
WORKING PAPER

DIGITAL EURO: DEVELOPMENT, DESIGN AND IMPLICATIONS FOR THE PAYMENT AND FINANCIAL SYSTEMS

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Digital euro: development, design and implications for the payment and financial systems

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Abstract: The paper analyses the development of the digital euro project, its main features and its potential implications for the European payment and financial systems. The digital euro would be a digital form of central bank money intended for households and businesses, existing alongside cash and private money issued by commercial banks. Its development is driven by the digitalisation of payments, the declining relative importance of cash, the need to preserve direct access to public money, and efforts to strengthen the resilience and strategic autonomy of the European payment system. The paper is based on an analysis of documents issued by the European Central Bank and other European Union institutions, the proposed legislative framework, and relevant professional literature. Particular attention is paid to the phased development of the project, the legal and institutional framework, the two-tier distribution model through private intermediaries, online and offline functionality, holding limits, the fee model, privacy protection, and accessibility. The analysis indicates that the digital euro could broaden access to public money and contribute to the integration of the European payments market, while at the same time affecting competition, costs and the business models of existing payment service providers. The envisaged non-interest-bearing design, individual holding limits and automatic transfer mechanisms should mitigate potential risks to bank intermediation and financial stability. The ultimate effects will depend on the legal and technical design, user acceptance, and the way in which usability, privacy, competition and financial stability are balanced. For Serbia, the development of the digital euro is particularly relevant due to its integration with the European payments market, inclusion in the SEPA geographical scope and the widespread use of the euro.

Key words: digital euro, digital central bank currency, public money, payment system, payment services, financial stability.

[JEL Code]: E42, E58, G21, G28

Non-technical summary

An increasing number of everyday payments is made using cards, mobile applications and other digital means, while cash is practically the only form of central bank money that citizens can use directly. Although users perceive the money held in a bank account as being the same as the euros they keep in their wallet, it represents the liability of a commercial bank. It is precisely this distinction that underpins the digital euro project: the aim is to ensure that central bank money remains directly accessible to the public in the digital environment as well. The digital euro would not be a new currency or a replacement for cash, but an additional form of the existing euro intended for everyday payments.

The project, however, extends beyond the question of the form of money itself. The European digital payments market remains fragmented, while a significant share of card payments relies on non-European international card schemes. The digital euro is therefore also viewed as a common European payments infrastructure that would be available throughout the euro area, including the possibility of making payments without an active internet connection. The Eurosystem would issue the digital euro and provide the underlying infrastructure and settlement, while banks and other payment service providers would continue to interact directly with users. Basic services for citizens would be free of charge, while private intermediaries could develop additional services.

Such a model also raises the question of the relationship between public infrastructure and the private market. Regardless of its intention to complement existing forms of payment, the digital euro would compete at the individual transaction level with cards and other private payment instruments. One of the main challenges will therefore be to ensure that the common infrastructure contributes to the integration of the European payments market and reduces dependence on non-European networks, while at the same time preserving incentives for banks and other private-sector participants to invest in and develop new services. The ultimate market impact will depend on the rules governing access, the level of fees, interoperability and the actual level of use of the digital euro.

A particular issue concerns the potential implications for banks and financial stability. If significant amounts of bank deposits were transferred into digital euros, banks would lose a part of their funding base. This risk could be more pronounced during periods of financial uncertainty, when a central bank liability may become more attractive than a bank deposit. Therefore, the digital euro is designed to be non-interest-bearing, the amount that an individual can hold on a permanent basis would be subject to a limit, and funds exceeding that limit would be automatically transferred to a linked bank account. The ECB's analyses to date do not indicate that the digital euro would necessarily jeopardise the stability of the banking system under the scenarios considered, but the effects could vary significantly across individual banks. This conclusion therefore depends on the final level of the holding limit, user behaviour, and the economic and financial conditions prevailing at the time of any potential issuance.

Privacy, security and accessibility are also essential to the success of the project. Online payments would not be anonymous vis-à-vis the bank or other intermediary, but the Eurosystem should not directly link payment data to the identity of users. Offline payments should provide a higher level of privacy and, in this respect, be closer to cash. At the same time, the use of the digital euro should not depend on owning a smartphone or having a high level of digital skills. Therefore, alternative access methods and institutional assistance are envisaged for users who need them.

For Serbia, the digital euro does not imply the automatic introduction of a new means of payment. Its potential availability to Serbian residents will depend on the future legal framework and specific international and operational arrangements. Nevertheless, the development of the project is important given Serbia's close economic ties with the EU, its inclusion in the SEPA geographical scope, the significant use of the euro, and the potential impact of the new European infrastructure on cross-border payments. It is therefore appropriate for domestic payment service providers and the National Bank of Serbia to monitor the development of technical standards and future rules, without prejudging future access to the digital euro system or the need for a domestic central bank digital currency..

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1 Introduction

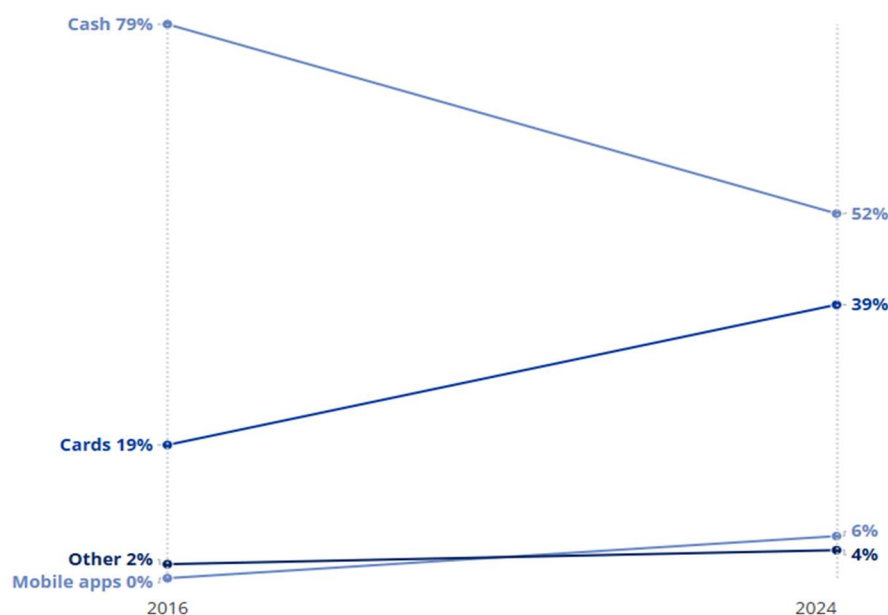
The accelerated digitalisation of economic activity over recent decades has changed the way households and businesses access and use money and make payments. Though cash continues to play an important role, particularly as a universally accepted means of payment and a form of central bank money that is directly accessible to the public, an increasing share of everyday transactions is carried out using payment cards, credit transfers, mobile applications and other privately provided digital payment solutions. Against this background, the question arises as to whether central bank money, directly available to the public through banknotes and coins, should also be offered in digital form.

