



Update on the work of the digital euro scheme's Rulebook Development Group

30 October 2025

Executive summary

A key deliverable during the two-year preparation phase of the digital euro is the development of the draft digital euro scheme rulebook. The development of the rulebook is taking place in close collaboration with the digital euro scheme's Rulebook Development Group (RDG), which is composed of senior representatives from associations representing both the supply and demand sides of the European retail payments market along with the ECB and observers from euro area national central banks and EU institutions. To ensure a high level of transparency, the European Central Bank (ECB) regularly publishes updates on the development of the rulebook and the work of the RDG. This update provides information about the RDG's activities since the last update, which was published in April 2025.¹

The digital euro scheme rulebook will establish a single set of rules, standards and procedures for the use of the digital euro across the euro area. It will include requirements to standardise the digital euro payment experience as well as optional provisions and supporting material to provide further guidance to supervised payment service providers (PSPs). The aim is to ensure that the PSPs participating in the digital euro scheme deliver consistent and standardised basic digital euro services, enabling a private, secure and uniform user experience, regardless of the euro area country or PSP involved – as is the case with cash today. By providing a standardised basis for basic digital euro services, the rulebook will also enable retail payment solution providers to roll out solutions across the euro area, thereby mitigating the current market fragmentation, supporting innovation and competition.

A recent key milestone in the digital euro project was the delivery of the new draft rulebook version to RDG members and their constituents in June 2025. The new version incorporates feedback gained from extensive discussions held during RDG meetings, dedicated workshops, RDG workstreams and extensive market feedback provided during the previous interim review of the initial version of the draft rulebook launched in January 2024. The RDG members and their constituents provided around 2,000 unique comments as part of this previous consultation. The large majority led either to direct changes to the draft rulebook (36%) or was carefully considered by the Eurosystem and RDG workstreams for the further development of the new draft rulebook version (48%). The latter were either partially incorporated into the rulebook, did not necessitate any changes or were excluded with explanations provided to RDG members, for example, if they

¹ See [“ECB publishes progress report on digital euro rulebook”](#), *MIP News*, ECB, 9 April 2025.

conflicted with prior decisions or were no longer applicable in view of other amendments. Updates were made to user journeys, end-to-end (E2E) flows and business rules, ensuring greater clarity and applicability to specific digital euro services, payment methods and liquidity management. RDG input also informed enhancements to sections on identification of users, dispute management and the glossary, while some comments, such as those on alias payments, portability and the participation model, were further considered in discussions at Eurosystem level.² Approximately 10% of the comments received were deemed out of scope for the rulebook, addressing topics like the sequencing of use cases and holding limits. Such comments were forwarded where they fell within the remit of other fora (e.g. the Euro Retail Payments Board). The remaining 6% are under consideration for future rulebook iterations, including PSP onboarding, point-of-sale (POS) and ATM specifications, offline authentication and the adherence model.

The new draft rulebook has been thoroughly restructured, and new areas have been added compared to the previous version. These include:

- minimum user experience (UX) requirements covering mandatory and optional provisions both for generic requirements applicable to all use cases and for requirements and wireframes related to particular use cases, including POS, e-commerce, m-commerce and person-to-person (P2P) transactions;^{3,4}
- brand rules for PSPs when providing digital euro services, to ensure a unified image is maintained across various channels, enhancing brand recognition and building trust among consumers, while considering ease of implementation for PSPs;
- implementation specifications for the digital euro front-end domain, covering key use cases such as P2P transactions, e-commerce and m-commerce transactions, and requirements for the PSP mobile app and website;⁵
- implementation specifications for the back-end domain explaining how PSPs would interact with the various components of the digital euro service platform (DESP) related to access management, alias lookup and the settlement service;
- an overview of the existing open standards identified as potential candidates for reuse by the digital euro in line with the RDG objectives;

² Portability refers to the unique functionality of carrying over (porting) a digital euro account number when a user switches from one PSP to another, which is different from today's International Bank Account Number (IBAN) system.

³ A wireframe is a basic visual representation (blueprint) of a digital product's layout and structure, showing the arrangement of key elements, like content, navigation and interaction areas, without focusing on visual design, colours or imagery.

⁴ A subcategory of e-commerce where the payment and the purchase are made on the same mobile device

⁵ Implementation specifications outline the technical requirements for PSPs to deliver basic digital euro services. These include both mandatory and optional business rules as well as the structure and content of incoming and outgoing data messages exchanged between actors on their devices.

- a section on digital euro dispute management to contribute to end-user protection by providing the possibility of raising disputes covering the functional rules, dispute reasons and scenarios, and process flows;
- a process for onboarding PSPs to the scheme, including a step-by-step onboarding procedure with necessary testing and certification requirements.

The delivery of the new draft digital euro scheme rulebook to the RDG marked the beginning of a four-month consultation period. RDG members are leading this extensive review process by gathering feedback from their constituents, which include consumers, merchants, credit institutions, various types of payment institutions, corporate treasurers and third-party providers. To facilitate the consultation, a rulebook information session was held in July 2025 with over 200 selected market experts. Such sessions foster information exchange, ensure meaningful feedback and support the preparations of stakeholders.

As a next step, the Eurosystem will process the feedback from the consultation of RDG members and their constituents on the new draft rulebook version. Additionally, the Eurosystem will further develop areas of the rulebook that are currently not yet fully addressed due to dependencies, including through input from the selected digital euro component providers.

This includes advancing further those areas that are dependent on vendor specifications or the selection of open standards, such as the technical implementation specifications, non-functional requirements, reporting requirements, and certification and testing processes. Lastly, the ECB will continue its dialogue with market participants to explore opportunities for innovation and ensure financial inclusion, which will also be enabled through the rulebook.⁶ While the draft rulebook will outline the full scope of basic digital euro services, a roll-out plan will be developed to support the market in adopting the digital euro in a practical and manageable way.

The draft rulebook will be flexible enough to accommodate any future adjustments arising from discussions among the co-legislators on the Digital Euro Regulation proposed by the European Commission in June 2023.⁷

⁶ See “[ECB presents findings from digital euro innovation platform and announces second round of experimentation](#)”, *press release*, ECB, 26 September 2025.

⁷ See [Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro, COM\(2023\) 369 final](#), 28 June 2023.

1 Introduction

The digital euro scheme rulebook will serve as a single set of rules, standards and procedures aimed at standardising digital euro payments across the euro area. This standardisation will ensure that the experience of users of the digital euro will be the same across euro area countries, irrespective of the payment service provider (PSP) involved – just as is the case for euro cash today. The rulebook will establish only the necessary requirements to standardise the provision by PSPs of basic digital euro services to end users, while retaining ample flexibility for PSPs to design and deliver additional innovative payment solutions to their customers. Where possible, the rulebook will build on existing open standards to ensure smooth integration, promote interoperability, foster cross-border competition and drive innovation in the European retail payments landscape.

