

# Progress on the preparation phase of a digital euro

## Third progress report

### Executive summary

**On 1 November 2023 a two-year preparation phase was launched to lay the groundwork for the potential issuance of a digital euro.** The primary objectives during this phase include providing a draft digital euro scheme rulebook, selecting potential providers for the digital euro platform and infrastructure, and conducting further experimentation and stakeholder consultations to ensure a digital euro would meet the highest standards of quality, security, privacy and usability. This report summarises the progress of the digital euro project from November 2024 to April 2025, confirming that key milestones and deliverables remain on track.

**A key focus during this period was continuing to develop the digital euro scheme rulebook.** This is an iterative and collaborative process and is coordinated through the Rulebook Development Group (RDG). The RDG brings together senior representatives from organisations on both the supply and demand sides of the European retail payments market, as well as observers from the Eurosystem and the EU institutions. Work has progressed on the development of the draft rulebook, addressing topics such as user experience requirements, brand rules, implementation specifications and risk management. The European Central Bank (ECB) has established workstreams – comprising around 50 participants from over 30 organisations – to look into these topics and other key aspects of the rulebook, and has hosted sessions with industry experts to address specific topics such as transaction latency and dispute management.

**In parallel, the ECB has launched an innovation platform and conducted extensive user research to ensure the digital euro's design addresses the needs of European citizens and is inclusive from the outset.** Through the innovation platform, around 70 market participants have conducted technical tests of features such as conditional payments and explored conceptual ideas and use cases to integrate the digital euro into the financial ecosystem. The ECB has also engaged small merchants, vulnerable consumers and under-represented groups through focus groups, interviews, and collaborations with consumer associations. These efforts aim to understand the challenges users face with current payment options and explore how the digital euro can be designed to be as inclusive as possible.

**The ECB has also made further progress on the design of the digital euro.** An accessibility strategy is being defined for the digital euro app to ensure that it is accessible to everyone, including people with physical disabilities, low digital skills or learning impairments. The ECB has developed user journeys and user experience guidelines to ensure a consistent and intuitive interface across both the digital euro app and the apps of participating payment service providers (PSPs).

**On the offline front, the ECB has continued to carry out technical analysis to ensure the digital euro remains operational during emergencies such as power or network outages.** Key areas under consideration include the duration of offline payment availability, activation of security measures during disruptions, and the feasibility of enabling merchants to receive payments without power. These efforts are aimed at enhancing the resilience of the digital euro and ensuring continuity of payments in critical situations.

**Continuous engagement with stakeholders remains a cornerstone of the digital euro project.** The ECB has intensified its outreach to market participants, merchants and consumers through technical sessions, workshops and bilateral meetings. Particular attention has been given to how the digital euro would fit into the existing European payments ecosystem. Dedicated sessions with PSPs, merchants and consumers, under the umbrella of the Euro Retail Payments Board (ERPB), assessed value drivers across the three themes “competition”, “synergies” and “business model”. The ECB also collected written feedback and held a provisional outcomes session to consolidate insights. This work supports the Eurosystem’s commitment to ensuring that the digital euro complements private sector solutions and integrates smoothly into the broader payments landscape.

**In parallel, the ECB has continued its engagement within EU fora, where discussions have focused on the strategic significance of the digital euro.** It has continued to regularly update the euro area finance ministers in the Eurogroup on developments in the digital euro project. The ECB has also provided technical input to support the legislative process. For example, it contributed to the expert-level discussions in the Council of the European Union with technical input on privacy and the possible use of the digital euro outside the euro area. The ECB also continued its regular dialogue with the European Parliament, maintaining the practice of regularly informing the Committee on Economic and Monetary Affairs (ECON) about the project’s progress. Public communication efforts have also been stepped up, with ECB representatives participating in over 20 public events and a dedicated seminar with civil society organisations to promote awareness and dialogue around the digital euro’s benefits and design.