One response by central banks – and the subject of this paper – is the development of central bank digital currencies (CBDCs). These are digital payment instruments denominated in the official unit of account that represent a direct liability of the central bank, rather than a claim on a private issuer. The digital euro would be a general-purpose, retail CBDC, available to individuals and legal entities and used alongside cash and existing private means of payment (BIS, 2020: 3–4; ECB, 2023a: 10–11).

The digital euro project was launched against a backdrop of the declining relative importance of cash payments, the growth of e-commerce, the expansion of private digital payment instruments, and the increasingly prominent role of large international companies in the payments and high-technology sectors (Big Tech) (Figure 1). The ECB justifies the project by the need to preserve direct access to public money in the digital economy, provide a universally accepted digital means of payment throughout the euro area, strengthen the resilience of the European payment system, and reduce dependence on non-European solutions. The digital euro is therefore envisaged not merely as a technologically modernised form of the euro, but as a monetary, infrastructure and market project that could affect the relationship between public and private money, the role of intermediaries, the fee structure, and competition in the payments market (ECB, 2023a: 4; ECB, 2025c: 6–8).

The project is developed in several successive phases. Following the investigation phase (2021–2023) and the preparation phase (2023–2025), the ECB Governing Council announced on 29 October 2025 that it is advancing the project to its next phase of technical readiness, focused on capacity building, piloting and cooperation with market participants. This decision does not mean that the digital euro has already been approved: the Governing Council can take a final decision on its issuance only after the EU’s legal framework has been adopted. At the time of writing, the legislative process had not yet been completed; on 9 July 2026, the European Parliament approved the opening of interinstitutional negotiations with the Council (ECB, 2023a: 42; ECB, 2025c: 5, 33–34; European Parliament, 2026a).

Figure 1 Payments for goods and services in the euro area, by payment instrument (in %)



Source: European Council, according to ECB data.

Note: Due to rounding, the sum of the percentage shares exceeds 100%.

The subject of this paper are the key features, development and the envisaged operating model of the digital euro, with a particular emphasis on the outcomes of the investigation and preparation phases and the technical readiness phase launched at the end of 2025. The aim of the paper is to provide a clear overview of the key design decisions concerning the digital euro and to analyse its potential implications for the payment services market, bank intermediation, financial stability, consumer privacy and European payments infrastructure.

The starting premise of the paper is that the digital euro should not be viewed solely as a new electronic payment instrument, but rather as an attempt to adapt public money and public payments infrastructure to the digital economy. Its impact will be determined not only by its technical features but, perhaps even more importantly, by the way in which the relationship between the Eurosystem and private market participants (intermediaries), holding limits, the fee model, acceptance requirements, privacy protection and access for users outside the euro area are structured. The success of the project will depend on its ability to reconcile usefulness for users, a sustainable business model for payment service providers and the preservation of financial stability.

Although the digital euro is primarily intended for the euro area, its development is also relevant for Serbia given its strong economic ties with the EU, the significant use of the euro, and Serbia's inclusion in the SEPA geographical scope. Any potential availability of the digital euro to residents of Serbia would depend on the final EU legal framework and specific international and operational arrangements. For the domestic payment system, the main areas of relevance are therefore the potential implications for cross-border payments, the operations of payment service providers, and the easier use of the euro in digital form (European Commission, 2023a: Art. 19; NBS, 2025).

The paper is based on an analysis of documents issued by the ECB and other EU institutions, the proposed legislative framework, technical reports produced during the various phases of the project, and other relevant sources. Following a conceptual definition of CBDCs and a discussion of the rationale for developing the digital euro, the paper presents the various phases of the project, followed by an examination of the legal and institutional framework, the envisaged operating model, the implications for the payment services market, the banking sector and financial stability, as well as issues relating to privacy, security and accessibility. The conclusion identifies the conditions that will determine the future role of the digital euro and briefly considers its significance for Serbia.

2 The digital euro – a new form of central bank money

This section first defines the digital euro conceptually as a distinct form of central bank money and then examines its place in the modern monetary system. Particular attention is devoted to the distinction between public and private money, the monetary anchor function, and the key reasons for developing the digital euro.

2.1 Concept and main characteristics of central bank digital currencies

It is more precise to define a CBDC as a digital form of central bank money, rather than as a separate currency existing in parallel with the euro. The BIS defines a CBDC as “a digital payment instrument, denominated in the national unit of account, that is a direct liability of the central bank” (BIS, 2020: 1). In its initial report of October 2020, the ECB likewise emphasized that it would not constitute a parallel currency, but rather a complement to the existing euro, convertible at par into cash and other forms of the euro. As a direct liability of the Eurosystem, **the digital euro would not be exposed to the credit risk** of a private issuer and **would represent the safest form of digital money** available to end users (ECB, 2020: 7–8). These definitions point to three fundamental characteristics of a CBDC: it exists in digital form, its value is denominated in an existing unit of account, and the user’s claim is directly against the central bank.

Based on the user base, CBDCs are most commonly divided into general-purpose instruments (retail CBDCs), available to households and businesses for everyday payments, and instruments intended for a limited group of financial institutions (wholesale CBDCs), used primarily for interbank settlement and transactions in financial markets. **The digital euro** would belong to the first category: **it would be intended for payments by individuals, businesses and public authorities** and would be used alongside cash and existing private means of payment (ECB, 2023a: 11–12).

