

Digital euro development update

IIF Staff Note

April 2, 2024

This staff note reports on recent developments in the digital euro project, focusing on the launch of mandates for seven new workstreams under the project's Rulebook Development Group (RDG), the publication of a technical note on enforcing the digital euro holding limit across multiple wallets, and the European Central Bank's (ECB's) ongoing exploratory work on new technologies for wholesale central bank money settlement, including an invitation for financial market stakeholders to participate in planned trials in 2024.

This staff note follows on previous IIF publications on the digital euro project, including a January 2024 [staff note](#) on the work of the RDG, our September 2023 [staff assessment](#) of the European Commission's proposed [legislative package](#) for the digital euro, and our June 2022 [submission](#) to the European Commission.

1 Background

The digital euro project moved from the investigation phase into the preparation phase following a decision of the ECB Governing Council in October 2023.

The preparation phase will last for two years and will involve finalizing the digital euro rulebook, selecting providers that could develop a digital euro platform and infrastructure, and testing and experimentation to develop a digital euro that meets both the Eurosystem's requirements and user needs (for example, in terms of user experience, privacy, financial inclusion, and environmental footprint).

The launch of the preparation phase is not a decision on whether to issue a digital euro. That decision will only be considered by the Governing Council once the European Union's legislative process has been completed. (See further our September 2023 [staff assessment](#)).

2 New workstreams under the RDG

The RDG was established by the Eurosystem's High-Level Task Force on Central Bank Digital Currency at its meeting on January 19, 2023, with the aim of drawing up a draft rulebook for the digital euro, building on design decisions taken by the Governing Council of the ECB.

The Chair of the RDG can set up workstreams for the elaboration of deliverables requiring specific skills and knowledge.

During 2023, three workstreams were set up focusing on various aspects of the digital euro rulebook, as mentioned in the ECB's January 2024 [update](#):

- **Authentication and identification:** this workstream focuses on defining the requirements for the identification and authentication of digital euro end users;
- **Technical scheme requirements:** this workstream focuses on developing the technical interfaces in the front-end digital euro space, including the end user's and intermediary's respective devices, and the digital euro non-functional standards and requirements; and
- **Scheme compatibility:** this workstream is focused on making the digital euro scheme compatible with existing functional standards and specifications as well as with other schemes and payment infrastructures.

On March 18, 2024, the ECB announced the establishment of seven new workstreams under the RDG:

- **Minimum user experience (UX) standards:** this workstream aims to develop a proposal for the rulebook which will cover minimum UX standards relating to the functional and operational model and the implementation of a digital euro;
- **Certification and approval framework:** this workstream will develop a proposal for testing and certification of payment and acceptance solutions as well as infrastructure used by intermediaries within the digital euro ecosystem;
- **Risk management:** this workstream will develop a proposal on risk management, identifying inherent risks for the different digital euro actors, proposing ways to mitigate them, and deriving the related residual risk;
- Under the **implementation specifications workstream:**
 - **Interactions between payment and acceptance solutions of individual and business users:** this workstream will focus on end-user interactions between individual user devices (apps, cards, etc.) and business user acceptance devices (e.g. terminals, websites, apps, ATMs);
 - **Interactions between individual users and their intermediaries:** this workstream will address interactions between end users and payer intermediaries with the aim of ensuring the compliance and interoperability of digital euro payments made by individual users for both card and account-to-account payment products;
 - **Interactions between business users and their intermediaries:** this workstream will develop requirements for interactions between acceptance solutions and business user intermediaries, guaranteeing scheme conformity and interoperability across the business user space, drawing on the expertise of workstream participants in payment acceptance and acquisition; and

- **Interactions between the Digital Euro Service Platform and intermediaries:** this workstream will develop implementation specifications for interactions between intermediaries and payment schemes (settlement services, fraud risk management services, dispute management services, alias lookup services etc.).

The [announcement](#) contains links to the detailed mandates for each workstream, and also calls for nominations from leading experts in payments infrastructure and architecture, technical specifications, and scheme management to apply to populate the workstreams. Nominations are due to be submitted by April 5, 2024.

The mandates for the various workstreams emphasize the guiding principles governing the work of the RDG, which are:

- The building blocks of the digital euro rulebook should be developed on the basis of design decisions taken by the Governing Council or a delegated body;
- Digital euro solutions that are enabled by the Eurosystem – and potentially complemented by the market – must be attractive to all actors in Europe’s retail payment market, particularly users of the digital euro;
- The design of the digital euro rulebook must enable the market to develop further services and solutions on top of the scope initially foreseen for the digital euro, while at the same time, the digital euro must function as a basic means of payment in the euro area without any such additional market-driven developments; and
- The RDG should leverage and build on existing standards and scheme solutions to the extent possible, without limiting the Eurosystem’s freedom of choice in the further development of the digital euro.

The various workstreams will be comprised of representatives of the Eurosystem and up to a defined number of outside experts. Participants are expected to contribute in a personal capacity. However, if a participant is sponsored by a specific stakeholder association, they are also expected to collaborate with that association, including keeping the association informed about the progress of their work and gathering feedback and input in line with the goals of the association. The workstreams will be chaired by Eurosystem representatives. Participation is not remunerated and travel is not reimbursed.