The ECB is developing the draft rulebook in close collaboration with representatives of the European retail payments market through the Rulebook Development Group (RDG).⁸ The RDG comprises senior representatives of European associations that represent both the supply and demand sides of the European retail payments market. These include associations representing consumers, merchants, PSPs and third-party service providers, along with representatives of euro area national central banks and observers from EU institutions.⁹ The work of the RDG also builds on dedicated RDG workstreams consisting of market experts who develop technical analysis and proposals for different areas of the rulebook (see Figure 1). Since its establishment in 2023, the RDG has held 25 meetings and established 11 workstreams. Five workstreams are currently active: the risk management workstream (D1); three workstreams on front-end implementation specifications for the end-user interface (G1), the distributing PSP interface (G2) and the acquiring PSP interface (G3); and one workstream on the back-end implementation specifications for the PSP-to-DESP interface (G4).¹⁰ The RDG also organises dedicated information sessions, such as on new rulebook interim draft, risk management and liquidity management.







⁸ See “[Mandate of the digital euro scheme Rulebook Development Group](#)”, ECB, January 2023.

⁹ The EU institutions concerned are the European Commission, the European Parliament and the rotating presidency of the Council of the EU.

¹⁰ Other RDG workstreams have already concluded their work and provided their final reports and input for the rulebook.

Figure 1

Overview of the RDG workstreams as of October 2025

Status	RDG workstreams overview
	A1. Identification and authentication
	A2. Minimum user experience standards
	A3. Brand rules
	B1. Certification and approval framework
	C1. Technical scheme requirements
	D1. Risk management
	F1. Scheme compatibility
	G1. Front-end implementation specification for end-user interface
	G2. Front-end implementation specification for distributing PSP interface
	G3. Front-end implementation specification for acquiring PSP interface
	G4. Back-end implementation specification for PSP-to-DESP interface
	Currently active workstreams

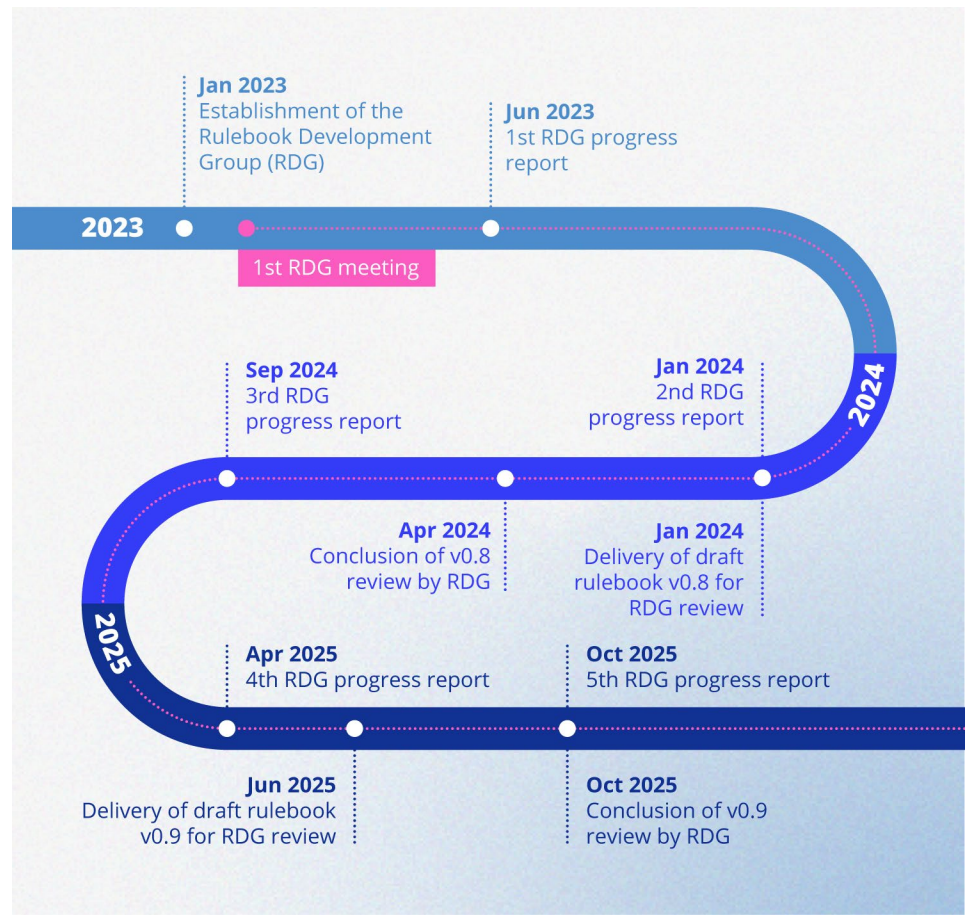
Since the last update in April 2025, a draft version of the rulebook has been delivered to the RDG and its constituents for a four-month consultation.¹¹ This consultation with key market stakeholders marks an important milestone in the digital euro project (see Figure 2), as it allows RDG members and their constituents to provide comprehensive feedback to ensure the rulebook is aligned with the needs of consumers, retailers and PSPs across the euro area. All comments and suggestions received during this review will be carefully evaluated and addressed, helping to refine the draft rulebook’s provisions and enhance its applicability.

While the draft rulebook builds on the draft Digital Euro Regulation and the design choices approved by the Governing Council of the ECB, it remains sufficiently flexible to accommodate any future adjustment deriving from the discussions among the co-legislators on the Digital Euro Regulation proposed by the European Commission in June 2023.¹²

¹¹ See “[ECB publishes progress report on digital euro rulebook](#)”, *MIP News*, ECB, 9 April 2025.

¹² See “[A stocktake on the digital euro – Summary report on the investigation phase and outlook on the next phase](#)”, ECB, 18 October 2023.

Figure 2
Rulebook milestones



This update on the work of the RDG outlines the progress made in the run-up to the recent delivery of the draft rulebook and highlights its key content and key RDG activities. This is the fifth progress report on the RDG, following previous updates published by the ECB in June 2023, January 2024, September 2024 and April 2025.¹³ The remainder of this report is organised as follows: Chapter 2 summarises the recent delivery of the new draft version of the digital euro scheme rulebook to the RDG for review, outlines the draft rulebook’s evolution in terms of both structure and content, and explains the RDG consultation process; Chapter 3 describes the progress made on the main components of the draft rulebook; Chapter 4 focuses on other ongoing work of the RDG to address aspects not yet fully covered by the rulebook; and Chapter 5 concludes, providing an outlook on planned activities and deliverables.

¹³ The updates on the work of the RDG are available on the [digital euro scheme rulebook page](#) on the ECB’s website.