The position of the digital euro can best be understood by comparing it with existing forms of money. Cash and the reserves that commercial banks hold with the central bank are liabilities of the central bank. Cash is available to the public but exists in physical form, whereas reserves are “digital” but accessible only to financial institutions. By contrast, deposits held with commercial banks and electronic money represent liabilities of private issuers (BIS, 2020: 3–4). The digital euro would fill the space between cash and reserves: it

would be digital like reserves, but accessible to the public like cash. The difference between the digital euro and a payment card or mobile banking application is that the latter are payment instruments, whereas the digital euro represents monetary value.

2.2 Public and private money and the monetary anchor function

The modern monetary system is based on the coexistence of public and private money. Central bank money comprises cash available to the public and the reserves of financial institutions, while private money used in everyday transactions consists largely of deposits held with commercial banks. Although a euro in cash and a euro held in a bank account are claims on different institutions, users treat them as equivalent because they are convertible at par. This convertibility rests on institutional arrangements, while central bank money serves as the monetary anchor: the ultimate public form of money into which privately issued money can be converted. Highlighting the fact that “people’s trust that private money can always be converted into central bank money could be jeopardised” (Lagarde and Panetta, 2022), the **ECB’s leadership argues that the digital euro would preserve confidence in the singleness of the currency, the payment system, financial stability, and even private money itself.**

This is important in the context of the declining use of cash, whose scope of use has been narrowing significantly in the digital environment (e-commerce). The purpose of the digital euro project is therefore not to “pre-empt” the disappearance of cash, as the ECB remains committed to ensuring its availability. **The key objective is to ensure, through the digital euro, that central bank money remains accessible to the public in a cashless environment as well.**

2.3 Why the digital euro? Key reasons

The above gives rise to the first reason for developing the digital euro: **preserving access to public money in the context of digitalisation of payments.** It would enable households to use, including for electronic transactions, a means of payment that represents a liability of the central bank. In this way, public money would remain accessible not only in physical but also in digital form. **The second reason concerns the absence of a single electronic payment solution for all euro area countries.** The existing European solutions are generally limited to individual national markets or specific types of transactions. According to ECB data, nearly two-thirds of card-based transactions in the euro area are carried out by non-European companies, while thirteen euro area countries depend entirely on international card schemes for point-of-sale payments (Cipollone, 2026). This raises the question of operational resilience and strategic autonomy. The digital euro would therefore be the first pan-European payment instrument operating under EU rules and on infrastructure whose key components are under the remit of the Eurosystem (ECB, 2023b: 4). The third reason is **to strengthen the resilience of the payment system.** The digital euro would provide an additional payment channel, thereby reducing dependence on a limited number of private providers and technical systems. In this context, the envisaged possibility of offline payments is particularly important, as it would enable certain transactions without an active internet connection and even without holding a bank account (Ibid.: 13).

The ECB's Chief Economist Philip Lane similarly views the rationale for introducing the digital euro, particularly in the broader context of preserving the two-tier monetary system, in which public central bank money and private bank money are available to the public alongside each other. In his view, prudence calls for preserving the public's direct access to central bank money even as the digitalisation of payments advances. He sees the rationale in the fact that there is no guarantee that confidence in the convertibility of private money would be maintained if cash were to lose its practical significance without a corresponding digital form of public money being made available. In addition, **the digital euro would constrain the market power of private payment infrastructures, provide a backup payment channel, and help overcome the fragmentation that still exists.** Lane also attributes political and institutional significance to the digital euro: by preserving a direct monetary link between public authorities and citizens, the digital euro would be a potent symbol of the economic and political unity of the European Union (Lane, 2025).

3 Development of the digital euro project: from investigation to technical readiness

The development of the digital euro project is a multi-phase process in which the rationale for the project, the main design options, technical feasibility and the conditions for potential deployment are examined separately. Moving to the next phase does not mean that a decision on issuance has already been taken; rather, investigation and preparatory activities continue, with **the ECB Governing Council retaining the option to take a final decision only after the relevant EU legislative framework has been adopted.**

The ECB published its first comprehensive report on the digital euro in October 2020, with the aim of examining the rationale for its potential issuance, the key design requirements, and the potential implications for monetary policy, financial stability and the payment system. The starting point was that it was first necessary to identify the scenarios in which the issuance of a digital euro would be justified, as well as the requirements that such a form of money would have to meet (ECB, 2020: 9–14).

On 14 July 2021, the ECB Governing Council decided to launch a two-year investigation phase for the project. Its objective was to examine key design and distribution issues and determine whether a digital euro could be developed that would meet users' needs without undermining financial stability or facilitating illicit activities. It was emphasized at the time that the launch of the project did not constitute a final decision on issuance.

3.1 Investigation phase (2021–2023)

The investigation phase ran from October 2021 to October 2023. During this phase, conceptual analyses and prototyping examinations were conducted, user needs were examined, and consultations were held with payment service providers, merchants and EU institutions. The main use cases were identified – person-to-person payments, payments at brick-and-mortar points-of-sale, e-commerce, and transfers to and from the public sector – as well as the

need for the digital euro to be available in both online and offline modes (ECB, 2023a: 3, 15–17).

This phase also saw the adoption of a **two-tier distribution model**, whereby the Eurosystem would issue the digital euro, provide settlement and manage the core components, while supervised payment service providers would establish relationships with end users. At the same time, the need to limit the amounts that individuals could hold was identified, so that the digital euro would not become a significant store of value. These decisions represented high-level design options, which were subsequently elaborated during the preparation phase (Ibid.: 12–13, 18–30).

The investigation phase concluded with the assessment “that it would be possible to develop a digital euro that, from a product design and distribution perspective, meets users’ needs and the Eurosystem’s requirements” (Ibid.: 42). The Governing Council then decided to move to a two-year preparation phase, which began on 1 November of the same year.

3.2 Preparation phase (2023–2025)

The preparation phase, from November 2023 to October 2025, was tasked with establishing the operational and technical foundations for a potential digital euro. This included developing the draft scheme rulebook, selecting potential providers of technical components and services, conducting experiments with market participants, and further analysing offline functionality, accessibility, architecture, and the methodology for determining holding limits.

One of the main outcomes of this phase was the **development of the digital euro scheme rulebook**. It sets out the common rules, standards and procedures that participants would apply to ensure consistent basic services and user experience throughout the euro area. The provisional draft rulebook, prepared in 2024 by the Rulebook Development Group (RDG), was subsequently expanded to include rules on minimum user experience, dispute and risk management, testing and certification. In parallel, an innovation platform was established to assess design elements and the potential for innovation, with around 70 banks, fintech companies, merchants and non-bank payment service providers testing selected payment flows and conditional functionalities (ECB, 2025a: 5–7, 22; ECB, 2025c: 1–2, 9–12, 14).