IIF staff comment: The ECB sees building the digital euro rulebook as a key task and is drawing significant private sector resources into the project to go along with the significant Eurosystem resources devoted to this. We welcome the collaborative way in which outside expertise is being drawn into the process; however, as we stated in our January staff note, we would like to see successive drafts of the digital rulebook open to public comment, not just at the end of the drafting process. We note that the workstreams will be chaired by Eurosystem representatives, indicating the official sector intends to maintain strong influence over the rulebook drafting process. Further, we note the proliferation of workstreams continues to indicate a strong commitment by the ECB to follow through with the issuance of a digital euro.

3 Technical note on the provision of multiple digital euro accounts to individual end users

The individual holding limit on digital euro balances is an important mitigant of the risk of bank deposit disintermediation in normal and stressed circumstances, and therefore ultimately protects financial stability. The IIF has previously questioned how the individual holding limit would be enforced if users could open multiple digital euro wallets with multiple PSPs.

The ECB has published an important [technical note](#) addressing the interaction between multiple accounts and the management of an individual holding limit with a view to supporting the legislative debate around the digital euro legislative package. The key findings are:

- a multiple account scenario would not require the Eurosystem to process more personal data than in a single account scenario. In either case, the Eurosystem would not be able to identify an individual user (but see below);
- in a multiple account scenario, exercising the option to open an additional digital euro account would require the user to make several choices, and PSPs would need to dedicate resources to their service desks to explain these choices;
- there is a risk, from the ECB’s perspective, that the processes involved in adjusting multiple holding limits could lead to the digital euro being perceived as a complex product;
- a multiple account scenario requires a coordinated effort to ensure that, if a user’s identity attribute changes, all PSPs become aware of the change and can perform Know Your Customer (KYC) checks in order to avoid duplication of that user’s holding limit. This risk could arise in both multiple and single account scenarios but would be more complex to mitigate if users could have multiple accounts with different PSPs;
- in a multiple account scenario, offering users the ability to flexibly adjust offline holding limits would require PSPs to update the single access point every time the user makes such an adjustment; and
- the provision of joint digital euro accounts (e.g. for domestic couples) is possible in both a single account and a multiple account scenario.

Against this background, the note also notes the digital euro’s planned “switch-and-port” functionality, which might bring some of the same benefits as allowing users to hold multiple accounts. That functionality is intended to allow users to easily change PSPs, while maintaining their digital euro account number, including transaction history and recurring payments.

IIF staff comment: The analysis seems to show that it is technically feasible to provide users with multiple accounts in conjunction with an individual holding limit. That said, the conclusions indicate trade-offs would be necessary, mainly in terms of user experience as well as technical and operational implementation for PSPs. The note also acknowledges there would be significant work involved for PSPs in supporting a multiple-wallet environment. The technical note also leaves a number of issues open for further work by the ECB around enforcement of the individual holding limit, such as when a user changes identity attributes (e.g. change from maiden to married surname, or change of gender) or when a user forgets which other PSPs they have wallets with.

No details have yet been published on the proposed construction of the pseudonymous unique identifier that would allow the single access point to identify multiple wallets as being owned by the same individual, other than that it will be composed of a number of elements of personal information subjected to a “strong hash” function, presumably a one-way hash. One potential issue is unless the identifier combines many elements of personal information, it may be relatively easy to re-identify a given person through brute force methods, given the limited number of combinations of (say) common names, surnames, and dates of birth in each geography. But the more elements are combined and then hashed, the greater the difficulty of choosing elements that will not change during the user’s lifetime, and the greater the possibility of multiple holding balances being created. The paper is silent on how corporate identifiers would be constructed; the implication may be that corporate holders will have a zero wallet balance by default (such that all transactions would be instantaneously funded or defunded using linked bank accounts).

4 Exploratory work on new technologies for wholesale central bank money settlement

Work on how wholesale financial transactions recorded on distributed ledger technology (DLT) platforms could be settled in central bank money is underway by the Eurosystem. The purpose of the initiative is to consolidate and further develop the ongoing work of Eurosystem central banks in this area, and to gain insight into how different solutions could facilitate interaction between [TARGET Services](#) and DLT platforms. The ECB has previously run two key pilot initiatives that explored new technologies for central bank money:

1. An **EU-wide network** with national central banks to foster innovation, collaboration and engagement with new technologies. Members of the network experimented with the latest financial technologies. Their work included a proof-of-concept test for anonymity in central bank digital currencies; and
2. **Project Stella**, the ECB’s joint research project with the Bank of Japan. This project involved experimental work and conceptual studies exploring the opportunities and challenges of using distributed ledger technology for financial market infrastructures.

A dedicated market contact group, the New Technologies for Wholesale settlement Contact Group (**NTW-CG**), has been set up to support the Eurosystem’s exploratory work in this space. This group provides expert inputs and keeps the Eurosystem up to date with advances in the use of DLT and other new technologies in wholesale financial markets.¹ The ECB has published the NTW-CG’s [Terms of Reference](#) and [list of members](#).

The ECB has also recently invited financial market stakeholders to join the exploratory work on new technologies for wholesale central bank money settlement. The work consists of trials and experiments for using central bank money to settle securities and payments recorded on distributed ledger platforms. Interested participants can apply until **April 30, 2024**; for more information consult the [Call for expression of interest](#).

¹ The term “**Eurosystem**” refers to the ECB and the national central banks of European Union member states whose currency is the euro.