement instruction:** the intermediary of the payer initiates the payment, sending a settlement instruction once the conditions set its client are met.