Research on the future user base, conducted to better understand the preferences and behaviour of end users of payment services, showed that different groups do not place the same value on the features of the new means of payment. More vulnerable users emphasized universal acceptance, simple design, direct support and the possibility of offline use, while small merchants highlighted low costs, easy integration into existing payment processes and the existence of genuine consumer demand. These findings were used in developing minimum user experience and accessibility requirements (ECB, 2025c: 26–27).

Although the ECB assessed the objectives of the preparation phase as having been achieved, its completion did not constitute a final decision on the issuance of the digital euro. **The outcome of the preparation phase was a more developed, although still evolving, draft rulebook, the selection of potential technical partners, and a body of analyses and experimental findings that can serve as a basis for the next phase of the project**, in which

the Eurosystem will “build the necessary technical capacity ahead of a possible decision to issue” the digital euro (ECB, 2025c: 34–35).

3.3 Technical readiness phase (from 2025)

Following the Governing Council’s decision of 29 October 2025, the project entered the technical readiness phase. Work is focused on developing and testing technical capabilities, deepening cooperation with payment service providers, merchants and user representatives, and supporting the legislative process. The Eurosystem emphasizes that preparations will follow a modular approach, so that the project can align with the final legal and functional framework (Ibid.: 35). This modular approach also implies flexibility, meaning that the focus will be on enhancing technical readiness, deepening communication with the market and supporting the legislative process.

During 2026, work on the scheme rulebook continued. Version 0.91 of the rulebook, published on 2 July, contains expanded requirements for user flows, testing and certification, risk management and technical specifications, but remains preliminary and non-binding. Nevertheless, **a pilot test of the digital euro is planned for the second half of 2027**, in order to assess technical stability, operational procedures, scalability and user experience in a controlled environment. **In July 2026, the ECB selected 36 payment service providers to participate in the pilot;**⁴ the value used in this environment will not have legal tender status (ECB, 2026a; ECB, 2026b; ECB, 2026c). From a regulatory perspective, given the absence of final legislation on the digital euro, the relevant framework will be the PSD2 – Second Payment Services Directive (ECB, 2023a: 18).

Assuming that the legislative framework is adopted in a timely manner, **the Eurosystem aims to achieve technical readiness for a potential first issuance in 2029**. This is a conditional timeline, meaning that the final decision remains within the remit of the ECB Governing Council and will depend on the adopted legal and functional design, the results of the pilot, and the prevailing economic and financial conditions.

4 Legal and institutional framework

It is important to note that, although they are proceeding in parallel, **the legal and technical development of the digital euro are separate processes**. The Eurosystem is developing the design and ensuring the technical readiness of a potential digital euro, while the European Parliament and the Council of the European Union, under the regular legislative procedure, are establishing the framework within which this digital currency would be issued and used. Accordingly, progress on the technical project does not, in itself, create a legal basis for the launch of the digital euro, just as the adoption of the regulation would not oblige the ECB to issue it.

⁴ Among the banks in the region with subsidiaries in the Republic of Serbia, the 36 payment service providers include Raiffeisenbank Austria d.d. in Croatia and Nova Ljubljanska banka d.d. in Slovenia.

The institutional framework is based on a **division of responsibilities**. The provisions governing the tasks of the Eurosystem and the issuance of money, including Articles 127 and 128 of the Treaty on the Functioning of the European Union (TFEU) and Articles 17 and 22 of the Statute of the ECB, provide the basis for the ECB's role in the areas of money and payment systems. However, the general rules governing the use of the digital euro are established by the European Parliament and the Council on the basis of Article 133 of the TFEU. The ECB is therefore not the legislator in this process, but retains the exclusive competence to authorise the issuance of the digital euro (Grünewald, 2023: 17–20).

On 28 June 2023, the European Commission presented a package on the single currency. Its central element is the Proposal for a Regulation on the establishment of the digital euro,⁵ based on Article 133 of the TFEU. The package also includes a proposal on the provision of digital euro services by providers in member states that have not adopted the euro, as well as a proposal to safeguard the status and availability of euro cash. The choice of the regulation is intended to ensure direct and uniform application throughout the euro area, while at the same time emphasizing that the digital euro should complement, rather than replace, banknotes and coins (European Commission, 2023a; European Commission, 2023b; European Commission, 2023c).

The proposed regulation defines the digital euro as a digital form of the single currency available to individuals and legal entities. The ECB would have the exclusive right to authorise its issuance, while the digital euro would be issued by the ECB and the national central banks of the euro area. Following the adoption of the regulation, the Governing Council would decide whether, when and in what form the digital euro would be issued (European Commission, 2023a: Articles 3–4).

For practical implementation, it is important to distinguish between the role of the issuer of the digital euro and that of the institution providing payment services to the end user – the intermediary. **The digital euro would represent a liability of the Eurosystem, while the payment service user would establish a contractual relationship with a bank or another authorised payment service provider.** Intermediaries would open and maintain accounts or digital wallets, carry out customer identification, execute payments and provide customer support – but, unlike the case with “ordinary” money held in an account, they would not be the issuers of the monetary value itself (ECB, 2023a: 18–27). This means that **the end user would not interact directly with the ECB or a national central bank**, even when using its front-end interface through which the digital euro is accessed.⁶ **Article 6 provides that supervision of payment service providers would be carried out by national competent authorities in cooperation with the ECB** (European Commission, 2023a: Arts. 6, 13 and 28).

The proposed Regulation also provides for the digital euro to have the status of legal tender. This (envisaged) measure would entail an obligation to accept it at full face value, meaning that its use by the payer would discharge the monetary obligation (Arts. 7 and 9).

⁵ Proposal for a Regulation of the European Parliament and of the Council on the establishment of the digital euro.

⁶ Articles 25–33 of the proposed Regulation also provide for the possibility for a commercial bank itself to develop a similar interface, allowing payment service users to choose which interface they wish to use.

Nevertheless, **the obligation to accept the digital euro would not be universal**: among others, individuals engaged in personal activities at household level, as well as micro enterprises and non-profit legal entities that do not accept comparable cashless means of payment, would be exempt from this obligation.