Delivery of the new version of the draft rulebook to the RDG

The delivery of the new draft version of the rulebook to the RDG on 30 June 2025 marked a significant milestone in the digital euro project. The new version incorporates feedback gained from extensive discussions held during RDG meetings, dedicated workshops and RDG workstreams.

The new draft version of the rulebook also reflects the outcome of the previous RDG consultation launched in January 2024, taking into account around 2,000 unique comments from RDG members and their constituents.¹⁴

The comments provided by the RDG on the initial draft version of the rulebook have been important in shaping the new draft version of the rulebook delivered in June 2025. 36% of the comments were directly incorporated into the new rulebook draft, while 48% required further consideration by RDG workstreams or the Eurosystem (see Figure 3). Some of these comments were used as additional input for the provisions of the rulebook, while others were noted without necessitating any changes. Other comments were carefully considered but ultimately not incorporated, for instance, if they conflicted with previously agreed design decisions or were no longer relevant due to other amendments made to the rulebook. For comments that could not be incorporated, RDG members were provided with an explanation outlining the reasons for their exclusion. The remainder of the comments received related to suggestions deemed to be outside the mandate of the RDG (10%) and feedback that is currently under consideration at Eurosystem level (6%). The former includes comments relating, for example, to the draft Digital Euro Regulation or the applicability of existing laws and regulations.

The comments received contributed to the further development of various key areas of the rulebook. These include topics such as alias payments, portability and waterfall/reverse waterfall functionalities and played a critical role in refining, for example, user journeys and E2E flows.¹⁵ Other areas of the rulebook, including dispute management, were also drafted on the basis of the RDG feedback. In line with its commitment to transparency, the RDG received an updated overview of the comments, follow-up actions and responses at each RDG meeting.

¹⁴ The number of unique comments accounts for duplicates and highly similar comments.

¹⁵ Waterfall functionality facilitates the settlement of digital euro payment transactions by automatically converting the amount of digital euro that exceeds a defined holding limit into commercial bank money on a linked non-digital euro account, indicated by the digital euro user. Reverse waterfall functionality automatically converts commercial bank money into digital euro when holdings are insufficient to execute a digital euro transaction.

Figure 3

Addressing RDG feedback on the previous draft rulebook

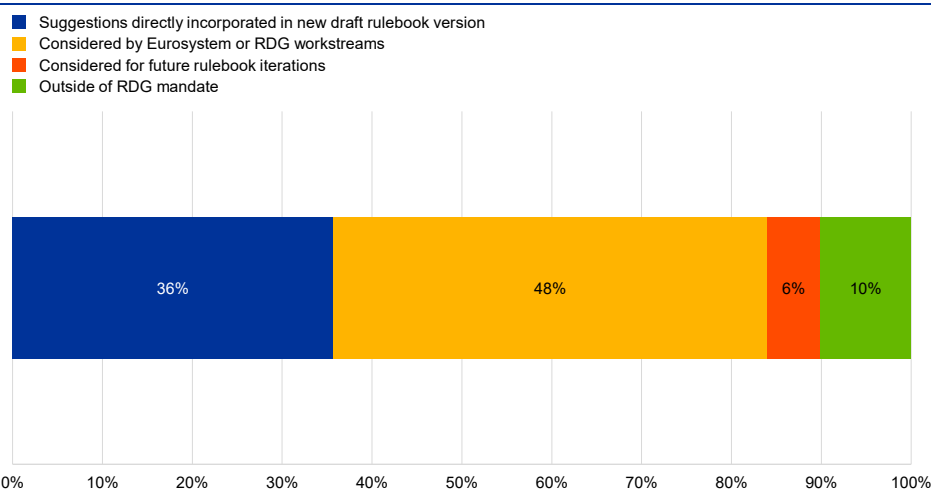
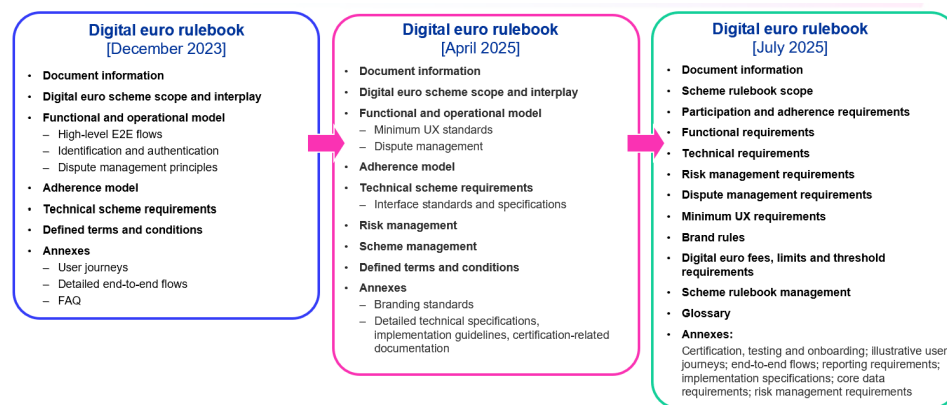


Figure 4 illustrates the development of the draft rulebook content between December 2023 and end of June 2025 in an iterative process designed to address market needs and incorporate stakeholder feedback.

Figure 4

Evolution of content of the draft rulebook



The latest draft rulebook has benefited from a restructuring and reformulation of its content to ensure that the rules and requirements for PSPs are clearly defined, while also clarifying that not all provisions are mandatory. The content of the rulebook follows, to the extent possible, a rules-based format. Each rule is labelled and numbered, linking it to its corresponding area and section in the rulebook (an example is shown in Figure 5). This structured approach improves clarity and understanding, as the provisions are organised systematically and the mandatory elements of the rulebook are made explicit. It also simplifies the referencing of specific rules, making it easier to locate them during discussions, in documentation or for the purposes of disagreement resolution.

Figure 5

Example of rule for minimum user experience requirements (UXR)

UXR.05	Digital euro users shall have the option to select a preferred authentication method in their account management settings.
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In July 2025 the ECB organised an information session for RDG members and their constituencies on the latest draft rulebook to facilitate the review process. Over 200 participants from RDG constituencies participated, representing a wide range of stakeholders from across the European payments ecosystem. The session served as an opportunity to enhance market understanding and facilitate active engagement and qualitative feedback during the consultation phase.

The delivery of the draft digital euro scheme rulebook marked the beginning of a four-month period of consultation with the market. The consultation process is being coordinated through the members of the RDG, who are responsible for engaging with their respective constituencies to collect feedback on the draft rulebook and its annexes. This approach ensures that the views of all actors that responded are effectively captured and considered. The consultation period commenced on 30 June 2025 and runs until 31 October 2025.