## 1

### Introduction

**The Eurosystem’s digital euro project aims to adapt central bank money to the digital age, addressing current challenges of the European payments ecosystem.** As retail payments become increasingly digital, Europeans remain heavily reliant on foreign providers, such as international card schemes and big tech. This creates vulnerabilities in Europe’s resilience, economic competitiveness and monetary sovereignty, and increases the risk of fragmentation due to the development of different private means of payments that cannot be seamlessly used across countries. The digital euro aims to tackle these challenges by providing a single way to pay across the euro area, much like physical cash. It would also provide an infrastructure that could help national payment schemes scale up their services to the European level. As a digital complement to cash, the digital euro

would support financial inclusion, reduce dependency on foreign payment systems and foster a unified European payments ecosystem, ensuring that Europe retains its autonomy in a rapidly evolving global environment.

**Against this background, this report outlines the progress of the digital euro project from November 2024 to April 2025.** It summarises the work carried out during this period and its outcomes, confirming that key milestones and deliverables remain on track. In addition, it describes the technical input provided by the ECB to support the legislative efforts of European Union legislators, as well as the ECB's engagement with stakeholders and the general public.

## 2

## Developing a digital euro scheme rulebook

The development of the digital euro scheme rulebook is a collaborative process. The rulebook is being refined through iterative feedback with market participants to improve user journeys, end-to-end flows, and business rules.

**The preparation of the digital euro scheme rulebook is a collaborative and iterative process which is being shaped by extensive input from market participants and experts.** Stakeholders share their drafting input through the **members of the RDG**, which includes representatives from both the demand and supply side of the European retail payment market, as well as observers from the Eurosystem and the EU institutions. The draft rulebook is being designed with sufficient flexibility to accommodate potential changes resulting from the legislative process.

**In April 2025 the ECB published an update on the work of the RDG.** Since the previous **update in September 2024**, the RDG has focused on reviewing sections of the draft scheme rulebook and engaging with participants to develop sections on key topics. The feedback from the RDG members and the constituents they represent<sup>1</sup> has been of significant help in shaping critical areas of the rulebook, such as those defining user journeys, end-to-end flows and business rules. In parallel, the ECB is engaging with around 50 market participants through dedicated workstreams of the RDG to address specific areas of the rulebook.<sup>2</sup> Over 30 organisations across the euro area are represented, including PSPs, technical service providers, consumer groups, merchants and standardisation bodies. Their expert input is helping to ensure that the rulebook is practically sound and builds on existing industry practices and standards where possible. The rulebook's open standards will enable private PSPs to roll out retail payment solutions across the euro area, thereby mitigating the current market fragmentation and supporting innovation and competition.

**The different RDG workstreams have focused on the following areas.**

- Defining a methodology to develop minimum user experience requirements. These aim to ensure that the digital euro offers a state-of-the-art, harmonised and easily recognisable user experience while still providing market participants

<sup>1</sup> Constituents refers to the stakeholders, organisations and sectors that an RDG Member may represent.

<sup>2</sup> See "[Creation of seven additional workstreams of the digital euro Rulebook Development Group](#)", *MIP News*, ECB, 2024.

with sufficient flexibility, facilitating innovation and building on existing strengths and best practices.

- Reviewing existing market standards and certifications in the financial sector with a view to reusing them for the digital euro. The ECB has kept the RDG updated on its exchanges with standardisation bodies, as it is committed to using – to the extent possible – open, non-proprietary market standards to support compliance and interoperability across European payments infrastructure.
- Developing risk management rules to ensure strong operational resilience, with an initial focus on fraud risks and operational risks.
- Drafting technical specifications for both front-end and back-end systems. These will help PSPs prepare to offer digital euro services to individuals and businesses, as well as connect with the digital euro service platform (DESP).

**The ECB has also hosted sessions with industry experts nominated by the RDG on specific subject areas such as latency and dispute management.** In these sessions, market participants provided input on the end-to-end latency<sup>3</sup> of transaction flows, helping to inform the development of latency requirements for digital euro transactions. Similarly, expert sessions have increased participants' understanding of market practices concerning dispute management mechanisms and scenarios – a key aspect in ensuring end-user protection in digital euro payment transactions.

### 3

## Refining the digital euro through user research and experimentation

User research and experimentation are central to developing a digital euro that it is both user-friendly and innovative.

**Experimentation and user research are crucial pillars of the digital euro preparation phase and are helping to shape both the technical design and user experience of the digital euro based on real-world insights.** Developing a digital euro that truly benefits the people who use it, while unlocking new business cases for market participants, is at the heart of the digital euro project.