Distribution of the digital euro would be entrusted to banks, payment institutions and other authorised payment service providers. **Credit institutions that already provide basic services in connection with payment accounts would be required, at the request of their customers, to also offer basic digital euro services.** In accordance with Directive (EU) 2019/882, Article 14 of the proposed Regulation provides that, where a person does not have or does not wish to have a payment account, member states must ensure access to digital euro services through public authorities or postal offices. A support scheme is also envisaged for older persons, persons with disabilities and users with limited digital skills. Basic services for individuals, including opening and managing an account or wallet and making payments, would be provided free of charge.

Access for persons outside the euro area would not be automatic. Under Article 18 of the proposed Regulation, **payment service providers would be able to make the digital euro available to residents of EU member states that are not part of the euro area** only where a separate arrangement has been concluded between the relevant national central bank and the ECB. This would require the national central bank to first submit a request and undertake to abide by “any rules, guidelines, instructions or requests” issued by the ECB in relation to the digital euro, including those concerning supervision. **In the case of “third countries”** that are neither EU member states nor part of the euro area, similar rules would apply, except that a separate arrangement would first have to be concluded between the third country and the European Union, followed by an arrangement between the ECB and the national central bank. Distribution of the digital euro in such a country – including Serbia – would require the national central bank to provide all necessary information concerning the use of the digital euro within its territory that the ECB might request. As regards cross-currency payments between the digital euro and other currencies, the applicable arrangements would be those previously concluded between the ECB, on the one hand, and the national central banks of EU Member States whose currency is not the euro and third countries, on the other. To ensure interoperability between payments in digital euros and other currencies, Article 21 provides for cooperation between the ECB and national central banks.

At the time of writing, the legislative process had not yet been completed. On 19 December 2025, the Council of the European Union adopted its negotiating position, supporting a legal framework for the online and offline use of the digital euro, free basic services, and its status as legal tender. Among other things, the Council’s position provides for the ECB to determine individual holding limits within an overall maximum set by a Council decision, with a view to balancing the ECB’s responsibilities with broader considerations of financial stability and monetary sovereignty (Council of the European Union, 2025a).

The European Parliament adopted its position in the competent committee on 23 June 2026 (European Parliament, 2026b), and on 9 July approved the opening of interinstitutional negotiations with the Council (European Parliament, 2026a). **The Parliament supported online and offline use, free basic services, privacy protection and limits on individual**

digital euro holdings. Interestingly, the issue of strategic autonomy is becoming increasingly prominent in the positions of the legislators as well. Both the Council and the European Parliament link the digital euro to strengthening the resilience of the European payment system and reducing dependence on providers from outside the European Union (Council of the European Union, 2025b; European Parliament, 2026b). According to ECB data, international card schemes processed 64% of all electronically initiated transactions made with cards issued in the euro area in 2023 (ECB, 2025b: 11).

5 Design and functioning

The final design of the digital euro will depend on the outcome of the legislative process and the subsequent decision of the ECB Governing Council on issuance. Nonetheless, the investigation and preparatory phases have shaped a sufficiently clear operational model: the digital euro would be a direct liability of the Eurosystem, but would be distributed to end users through banks and other authorised payment service providers. It would be intended for retail payments, available in both online and offline modes, and accompanied by mechanisms that limit its use as a store of value.

5.1 Issuance, distribution and user access

The Eurosystem would issue the digital euro and provide the core infrastructure, while supervised payment service providers would carry out most of the operations in direct contact with users. Their functions would include user identification and onboarding, opening and managing accounts or wallets, loading and withdrawing funds, initiating payments and providing customer support. Intermediaries would provide the payment service, but would not be issuers of the monetary value, which would represent a claim on the central bank (ECB, 2023a: 18–30; European Commission, 2023a: Art. 13). **Users would access the digital euro through the applications and electronic channels of their intermediaries, or through a dedicated Eurosystem interface;** even in the latter case, there would be no contractual relationship between the user and the ECB or the national central bank (European Commission, 2023a: Art. 28; ECB, 2023a: 19–20).

To ensure that access does not depend on owning a modern smartphone or a high level of digital literacy, **the use of a physical card or other suitable device is also foreseen** (ECB, 2025c: 21–22). In Article 31 of the proposed Regulation, the European Commission has provided for easy switching of payment service providers, while retaining the digital euro account identifier, which, it is considered, would facilitate service portability and reduce dependence on a single intermediary.

5.2 Use cases, account top-up and conditional payments

The digital euro would be intended for basic forms of payment: transfers between natural persons, payments in shops, e-commerce, and payments to and from public authorities, such as taxes, fees, subsidies and social benefits. The specific standards and user flows would be

set out in the scheme rulebook, and **the technical solutions under consideration include QR codes, NFC, hyperlinks and digital euro account numbers (DEAN)** (ECB, 2023a: 15–17; 2023b: 10).

Depending on the scope of services that banks and other credit institutions will provide, funds could be transferred into digital euro from a payment account or by depositing cash, and the same would apply in the reverse direction. Digital means of topping up and withdrawing funds should be available on a continuous basis, while cash-related transactions would depend on the available infrastructure and the times at which the intermediary otherwise provides cash-desk-related services (ECB, 2023a: 22–23). The **so-called conditional payments** are also envisaged, **in which the transfer of funds is executed automatically upon a pre-defined condition**. Funds could be temporarily reserved and then transferred to the payee following, for example, the confirmation of a delivery of goods or performance of a service. Activities relating to these conditions would be carried out by payment service providers within a separate conditionality layer, while the Eurosystem would provide the back-end layer for settlement and funds reservation purposes (ECB, 2025c: 21). It should be noted that this conditionality of payment is not the same as programmable money – a type of digital money with separate built-in logic and restrictions on the type, recipient, timing of execution and other features of transactions. Article 24 of the proposed Regulation explicitly states that **the digital euro would not be programmable money**; conditions may determine the moment of the execution of a specific transaction, but not the general usability of the digital euro held by the user (ECB, 2023b: 24).

5.3 Online and offline mode of operation

According to the Commission’s proposal, online and offline modes should be available from the initial issuance. The online mode would cover payments at brick-and-mortar points-of-sale, e-commerce and transfers between remote users. If the user has previously linked the digital euro account to a payment account (or to one of the payment accounts) and activated the corresponding function, the missing amount could be automatically withdrawn from the linked account, therefore it is not necessary to hold the full payment amount in digital euro in advance (European Commission, 2023a: Art. 23; ECB, 2023a: 13–17, 23).