The RDG feedback will be essential to progressing the rulebook. The Eurosystem will assess each comment and determine how it should be incorporated into the work of the RDG and the final draft version of the rulebook. The ECB will provide the RDG with feedback on how the comments have been addressed in the updated version of the rulebook, along with a rationale for any suggestion not incorporated.

3 Update on the main components of the draft rulebook

The following chapter begins by introducing the various components of the rulebook, followed by a more detailed update of each component. It then provides updates on other key areas of the rulebook, including dispute management, brand rules and the onboarding process for PSPs.

3.1 Components of the rulebook and their interrelationships

While the rulebook should ensure a standardised digital euro payment experience across the euro area, it distinguishes between those provisions that are mandatory and those that are optional and illustrative. Through this approach, the rulebook standardises and limits requirements to those that are necessary, while providing a basis for the development of further innovative services and supporting interoperability.

The draft rulebook describes the functional scope of the digital euro according to the basic digital euro services (see Figure 6).¹⁶ For access management, functional requirements establish how users and PSPs interact with the system to facilitate processes for onboarding, offboarding, lifecycle management and switching for digital euro users. Liquidity management requirements provide a framework for funding and defunding digital euro holdings, waterfall and reverse waterfall functionalities, and managing holding limits, ensuring efficient and transparent handling of digital euro balances. Transaction management requirements address the processes for initiating, authorising and completing payments.

Figure 6
Overview of digital euro services

Access management	Liquidity management	Transaction management
Onboarding digital euro users	Funding (manual & automated)	Transaction initiation (one-off transactions)
Offboarding digital euro users	Reverse waterfall	Authentication
Payment instrument and acceptance solution management (both provision and maintenance)	Defunding (manual & automated)	Payment confirmation/rejection notification
Linking digital euro account to non-digital euro payment account	Waterfall	Recurring payments
User lifecycle management (identification, data update, information display on balance and transactions, switching and user support)		Refunds
		Pre-authorisation service
		Dispute/exception management

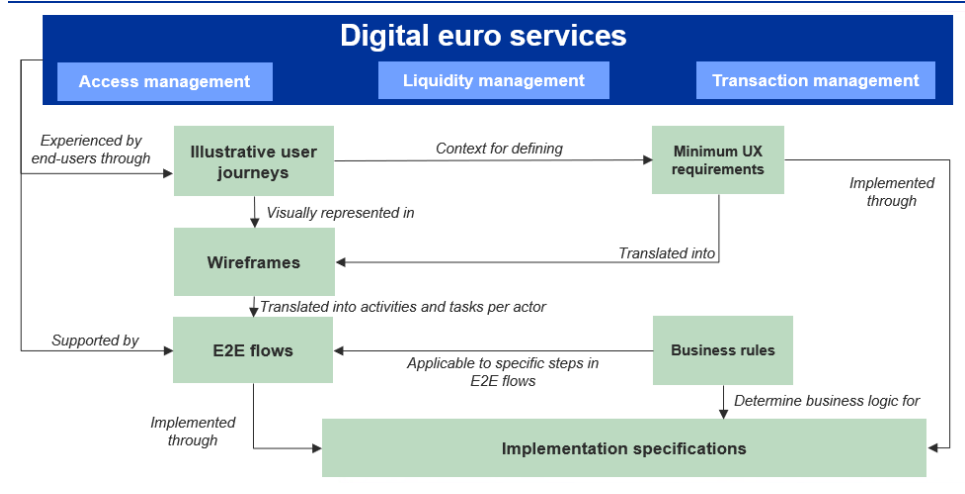
How these digital euro services are to be implemented is described in the different elements of the rulebook, consisting of prescriptive rules as well as supporting material. Figure 7 describes key components of the rulebook and their interrelationship, comprising both mandatory provisions and supporting materials. These various parts of the rulebook are covered in more detail in the remainder of this chapter.

Starting with the illustrative user journeys. Each of the digital euro use cases has been captured by an illustrative user journey describing an optimal journey (e.g. for an e-commerce transaction). Illustrative user journeys are accompanied by wireframes which provide a visual representation of the specific digital euro use case. Illustrative user journeys and wireframes are both supporting documents, provided to create a clear understanding from a user perspective.

¹⁶ See Annex II of [Annexes to Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro, COM\(2023\) 369 final](#), 28 June 2023.

Figure 7

An overview of key components of the rulebook and their relationships



In contrast, minimum UX requirements are prescriptive and set out the minimum set of rules to ensure a consistent and recognisable experience for digital euro users. They are developed on the basis of principles (see below) and consider best practices in the market. The minimum requirements approach will provide PSPs with sufficient flexibility to integrate the digital euro services into their existing user experience.

E2E flows, implementation specifications and business rules define the functional design of the digital euro and translate it into processes and technical implementations. E2E flows provide PSPs with a clear understanding of process flows for all basic digital euro services, outlining activities for each actor (e.g. end user, payer PSP, payee PSP and DESP) within the respective digital euro process, while allowing PSPs flexibility in the implementation where possible, given the necessary standardisation objectives. The implementation specifications provide the necessary technical details, data fields and granular business rules for the successful implementation of all digital euro services by PSPs. They are mandatory and prescribe the technical implementation of the digital euro services across the different devices involved.

The business rules are mandatory and apply the business logic and policies serving as instructions for PSPs when conducting digital euro processes. These business rules translate the design principles for the digital euro services and are reflected in the E2E flows. Together with the implementation specifications, business rules outline all the processes and tasks that PSPs must follow when interacting with digital euro users and the DESP infrastructure.

The following provides a closer look at selected parts of the rulebook.