**The ECB has launched an innovation platform with European stakeholders to explore potential use cases of the digital euro.** Following [a call for expressions of interest in October 2024](#), the ECB received over 100 applications and then selected around 70 market participants to join the platform, including merchants, fintech companies, start-ups, banks and other PSPs, all of whom bring valuable insights and payments expertise.

**From February to May 2025, the ECB engaged with market participants through two dedicated workstreams: the “pioneers” and the “visionaries”.** The pioneers conducted technical tests on the innovation platform to test how features like conditional payments (payments triggered only under specific conditions, e.g.

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<sup>3</sup> Latency is defined as the time that elapses from the moment the acquiring PSP receives the payment instruction until the time the acquiring PSP receives confirmation/notice of rejection.

upon delivery of a parcel) could work in practice. Meanwhile, the visionaries focused on conceptual development, brainstorming creative ideas and use cases to envisage how a digital euro could fit into the financial ecosystem. This dual approach, combining technical expertise with forward thinking, encouraged collaboration across sectors to explore the digital euro's potential. The insights and outcomes from both workstreams will be shared in the second half of 2025.

**In parallel, the ECB has been working to better understand the needs and desired features of digital euro users and market participants.** In late 2024 the ECB directly engaged with small merchants and vulnerable consumers through in-depth focus groups and individual interviews in every euro area country. The goal of these activities was to explore the experience of these groups with existing digital payment methods, identify the challenges they face and learn how a digital euro could offer improvements on current solutions. The findings will be published in the second half of 2025. In addition, quantitative studies shed further light on what people expect from payment methods and applications, and what would make them consider switching their current preferences.

**The ECB has also been working closely with consumer associations to ensure that the voices of under-represented groups, such as minors and people with disabilities, are heard.** The goal is to better understand how these groups perceive the current design of the digital euro, learn which features they value most and identify ways to address their specific needs and concerns. This collaboration is a further step towards designing a digital euro that is inclusive and accessible to everyone. The findings from this research will be published in the second half of 2025.

## 4 Aspects related to the design of the digital euro

### 4.1 The digital euro app

The digital euro mobile app will provide Europeans with a seamless, pan-European solution for both online and offline payments, prioritising accessibility and ease of use. User experience guidelines will ensure the app is intuitive, user-friendly and recognisable for everyone.

**Consumers would be able to access digital euro services through two main channels: the digital euro app – a dedicated mobile application developed by the Eurosystem – and the apps of PSPs that decide to integrate the digital euro into their payment solutions.** The ECB has continued its technical work on the design of the digital euro app, aiming to support consumer recognition and deliver a harmonised user experience. Progress has been made on defining the accessibility strategy of the digital euro app to ensure it is accessible to everyone, including people with physical disabilities, low digital skills and learning impairments. The goal is not only to address physical barriers, but also to ensure using the app requires a low cognitive workload. Additionally, the ECB has developed user journeys and user experience guidelines to ensure a consistent, seamless and intuitive experience for all users irrespective of whether they use the digital euro app or the proprietary apps of PSPs.

## 4.2 The offline functionality

**The offline functionality of the digital euro should enable consumers to continue making payments even in emergency situations such as power or network outages.** The ECB has made significant progress in its technical analysis for the offline functionality. As the procurement process nears completion, efforts have focused on defining the necessary secure environment and specific features such as automated funding<sup>4</sup>, and assessing their potential impact. Until now, automated funding has primarily been explored for online use cases and has yet to be applied in offline scenarios. It would offer a more seamless experience for consumers, eliminating the need for them to worry about technical details.

**The importance of utilising a highly secure offline payment environment have been more clearly outlined.** Functionally, this environment should go beyond merely supporting cryptographic operations and key storage – it must also be programmable<sup>5</sup>, updatable and capable of ensuring atomicity<sup>6</sup> to prevent inconsistencies in the event of a power outage. From a security standpoint, it should be tamper-resistant and robust enough to withstand any plausible attacks that could compromise the payment process.