The offline mode would be intended for payments between devices in close proximity,⁷ without an active internet or telecommunications connection and without forwarding each transaction to an online system. Funds would be transferred in advance to a protected element⁸ on the phone, card or other device, and the payment would be executed by directly updating locally stored balances, without data storage or validation by payment service providers. For topping up or withdrawing funds for offline use – as well as for periodic checks of security

⁷ Art. 23 of the proposed Regulation envisages that close proximity payment can be executed online as well, of which payment service users would be informed in advance.

⁸ This refers to protection against unauthorised physical modifications (tamper-proof chip) with pre-embedded software capable of storing confidential and cryptographic data and running secure applications.

functions – the device would need to connect to the system (ECB, 2023a: 13–14, 22; ECB, 2025c: 16–17).

The offline mode would enable payments during internet and telecommunications service outages, and would **provide a higher degree of privacy, closer to cash payments**. Data on individual offline transactions would not be available to intermediaries or the Eurosystem. Locally stored funds would be exposed to a risk similar to that of cash: if the device is lost or stolen, recovery of the funds would not be possible, nor would it represent an obligation of the intermediary or the Eurosystem (ECB, 2023a: 14, 38).

5.4 Holding limits and fund management

The digital euro is not intended as an investment asset or a means of saving. Funds held by natural persons would not bear interest and would be subject to an individual holding limit, the final amount of which has not yet been determined. The main task during the project's preparatory phase was to develop a methodology for calibrating the digital euro holding limit. The purpose of this methodology, which is being developed in cooperation with the national central banks and relevant institutions of the euro area member states, is to **maintain a balance between ensuring the usefulness of the digital euro as a means of payment, the effectiveness of monetary policy, and financial stability**; the purpose of the holding limit would be to mitigate the risk of excessive and persistent shifts of deposits from commercial banks into central bank money (ECB, 2023a: 12–13, 33; ECB, 2025c: 23; European Commission, 2023a: Arts. 15–16). In 2025, at the request of the legislators, the ECB analysed hypothetical limits ranging from EUR 500 to EUR 3,000 per natural person; the appropriate amount would be determined closer to the possible issuance date and in light of the economic and financial conditions at that time.

The practical impact of the limit would be mitigated by waterfall and reverse waterfall mechanisms. If a received payment increases the balance above the limit, the surplus would be automatically transferred to the linked payment account. If the user wishes to pay more than their available digital euro balance allows, the difference would be automatically withdrawn from the linked account. Account linking and the activation of these functions would be voluntary and would require the user's prior consent (ECB, 2022: 10; ECB, 2023a: 14–15, 23). These mechanisms would apply to online funds; offline funds would need to be topped up in advance and would have a separate limit per device, as part of the overall individual limit.

In the model developed during the investigation phase, corporates and public authorities could receive and execute payments, but could not permanently accumulate online funds. For them, a zero online holding limit is foreseen: received amounts would be automatically transferred to a bank account, while funds needed for a payment would be withdrawn immediately before the transaction. Limited funds received offline could temporarily remain on the acceptance device until the connection is re-established; the final parameters of this exception have not yet been determined (ECB, 2023a: 12–13, 23–24).

5.5 Settlement and technical architecture

With regard to the settlement of digital euro payments, final settlement for online and offline payments would occur at different times. For online payments, final settlement would take place when the transfer is recorded in the Eurosystem infrastructure, and for offline payments, after the local updating of balances on the payer's and payee's devices (European Commission, 2023a: Art. 30).

According to the technical concept developed during the preparatory phase, **the continuity of the online digital euro service would rest on a centralised ledger, distributed across a multi-regional infrastructure with servers on multiple physically separated sites.** In this way, business continuity would be ensured even in the event of a collapse of the data-processing infrastructure – because transactions would be redirected to servers in regions where there are no disruptions. The centralised ledger was chosen because holding a digital euro means holding a direct liability of the central bank, which means that the Eurosystem must be able to correctly record, and thus verify, all settlements relating to those liabilities (ECB, 2025c: 17–19).

It follows from the above that the envisaged digital euro model seeks to combine the security of central bank money with the existing network of private intermediaries and user interfaces. Its practical usability will depend on the ease of switching between digital euro, bank deposits and cash, the quality of the online and offline user experience, and the calibration of the holding limits so as to protect the financial system without diminishing the usefulness of the payment instrument.

6 Impact on the payment services market

The above exposition of the features and functionalities of the digital euro, at least according to the current decisions of the competent institutions, has shown that the introduction of the digital euro would not, by its effects, be limited solely to the emergence of a new payment instrument, but would partially rearrange the institutional and economic structure of retail payments in the euro area. The Eurosystem would provide the monetary value, common rules, central infrastructure and settlement, while banks and other payment service providers would retain direct relationships with users and merchants. The digital euro is therefore conceived as a public infrastructure layer embedded in the existing payment ecosystem, but its introduction would inevitably affect the costs, revenues and market position of existing intermediaries (ECB, 2025b: 3–5, 30).

6.1 Impact on banks and other payment service providers

Banks would have a central role in the distribution of the digital euro. Credit institutions that already provide payment account services would be obliged to offer clients, upon their request, basic digital euro services, while other authorised payment service providers could participate at their own commercial discretion. Articles 14 and 17 of the proposed Regulation provide for **free basic services for natural persons, with intermediaries being able to**

develop and charge for additional services, including certain forms of conditional payments (European Commission, 2023a: 24, 26).

An important advantage for intermediaries would be the ability to integrate the digital euro into their existing mobile phone applications, e-banking and wallets, thereby maintaining a direct relationship with clients. **At the same time, a dedicated Eurosystem interface is foreseen, which would provide a uniform fallback access option and thus reduce the development costs borne by smaller institutions.** There is no consensus regarding the mandatory support for this interface: the ECB, consumer representatives and merchants emphasize resilience, inclusion and a consistent user experience, while intermediaries cite additional costs and a possible weakening of client relationships. The final solution will depend on the legislative process (ECB, 2025b: 25–28).