Illustrative user journeys and wireframes

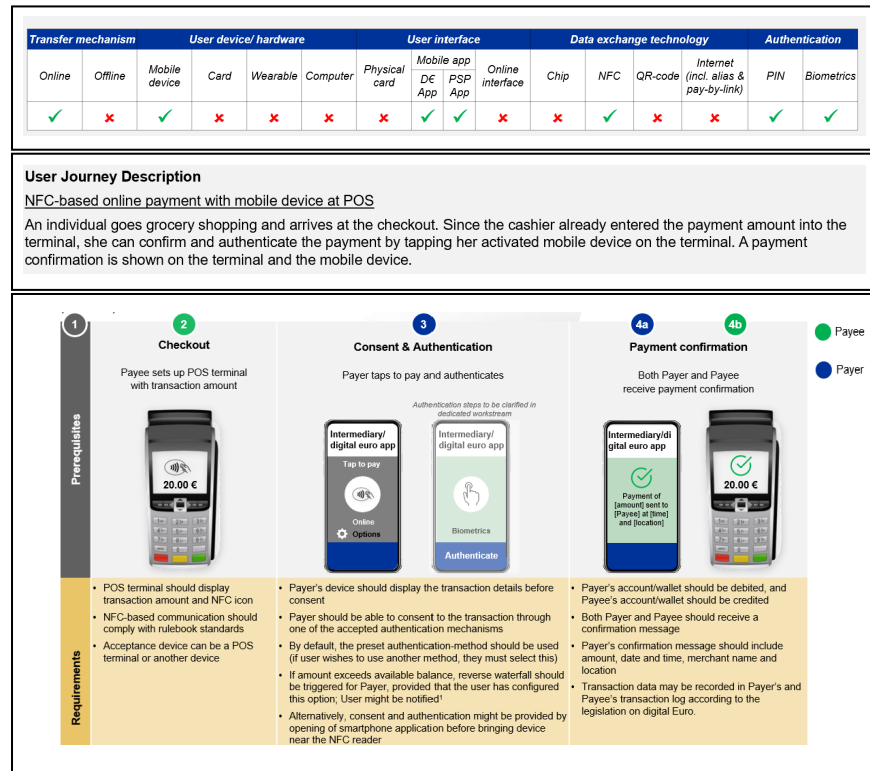
Illustrative user journeys and associated wireframes provide a clear representation of how the digital euro's features should operate from an end-user perspective. 68 user journeys were already included in the first draft rulebook shared with the RDG for review at the end of 2023. The latest version of the draft rulebook features a total of 109 illustrative user journeys, representing a 60% increase. These serve as practical examples of how the digital euro might be used in real-world situations covering a range of use cases. They have been developed on the basis of RDG feedback on the initial set of user journeys as well as dedicated discussions at RDG meetings and written consultations. While the user journeys are illustrative in nature, they aim to highlight the core functionalities and interactions that end users may experience when engaging with the digital euro.

The illustrative user journeys were designed to allow PSPs to have the flexibility to innovate. PSPs are not restricted to offering only the use cases depicted in the user journeys. They can integrate these into existing use cases and design additional ones that are aligned with their specific business models, making use of both their own and the digital euro infrastructure.

The illustrative user journeys are designed to provide a comprehensive and user-friendly representation of the digital euro features. Each user journey comprises three key components: a “table”, a “description” and a “visualisation” (see Figure 8). The table outlines critical elements, such as the affected transfer mechanisms, user devices and hardware, user interfaces, data exchange technologies and authentication methods. The description provides a detailed narrative of the user journey, offering clarity on its purpose and flow. Finally, the visualisation presents a step-by-step depiction of the journey, including specific actions, requirements and prerequisites.

Figure 8

Example of an illustrative user journey – POS payment with near field communication (NFC) (mobile device)



Minimum UX requirements

Setting minimum UX requirements ensures a state-of-the-art, standardised and recognisable user experience for the digital euro. By defining minimum UX standards, the digital euro will offer a consistent experience across the different use cases, regardless of the PSPs and countries involved, just like cash today. At the same time, PSPs retain the flexibility to integrate the digital euro into their platforms, enabling them to innovate. Minimum UX requirements focus on user needs in terms of functionality, information, positioning and accessibility, and have been developed following two principles.

- **Proportionality:** criteria have been defined that help determine the necessity of drafting a UX requirement.
- **Equivalence:** minimum UX requirements in the rulebook will apply to all scheme participants. If other means of payment are provided that exceed these requirements, scheme participants must ensure that the digital euro user

experience is at least equivalent to the user experience of their respective solutions.¹⁷

A set of generic minimum UX requirements has been developed that is applicable across all digital euro processes. These generic requirements include rules for end-user authentication (see example in Figure 9), alignment with branding requirements, controllability throughout the process of initiating payments, and a set of standards ensuring clarity, accessibility and user-friendly interactions by providing sufficient information and feedback when using digital euro functionality in PSPs' apps and on their websites. Furthermore, generic UX requirements were developed to ensure users have the option to receive notifications when waterfall and reverse waterfall functionalities are used or when holding limits are reached.

Figure 9

Generic UX requirements for authentication ensuring equivalence with other means of payment

7.1 Generic UX requirements

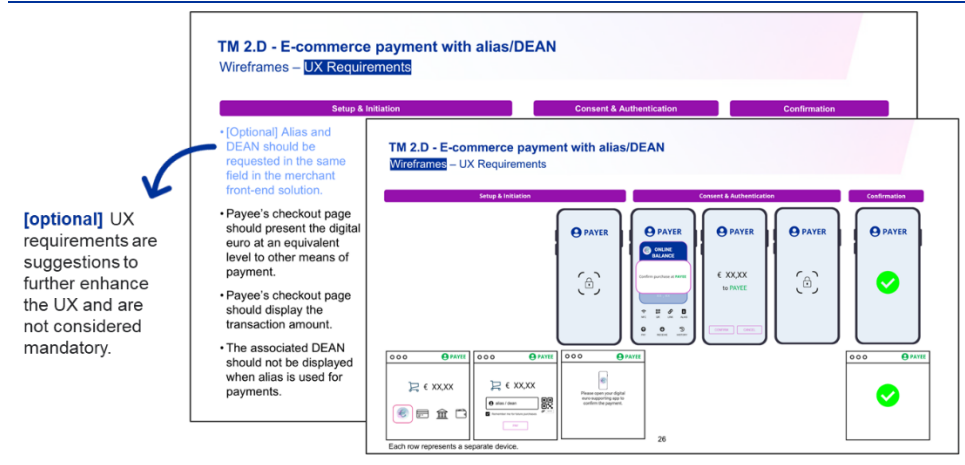
- | | |
|--------|--|
| UXR.01 | Digital euro users shall be able to use authentication methods equivalent to those available for other means of payment. |
| UXR.02 | Digital euro users shall be able to complete authentication in no more steps than are required for other means of payment. |

Specific minimum UX requirements capture rules specific to a particular user journey. The requirements will cover all digital euro services relevant for the end user. The latest version of the draft rulebook contains specific minimum UX requirements for POS payments using NFC, e-commerce payments using a digital euro account number (DEAN) or an alias, m-commerce payments with redirection from the shopping app to the payment app for confirmation, P2P offline payments using NFC, and P2P online payments using a DEAN or alias.¹⁸ Figure 10 shows an example of specific minimum UX requirements for an e-commerce payment using a DEAN or alias. Whereas the minimum UX requirements included in the draft rulebook are considered mandatory, some optional requirements have also been provided as recommendations to support PSPs in further enhancing the user experience.

¹⁷ Payment instruments and services that are commonly available to end users in the European payments market and are supported by the same front-end solution as the digital euro, such as credit transfers, direct debits, card payments, mobile payment solutions, e-money wallets, and open banking-based payments, while explicitly excluding cash and any payment instruments not integrated into the digital euro-supporting front-end solution.

¹⁸ The DEAN is a unique identifier of a digital euro account. An alias is an alternative means of identification, for example a phone number, that a user will be able to register with their PSP and use in the same way as a DEAN.