**The ECB is assessing the resilience measures that the digital euro's offline functionality should include to remain operational during a payment network outage, starting with exploring the feasibility of enabling users to top up their offline wallets under emergency conditions.** This involves finding a way to transfer funds to an offline wallet outside the usual payments infrastructure if that infrastructure becomes unavailable. The findings from these efforts will help inform decisions on whether to incorporate these capabilities into the final offline solution, in collaboration with vendors.

## 5 Engagement with external stakeholders

The ECB keeps continuous engagement with stakeholders, including legislators, market participants and the public.

**Continuous engagement with stakeholders, including external stakeholders, legislative bodies and the general public, is at the core of the digital euro project.** Engagement efforts aim to foster collaboration with market participants<sup>7</sup>, provide expert technical input to support legislative discussions, and enhance public understanding of the digital euro's objectives, benefits and impact on financial inclusion and innovation in payments. Through engagement with a diverse range of stakeholders, the ECB aims to ensure that the digital euro meets the needs of both users and the market.

<sup>4</sup> Automated funding refers to a functionality that allows funding of a user's digital euro payment account to be triggered based on a pre-defined threshold amount rule and/or date rule set by the user.

<sup>5</sup> "Programmable" here means capable of loading and executing an application, while guaranteeing the integrity of the execution flow and data. To recall, as also envisaged in the digital euro legislative proposal, the digital euro would not be [programmable money](#).

<sup>6</sup> Atomicity ensures that a sequence of operations is either performed in its entirety or not at all – never partially.

<sup>7</sup> See also Section 2, which outlines the ECB's engagement with the Rulebook Development Group in the context of developing the digital euro scheme rulebook.

## 5.1 Engaging with market participants

Engaging with market participants, merchants and consumers is crucial to explore the integration of a digital euro into the European payments ecosystem and address key challenges such as financial inclusion and consumer privacy.

**The ECB is intensifying its engagement with market participants.** [Transparency and close cooperation with stakeholders](#) remain key pillars of the project. To this end, the project brings together all actors involved in the digital euro ecosystem under the umbrella of the ERPB technical sessions on digital euro. By drawing on the existing skills and knowledge of market experts and insights from consumers, the ECB aims to design the best possible digital euro, ensuring it reflects the needs and preferences of people in Europe.

**Tailored ERPB technical sessions have been organised to discuss market feedback on how to develop a robust, data-driven methodology for calibrating a digital euro holding limit.** This technical work is being carried out through a rigorous and inclusive process which involves extensive input from a wide range of market stakeholders. Examples include technical workshops, written consultations and dedicated ERPB sessions, in which the ECB has provided updates on the preliminary methodology being developed<sup>8</sup> and gathered structured stakeholder feedback from ERPB members on key design considerations.<sup>9</sup>

**In parallel, the ECB has continued to engage with the market regarding how a digital euro would fit into the European payments ecosystem.**<sup>10</sup> This is a key topic for policymakers, legislators and market stakeholders alike, in view of which the ECB held extensive, dedicated discussions with market stakeholders as part of the ERPB technical sessions on digital euro. These discussions were tailored to each group of ERPB stakeholders: (i) bank and non-bank PSPs, (ii) merchants, and (iii) consumers. PSP-focused discussions began in the October 2024 ERPB technical session. Based on three core themes of “competition”<sup>11</sup>, “synergies”<sup>12</sup>, and “business model”<sup>13</sup>, the ECB and digital euro stakeholders assessed a total of sixteen potential value drivers. These sessions took place in November 2024, December 2024 and February 2025 respectively and were followed up with written feedback<sup>14</sup> and a outcome session each<sup>15</sup>. In the kick-off session the ECB reiterated the Eurosystem’s commitment to creating a digital euro that benefits the private sector – both PSPs and merchants – while guaranteeing access and usability for all citizens. In this context, merchant and consumer-focused discussions were scheduled for May 2025. In addition to ongoing efforts within the ERPB sessions, the

<sup>8</sup> See [update on work on methodology for holding limit calibration – agenda item 3](#).

<sup>9</sup> See [summary of feedback on work on methodology for holding limit calibration - agenda item 2 and written feedback after the 14th ERPB technical session \(Methodology for holding limit calibration\)](#).

<sup>10</sup> In the fourth quarter of 2024, the ECB launched the workstream “Fit in the Ecosystem”, as introduced in the ERPB technical session of 1 October 2024.