The introduction of the digital euro would require significant initial investments in user interfaces, user identification and onboarding, liquidity management, limit controls, fraud prevention and customer support. The ECB estimates that the total investment by the euro area banking sector could amount to between EUR 4 bn and EUR 5.8 bn, i.e. between EUR 1 bn and EUR 1.44 bn per year over four years. This level of costs is “comparable to the costs of initiatives such as the introduction of PSD2 and lower than the investments for SEPA harmonisation” (ECB, 2025c: 32).

The costs would not be evenly distributed. Fixed investments could be spread across a wider customer base by large banks, while for smaller banks and payment institutions they would represent a relatively greater burden. **For this reason, the option of “digital euro as a service” is being developed**, whereby an intermediary would procure part of the necessary functions from a specialised technical provider or processor, rather than developing the entire system independently. Such a model could reduce investment and maintenance costs, particularly for smaller intermediaries, but would require managing the risks of outsourcing, business continuity and concentration of services with a limited number of providers (ECB, 2025b: 30, 35–37). In addition, a common infrastructure could create scope for new services that could be charged (Ibid: 10, 30–31).

The net impact on intermediaries’ revenues cannot be unambiguously determined. Part of existing electronic payments could shift to the digital euro, while free basic services and the limitation of fees would narrow certain sources of revenue. Conversely, intermediaries would be compensated for distribution, the Eurosystem would not charge them for the bulk of its own costs, and they could develop additional services. The final effect will depend on the degree of usage, the fee model and the ability of institutions to leverage the new infrastructure (ECB, 2023c: 12; ECB, 2025b: 30–33).

6.2 Fee model and merchant position

The proposed fee model seeks to balance three objectives: free basic use for natural persons, an appropriate fee structure for intermediaries, and protection of merchants from excessive costs. Since basic services would not be charged to natural persons, **an intermediary fee is foreseen, which would be paid by the merchant’s payment service provider to the payer’s payment service provider, while the merchant would pay a**

merchant fee to its acquirer. Both fees would be capped at the lower of two amounts: the relevant costs with a reasonable profit margin, or the fees for comparable private cashless payment instruments. **The cost-based limit would be based on the costs of the most efficient providers** that together distribute one-quarter of the digital euro in the euro area (European Commission, 2023a: Art. 17; ECB, 2023c: 12).

The fee cap is linked to the envisaged status of the digital euro as legal tender. If intermediaries had full freedom to set the price of accepting digital euro payments, merchants, who are in principle obliged to accept digital euro, would be in a weak negotiating position. At the same time, intermediaries require adequate compensation to have an incentive to actively distribute the digital euro and provide a quality service. A certain advantage for merchants would be the simpler cost structure: the Eurosystem would not charge fees related to scheme or processing operations, although acceptance would not be free, as merchants would still pay for the services of their intermediaries (ECB, 2023c: 12; ECB, 2025b: 30–31, 41–42).

As banks and other payment service providers warn, it has been observed that a single upper fee cap may not sufficiently reflect differences between national markets, cost structures and the allocation of responsibilities in cases where payment accounts and digital euro accounts are held with different institutions. Merchants, by contrast, consider the cap necessary and expect lower and more transparent costs than existing comparable payment instruments. The economic sustainability of digital euro distribution will, accordingly, depend on the final solution reached by the European legislative bodies (ECB, 2025b: 30–33).

6.3 Competition, interoperability and market structure

The digital euro could simultaneously be both a competitor to existing payment instruments and an infrastructure on which private providers develop their own solutions. Common standards and a broad acceptance network could create a common acceptance layer for account-to-account (A2A) payments, available at brick-and-mortar points-of-sale and in e-commerce. European payment solutions could thus expand their geographical reach without having to independently establish an acceptance network in each country (ECB, 2025b: 3, 10–13; ECB, 2025c: section 6.2.1).

Nevertheless, the objective on which European institutions insist – that the digital euro should not crowd out private payment instruments – has an objective limit: in each transaction, the user chooses only one payment instrument. This means that the digital euro inherently competes with private solutions. Hence, the more interesting question is whether the digital euro can be calibrated so as to help reduce the fragmentation of the European payments market, without distorting incentives for innovation in the private sector.

The ECB emphasizes that the digital euro can make a difference, given that there is currently no pan-European market solution that satisfies the use cases at which the digital euro is aimed, namely person-to-person (P2P) payments, online payments and payments at brick-and-mortar points-of-sale. Nonetheless, **the possibility is foreseen of voluntary co-badging of the digital euro and a domestic or regional payment scheme on the same physical card.** The private scheme could be used where it already has an acceptance network, with the digital

euro as a fallback solution in the rest of the euro area. This could enable certain European schemes to achieve pan-European reach, although some intermediaries remain sceptical due to technical complexity, costs and branding concerns (ECB, 2025b: 28–29).

The impact on competition would not be automatically positive. A common infrastructure could lower barriers to cross-border expansion and increase the negotiating power of European intermediaries and merchants, but high fixed costs, integration complexity and reliance on a limited number of technical providers could also favour the largest companies, i.e. financial institutions. Existing global operators would still possess strong brands, large user bases and established merchant relationships, so the mere existence of a public infrastructure does not guarantee a significant shift in market shares. Hence, it can be concluded that the final effect on market structure will be influenced by access rules, interoperability, the level and structure of fees, and the roll-out schedule of functionalities. A successful model will require common public standards, broad acceptance and low barriers to entry, but also sufficient scope and economic incentive for the private sector to differentiate and innovate. Failing that, the digital euro could increase costs without materially weakening the existing market concentration; if the balance is struck, it could contribute to market integration and reduce dependence on non-European networks – an emphasis that has become increasingly noticeable, particularly in recent years.

7 Impact on the banking sector and financial stability

The most important risk associated with the introduction of the digital euro arises from the possibility that households may convert part of their commercial bank deposits into a direct liability of the central bank. If this shift were large or sudden, it could change the funding structure of banks, increase their costs and indirectly affect loan supply and financial system stability. This means that the risk depends not only on the existence of the digital euro, but also on the demand for it, the level of the holding limit and the general conditions in the banking system. For this reason, a distinction should be made between the effects under normal circumstances and the possible consequences during periods of financial stress.