Figure 10
Specific UX requirements for e-commerce payments

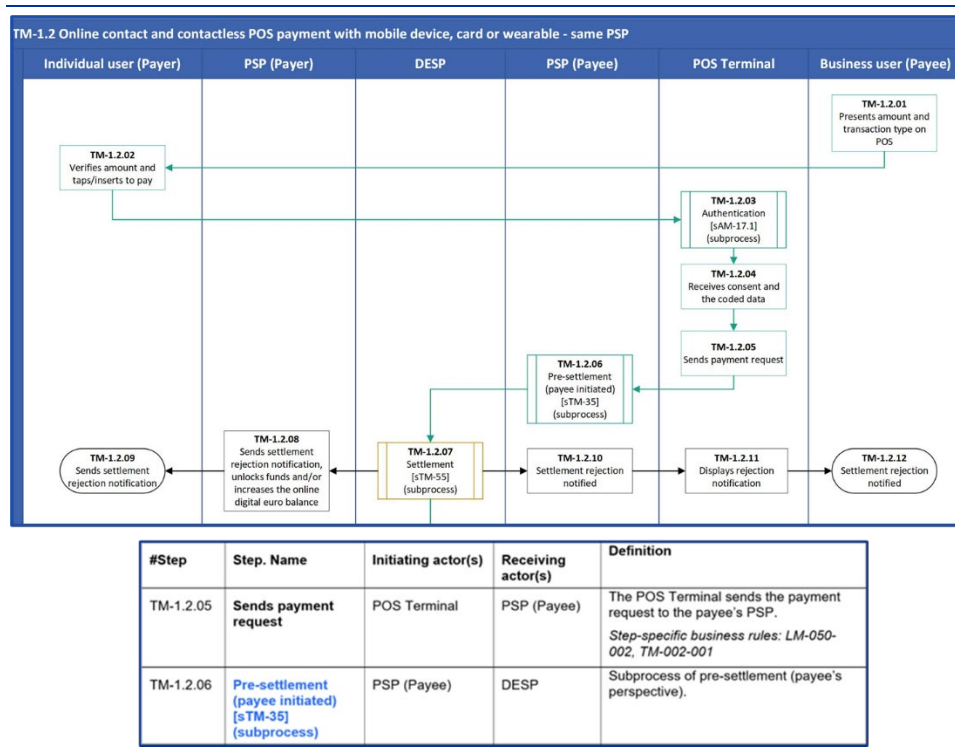


End-to-end flows

E2E flows outline the processes underlying the digital euro user journeys from initiation to completion. They visually and descriptively detail each step, including decision points and outcomes, for all key processes around the basic digital euro services. The draft rulebook contains around 130 E2E flows, covering each illustrative user journey and additional sub-flows across the access management, liquidity management and transaction management services. These E2E flows consist of a visual representation of the process accompanied by a description table specifying the steps, actors and applicable business rules, as illustrated in Figure 11.

Figure 11

Example of E2E flow for online contact and contactless POS payments with a mobile device, card or wearable– same PSP



Since the previous interim draft of the rulebook, the E2E flows have been updated to ensure completeness and improve clarity, consistency and alignment with developments related to the technical design of digital euro services. Improvements were made to ensure consistency between the flows, user journeys and business rules. Transaction flows were updated to reflect the “stateful” approach adopted for the back-end processing which reduces complexity, repetitive steps and processing times by retaining the state of each transaction throughout the pre-settlement process.¹⁹ In addition, input from market experts participating in the RDG workstream on back-end implementation specifications was incorporated to simplify the pre-settlement scenarios, taking into account different technical configurations used by PSPs. Overall, a large number of flows have been continuously refined on the basis of discussions with market experts, input from other RDG workstreams and further advancements on the technical solutions.

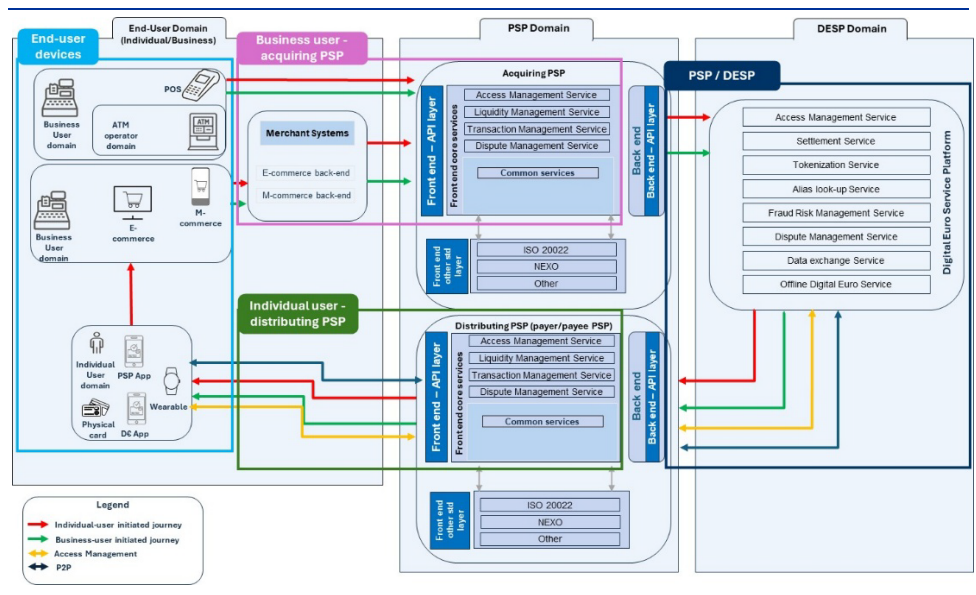
Implementation specifications

Implementation specifications prescribe the technical implementation required of PSPs to be able to offer digital euro services. Implementation specifications are detailed in annexes to the rulebook, divided into front-end and back-end

¹⁹ In a “stateful” back end, the server retains information about the client request across multiple requests, allowing for faster and simpler interactions between the PSP and DESP.

implementation specifications. The specifications included in the draft rulebook were developed through the efforts of dedicated RDG workstreams. The digital euro high-level functional architecture (shown in Figure 12) serves as the foundation for these specifications and defines three main domains: (i) payment instruments, user-to-application interfaces and acceptance solutions in the user domain; (ii) services for distributing and acquiring PSPs in the PSP domain; and (iii) services initiated by PSPs in the DESP domain.²⁰ The user and PSP domains together form the front-end domain, while the DESP domain constitutes the back-end domain.

Figure 12
Functional architecture specifying the digital euro domains and their interfaces



Front-end implementation specifications have been developed for end-user devices, interfaces, acceptance solutions and various services within the digital euro user and PSP domains.