<sup>11</sup> See session [agenda](#) and [presentation](#). The session explained how the digital euro could help European payment providers become more competitive globally by giving them stronger negotiating power, better customer connections and more consistent user experiences.

<sup>12</sup> See session [agenda](#) and [presentation](#). The session explored how the digital euro could fit into current payment systems, promote shared standards, and clarify the roles and certifications of technical service providers to ensure smooth and secure integration.

<sup>13</sup> See session [agenda](#) and [presentation](#). The session focused on the compensation model for the digital euro and the topic of open funding, while also exploring potential business opportunities and inviting feedback on open questions from participants.

<sup>14</sup> See [written feedback](#) following the competition and synergies provisional outcomes session.

<sup>15</sup> See [ERPB engagement on digital euro fit in the payment ecosystem – competition and synergies provisional outcomes session](#).



ECB's stakeholder engagement included high-level meetings with merchants attended by Executive Board member Piero Cipollone, as well as a technical workshop focused on merchant and consumer-specific topics.

## 5.2 Technical input provided in the context of the legislative discussions

The ECB regularly engages with EU institutions and provides technical input to support the digital euro legislative process in areas such as privacy, data sharing and the use of data outside the euro area.

**The ECB engaged in discussions within EU fora regarding the strategic significance of the digital euro, which was also acknowledged by the euro area heads of state and government.** After the Euro Summit meeting on 20 March 2025, its members issued the following statement : *"In a more fragmented and digital world, accelerating progress on a digital euro is key to support a competitive and resilient European payment system, contribute to Europe's economic security and strengthen the international role of the euro. We invite the President of the Eurogroup to report regularly on progress with these initiatives."*<sup>16</sup>

**The ECB continues to regularly update the euro area finance ministers on digital euro project developments through the Eurogroup.** An update was provided in January 2025<sup>17</sup>, which reinforced the ECB's ongoing technical support in the legislative process<sup>18</sup>. This update provided an overview of the project's progress and highlighted the role a digital euro can play in supporting innovation, strengthening European payment systems and safeguarding financial stability. The ECB also maintains regular dialogue with the European Parliament, keeping its ECON Committee informed of project developments. On 8 April 2025, Executive Board member Piero Cipollone took part in a public exchange of views on the digital euro at a meeting of the ECON Committee.<sup>19</sup> In his introductory statement, he emphasised the need for a digital euro that complements cash – supporting financial stability, innovation and consumer protection while preserving monetary sovereignty amid geopolitical uncertainty and rapid digitalisation.

**The ECB continues to support the legislative debate at the technical level.**

Together with the Commission, the ECB is an observer to meetings of the Council Working Party (CWP) that discusses the digital euro legislative proposal, in which context it provides expert technical input, based on the Opinion<sup>20</sup> adopted by the Governing Council. At the request of the Council Presidency, the ECB provided technical input in the following specific areas.

- **ECB analysis on the use of the digital euro outside the euro area (January 2025 CWP).** The analysis found that public authorities outside the euro area would have more influence on the circulation of digital euro in their countries

<sup>16</sup> [Statement of the Euro Summit](#), 20 March 2025.

<sup>17</sup> See [Digital euro: state of play – Eurogroup meeting](#).

<sup>18</sup> See the [proposal for a digital euro Regulation](#) issued by the European Commission in July 2023.

<sup>19</sup> See Cipollone, P. "Empowering Europe: boosting strategic autonomy through the digital euro" introductory statement at the Committee on Economic and Monetary Affairs of the European Parliament, 8 April 2025.

<sup>20</sup> See [Opinion of the European Central Bank of 8 May 2025 on proposals for amendments to corporate sustainability reporting and due diligence requirements \(CON/2025/10\)](#).



than on the circulation of euro cash. This is because the draft Regulation requires the distribution of the digital euro in non-euro area countries to be based on arrangements or agreements with local authorities, without which it would not be possible for citizens of those countries to have digital euro holdings. In addition, the holding limit for non-euro area residents needs to be equal to or lower than the limit for euro area residents. Residents outside the euro area would need to gain access to digital euro services through European PSPs, which are required to perform identity checks when onboarding users. This means that access for non-residents would likely remain limited, which in turn would restrict the digital euro's function as a store of value outside the euro area, especially when compared with cash. At the same time, the analysis highlighted that allowing merchants outside the euro area to accept digital euro payments could strengthen the euro's role as an international currency and support trade in euro. This would not threaten the monetary sovereignty of non-euro area countries, since citizens would not be able to hold digital euro in the absence of arrangement/agreements and any payments received by merchants would be immediately converted into the local currency.