Thus, the front-end implementation specifications cover all the interactions that take place in the front-end domain, for example between the individual user’s card or mobile phone and the merchant’s payment terminal. In comparison to the previous draft rulebook version and based on the input from the front-end implementation specifications workstreams, specifications have been developed for P2P and e-commerce transactions using DEANs, aliases, QR codes and pay-by-link, and for m-commerce transactions. Furthermore, additional specifications were developed covering standing orders, recurring payments and pre-authorisations.²¹ Figure 13 provides a schematic

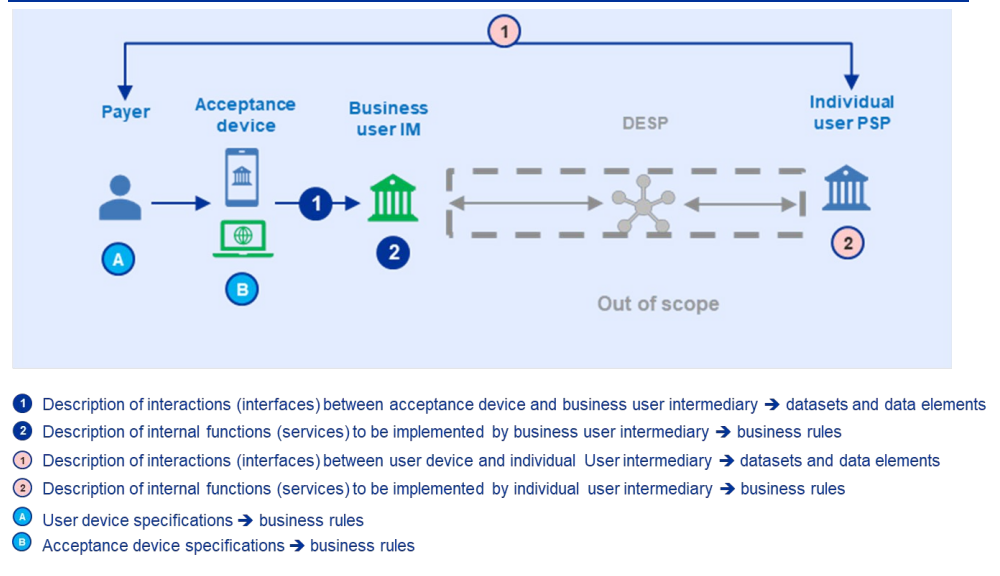
²⁰ A distributing PSP provides digital euro services to an end user (payer or payee), while an acquiring PSP provides digital euro services to a business user (merchant or government entity).

²¹ Standing orders are payment instructions that payers give to their PSPs to make regular, fixed payments to a specific payee and are automatically executed by PSPs without the need for intervention by the payer. Recurring payments are digital euro payment transactions for which a merchant has previously stored the payer’s information and for which the payer has given prior authorisation (e.g. fixed amount, frequency and end date). Pre-authorisations are used where the amount to be paid and the payment time are not known at the time of authorisation (e.g. at an automated petrol station). The user can be charged no more than the pre-authorized amount.

overview of the various implementation specifications that have been developed for e-commerce transactions.

Figure 13

Overview of all implementation specifications developed for the interactions, services and devices involved in e-commerce transactions



Back-end implementation specifications describe the necessary interactions between the PSPs and the DESP. Based on the input from the dedicated RDG workstream, the Eurosystem has worked on the further development of the back-end implementation specifications. Besides the implementation specifications that detail how PSPs can interact with the back-end services related to access management and alias lookup, a major recent addition has been the specifications for the settlement service. These describe, among other things, the interfaces necessary for instructing payments in digital euro, and for funding and defunding operations.

3.2 Other areas of the rulebook

Dispute management

A draft dispute management framework was added to the draft rulebook to provide a structured process for handling standard transaction disputes.

Proposed rules outlining the detailed dispute process, including dispute eligibility, valid dispute reasons, corresponding scenarios covered, conditions for initiating the dispute and supporting documentation requirements, have been included in the draft rulebook. This framework establishes standardised procedures to ensure disputes are raised only under valid circumstances. The scope of the dispute management is set by a pre-defined list of dispute reasons, each covering multiple scenarios. Each reason for initiating a dispute must include at least one applicable scenario, must be

supported by specific evidence and is consistently tracked through clearly defined status categories to ensure transparency and traceability. An example is illustrated in Figure 14.

Figure 14
Incorrect transaction amount

<i>Scenarios covered</i>	<ul style="list-style-type: none"> • A digital euro payment transaction was authorised by the payer for a specific amount, but a different amount was recorded and debited from the payer's digital euro account • The payee entered a different amount than what was authorised by the payer
<i>Conditions for initiating a dispute</i>	<ul style="list-style-type: none"> • The disputed transaction is either consumer-to-business or person-to-person • The payer recognises the payee, and the payer authorised the transaction but for a different amount than that recorded or debited from the payer's digital euro account
<i>Supporting documentation</i>	<p>To be provided by the payer and payer's PSP:</p> <ul style="list-style-type: none"> • Link or QR code used by the payer to authorise the payment transaction • For consumer-to-business digital euro transactions: purchase order, receipt, invoice or other documentation proving that the authorised amount differs from the debited amount • For peer-to-peer digital euro payment transactions: transaction confirmation or receipt with details of the intended amount <p>To be provided by the payee and payee's PSP:</p> <ul style="list-style-type: none"> • Purchase order, receipt, invoice, transaction record or other documentation showing that the amount debited matches the amount originally authorised by the payer

The framework also incorporates a structured dispute management process, addressing both standard transaction disputes and those related to funding and defunding operations. Specific dispute reasons and coding conventions have been introduced, complemented by guidance on dispute prevention and optimisation to reduce recurrence. Together, these provisions enhance user protection and promote consistency across PSPs.

Brand rules

To facilitate a harmonised user experience, regardless of the PSPs involved and the front-end services used, brand rules have been included in the draft rulebook.²² Brand rules govern the use of visual and conceptual elements of the brand to ensure a unified image is maintained across various channels, enhancing brand recognition and building trust among consumers, while considering ease of implementation for PSPs. The rules have been designed to cover all use cases and channels where the digital euro brand is used, providing clear guidance and requirements to scheme participants on the implementation of the digital euro logo and other branding elements across various scenarios. The development of the brand rules builds upon the work of a dedicated RDG workstream, which included industry experts in marketing and payments.

To address the diverse scenarios in which the digital euro brand will be applied, the brand rules are divided into general and specific brand rules. General brand rules cover elements such as logo usage, accessibility, brand integrity and physical brand visibility. This includes requirements for signalling acceptance,

²² See recital 59 of [Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro COM \(2023\) 369 final](#), 28 June 2023.

receipts and adaptation for international use to ensure the brand remains recognisable and consistent across the euro area. Specific brand rules address particular scenarios, such as the brand requirements for the integration of QR codes and the use of the digital euro brand within PSPs' own apps or websites.