- **ECB technical input on privacy and data sharing<sup>21</sup>.** The ECB provided technical information on privacy, which is a key consideration in the digital euro's design and has also been at the core of the design of the digital euro service platform (DESP). The DESP is the technical platform for settling digital euro transactions and providing functions that cannot be accomplished by individual intermediaries. It features a best-in-class privacy model that will apply strict data segregation, ensuring that the Eurosystem cannot link transactions to users or infer any of their behaviours or identity attributes. Only PSPs will be able to identify the end user and link that identity to individual transactions. Furthermore, as provided for in the digital euro Regulation, the ECB will delegate certain DESP tasks to external providers of support services, which will further contribute to data segregation. The providers of support services will be subject to contractual safeguards that prevent the linking or onward transmission of any personal data that can only be processed for specific purposes, and when strictly necessary. Privacy enhancing techniques will be implemented and updated on a continuous basis by the Eurosystem and providers of support services, in open dialogue with market experts and the data protection community.

### 5.3 Engaging with the public

Public communication activities have focused on increasing awareness about the digital euro across all channels, with the topic featuring more prominently in ECB staff speaking engagements.

**Public communication activities aimed to raise awareness and foster a positive perception of the digital euro** by encouraging open dialogue and providing clear, accessible information to a wide range of audiences and through a variety of channels.

<sup>21</sup> See [Digital euro and privacy](#).

**The ECB has maintained a strong public presence through high-level speaking engagements**, with Executive Board Member Piero Cipollone and other project leaders participating in over 20 public and expert events to explain the objectives, design choices and benefits of the digital euro. These engagements have consistently underscored that the digital euro's role can strengthen Europe's strategic autonomy and competitiveness, in particular by addressing market fragmentation, fostering innovation in digital payments and reducing dependence on non-European providers.<sup>22</sup>

**The ECB engaged with civil society organisations in a hybrid seminar** on 13 November 2024. The seminar brought together European civil society organisations representing consumers, minorities and vulnerable groups to explore how the digital euro would enhance digital financial inclusion and ensure access to services and necessary support. Participants discussed concrete benefits of the digital euro, such as ease of use, the offline functionality, enhanced user privacy and the support it would provide to groups at risk of financial exclusion. The next in-house seminar with civil society organisations will be held in the third quarter of 2025 and will shed light on the possible impact of the digital euro on resilience and strategic autonomy.

## 6

### Next steps

**Over the coming months, technical work will continue according to the timeline set for the preparation phase.** Building on the progress made so far, the digital euro project will maintain its focus on providing a draft digital euro scheme rulebook, selecting potential providers for the digital euro platform and infrastructure and conducting further experimentation and stakeholder consultations to ensure a digital euro would meet the highest standards of quality, security, privacy and usability.

**The ECB is finalising five tender procedures – scheduled to be completed by the end of 2025 – to select providers for the digital euro platform and infrastructure.** Framework agreements will be signed with the selected providers to set out the terms for potential future work. These framework agreements do not involve any financial commitments from the Eurosystem at this stage. Subject to Governing Council decisions, the ECB will work with the selected providers to test and implement the digital euro's technical specifications, including the offline functionality.

**The ECB is drafting the scheme rulebook, incorporating feedback from ongoing consultations and further developing key areas together with the RDG.** The next draft of the digital euro scheme rulebook will be shared with the RDG members and the constituents they represent for an additional interim review during the second half of 2025. The draft rulebook will be sufficiently flexible to

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<sup>22</sup> For further information, see Cipollone, P. "The role of the digital euro in digital payments and finance", contribution to *Bancaria*, 28 February 2025 and Cipollone, P. "Interview with *Corriere della Sera*", ECB, 9 January 2025.

accommodate any future adjustments arising from the legislative discussions on the digital euro Regulation proposed by the European Commission in June 2023.

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