Onboarding process

An onboarding process for PSP has been defined in the draft rulebook. The process consists of three main phases: (i) initiation and validation of the PSP request for scheme participation, (ii) certification and approval, and (iii) completion of the onboarding process (see Figure 15).

Figure 15

PSP onboarding to scheme – process overview



The draft rulebook describes the certification and approval process for PSPs and their solutions, as part of the PSP onboarding process. The approval and certification phase covers front-end, back-end and end-to-end certification of PSP solutions.

4 Further ongoing activities

In parallel to the work on the rulebook and the consultation on the latest interim version, the RDG has made further progress in several other key areas, including the identification of potential industry standards that may be used for the digital euro.

4.1 Potential open industry standards

The Eurosystem is committed to minimising adaptation costs for merchants, PSPs and device manufacturers by prioritising open, non-proprietary standards. Such standards, being transparent and publicly accessible, enhance market interoperability while minimising implementation efforts and costs. This commitment is aligned with the draft Digital Euro Regulation which emphasises compatibility with private digital payment solutions (recital 59) to the extent possible and places a best-efforts obligation on the ECB to foster interoperability between digital euro standards and relevant standards governing private digital means of

payment (Article 26). PSPs could leverage the digital euro's open standards to expand their reach across the euro area without needing their own acceptance networks.²³

Building on the input from the RDG workstream on certification, the ECB identified potential open standards that could be used for the digital euro to enhance interoperability across the European payment ecosystem. These standards support usage by all market participants across the euro area. An open pan-European payment acceptance network will also help reduce dependency on international card schemes rails. Another important step is to put in place governance agreements with the standardisation bodies. The ECB's involvement in standardisation governance enables it to shape the evolution of relevant standards, align them with digital euro needs and collaborate with key market players to further bolster interoperability. Potential standards identified for the front-end processing of digital euro transactions are [CPACE](#), the [European Payments Council \(EPC\)](#), [nexo](#) and the [Berlin Group](#).²⁴ Based on ongoing investigations and discussions with the standardisation bodies, the following areas for potential reuse have been identified.

- **CPACE:** This standard applies to contactless card and NFC use cases. It provides European card issuers with an alternative to existing proprietary contactless technologies. CPACE could potentially be used for digital euro payments in areas such as online POS and P2P transactions.
- **EPC:** The EPC oversees several standards relevant to the digital euro. One key example is the standard for QR-code payments (EPC024-22), which could be used for online POS, e-commerce, m-commerce and, potentially, ATM payments using QR codes. Technical investigations are ongoing to explore the potential reuse of other EPC standards, such as SEPA Request-to-Pay (SRTP) and payee verification.
- **nexo:** nexo standards are used for balance updates, reconciliation and ATM transactions. They define card payment messages that work across Europe and globally. For digital euro payments, nexo standards could support online POS, e-commerce, m-commerce and ATM payments, although some adjustments may be needed (e.g. specific fields for central bank digital currencies).
- **Berlin Group:** The Berlin Group's NextGenMobileP2P standard could support alias-based use cases, while its openFinance application programming interface could be applied to pay-by-link, balance inquiries and reconciliation. These standards might be reused in areas like m-commerce for digital euro payments across end-user devices, acceptance points and issuers.

²³ See "[Fit of the digital euro in the payment ecosystem](#)", ECB, 30 October 2025.

²⁴ The respective standardisation bodies may provide a broader range of standards. The standards mentioned here represent a subset identified as potential candidates for the front-end processing of transactions. This overview does not reflect any final decision by the ECB on the adoption of digital euro standards, nor does it imply endorsement by the respective standardisation bodies.

As none of these standards were originally developed for the digital euro, technical discussions have been initiated to assess and resolve the gaps between the industry standards and digital euro front-end payment processing.

Ultimately, the adopted open standards will also be reflected in the implementation specifications of the draft rulebook. The testing and certification framework of the rulebook will also reflect the required certificates for these standards, which PSPs and technical solution providers would need to acquire for their front-end solutions. The final adoption of the digital euro standards is contingent on the approval of the Governing Council of the ECB.

4.2 Other ongoing work

Exchanges are taking place with RDG members and their constituents to ensure that the digital euro integrates seamlessly into the European acquiring ecosystem. Following an initial plenary discussion, bilateral follow-up meetings drawing on RDG members' expertise will allow the ECB to obtain a comprehensive picture of existing acquiring business and operating models in the European market. Insights from the RDG engagements will be used to further refine the rulebook, aligning requirements with established market practices while preserving sufficient flexibility to accommodate innovative approaches.

In addition, the RDG has organised topical sessions to discuss various topics, such as liquidity management and risk management. These sessions support early-stage market engagement and help market stakeholders to understand and prepare for implementation.

Looking ahead, feedback from RDG members and their constituents on the draft rulebook will be reviewed to support the further refinement of the rulebook. The ECB will carefully consider all comments from RDG members and their constituents received by 31 October 2025. This will allow the Eurosystem to benefit from market stakeholders' expertise and help further strengthen the draft rulebook. Throughout this process, the Eurosystem will collaborate with the RDG on key insights of the collected feedback and any refinements they bring to the rulebook.

In collaboration with the RDG, the Eurosystem will continue to further advance areas of the rulebook that are yet to be fully developed. This includes input from the selected digital euro service providers, the identification of open industry standards, and efforts to further refine the participation and adherence requirements. Additional implementation specifications for areas such as the offline solution and NFC transactions, requiring the involvement of the RDG workstreams working on both front-end and back-end implementation specifications, will be developed. Updates will also be made to the front-end specifications related to the onboarding of individual users, balance enquiries and transaction history. Furthermore, non-functional requirements will be further detailed.

Further preparatory work on setting up the certification organisation will also take place. A key step will be defining the full certification scope, which is subject to the selection of open standards and assessing where there is a possibility to reuse existing certifications as well as where digital euro-specific certifications would be required (e.g. for the offline solution).

The Eurosystem will continue to collaborate with the market via the RDG to identify further opportunities for simplifications of the rulebook and ensure it supports synergies within the market. As identified in the ECB's report on digital euro investment costs for the euro area banking sector, exploiting synergies and mutualising costs by using shared infrastructures, common providers and group-wide solutions may lead to significant cost savings for PSPs.²⁵

A final draft of the rulebook will incorporate any future amendments stemming from discussions among the co-legislators on the European Commission's proposed Digital Euro Regulation and will be subject to public consultation. In the meantime, the ECB and the RDG will continue refining the rulebook's content and continue their ongoing dialogue with the market, incorporating feedback from the RDG consultation on widely shared market needs, in particular on topics such as innovation and financial inclusion, where needed.

²⁵ See, "A view on recent assessments of digital euro investment costs for the euro area banking sector", ECB, October 2025.