7.1 Impact on banking intermediation under normal circumstances

Converting cash into digital euro would not, in itself, have significant consequences for banking intermediation, as one form of central bank liability would merely be exchanged for another. The significant effect comes from topping up the digital euro with funds from a bank account, as this reduces the deposit liability of the commercial bank and its reserves with the central bank, while the corresponding amount appears as a liability of the Eurosystem. The bank then loses part of its funding sources and may use available liquidity, obtain funds on the market or from the central bank, offer more favourable terms to depositors, or adjust its assets and lending policy (Adalid et al., 2022: 15–28; BIS, 2021: 6–11). This means that, **at this point, it is not possible to determine the impact of the issuance of the digital euro on bank operations**, given that this impact depends on banks' business models, their deposit structure, available collateral and access to market funding.

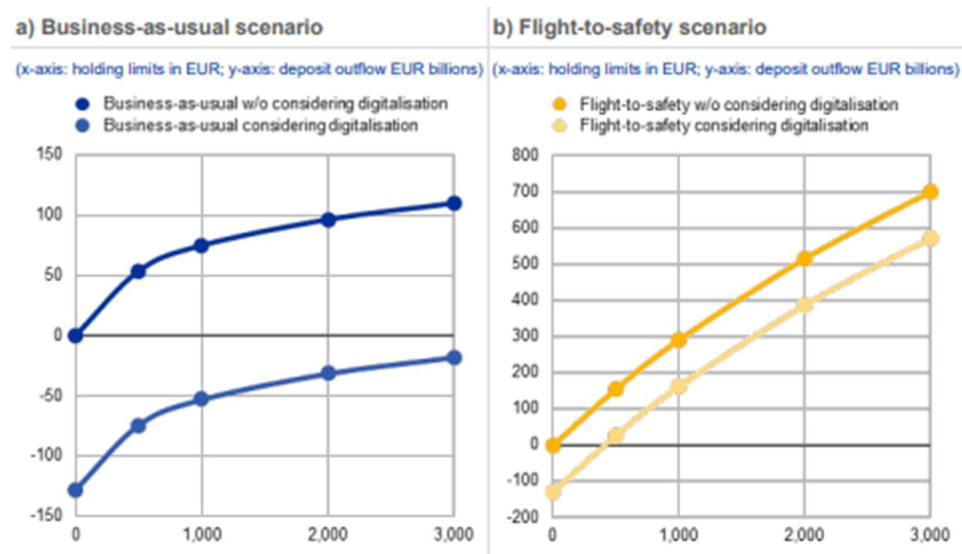
In the ECB's analysis, the consequences of various digital euro holding limits were examined, based on data obtained from the supervision of 2,025 banks. The analysis covered a) a business-as-usual scenario, and b) a conservative (flight-to-safety) scenario in which users prefer to hold the maximum possible amount of the digital euro (Figure 2). In both scenarios, the hypothetical effects of different holding limits were considered in two situations – the first, with the then-current level of digitalisation, and the second, assuming a continued trend of further digitalisation up to 2034.⁹ In the business-as-usual scenario, if the existing trend of digitalisation continues, **no aggregate net outflow of deposits is expected under limits of up to EUR 3,000**. This result is based on the estimated inflow of EUR 127 bn, the distribution of which among banks is uncertain. When this compensating trend is excluded, under a hypothetical limit of EUR 3,000, the aggregate Liquidity Coverage Ratio (LCR) declines from 166% to 163%, and the Net Stable Funding Ratio (NSFR) from 128% to 127%.¹⁰ The authors of the analysis note, however, that the results should be treated with caution, as they are not methodologically fully developed forecasts, particularly not on a bank-by-bank basis (ECB, 2025e: 1–4, 8–17).

Risks would be mitigated by the mechanisms described in the fifth chapter; the absence of interest would diminish the attractiveness of the digital euro as a savings instrument, the individual holding limit would directly constrain the amount that could be permanently shifted out of the banking system, while the waterfall and reverse waterfall mechanisms would enable payments without the need for a high digital euro balance. As regards business users and public authorities, the zero online holding limit would prevent a more permanent shift of their liquidity, with a limited technical exception for funds received offline (European Commission, 2023a: Arts. 15–16; ECB, 2023a: 12–15, 23–24).

⁹ Digitalisation of payment products and services implies a reduction in the use of cash, which in turn leads to higher levels of deposit inflows into accounts (negative values on the x-axis in Figure 2).

¹⁰ The LCR and NSFR are regulatory indicators introduced by the Basel III regulatory framework from 2010.

Figure 2 Estimated impact of digital euro holdings on bank deposit outflows



Source: ECB (2025e), p. 7.

7.2 Risk of accelerated deposit outflows and protection mechanisms

The digital euro could be particularly attractive during a period of loss of confidence in the banking system, as it would represent an easily accessible liability of the central bank which, unlike the assets of private issuers, is not exposed to the credit risk of the private issuer. An unlimited ability to instantly transfer deposits into such a form of money could increase the speed and scale of withdrawals. Modelled analyses show that unlimited demand for retail central bank digital currency could amplify a “run on banks,” while a firm individual holding limit would significantly constrain that channel. However, the digital euro would not be the cause of the initial loss of confidence, but rather one of the possible forms of assets into which funds are transferred after a crisis has occurred (Adalid et al., 2022: 35–40; BIS, 2021: 8–9).

At the request of European legislators, the ECB examined an extremely conservative “flight-to-safety” scenario, in which every individual with sufficient funds simultaneously seeks to reach the full digital euro limit, with no assumed monetary policy reaction. In this scenario, a net outflow of deposits, as expected, occurs at a limit level of around EUR 400, under the situation of continued further digitalisation. In a situation without noticeable progress in digitalisation, household deposit outflows would amount to EUR 156 bn at a limit of EUR 500 and EUR 699 bn at a limit of EUR 3,000 (Figure 2, panel b); the latter amount corresponds to 2.2% of total banking sector assets and 8.2% of covered sight deposits. Aggregate liquidity indicators would remain above the prescribed minimums, but thirteen out of the 2,025 analysed banks would reach a Liquidity Coverage Ratio of 100%, while nine would be at risk of falling below this level due to insufficient eligible collateral (ECB, 2025e: 5–13).

In addition to the holding limit and the interest-free design, the available liquidity of the Eurosystem would also mitigate the risk. If the conversion of deposits reduced banking sector reserves, banks could use their own reserves, the interbank market and standard Eurosystem

operations, provided they have adequate collateral. This would not automatically resolve the problem for each individual bank, but it would enable the mechanical decline in reserves caused by the conversion of deposits into digital euro to be mitigated at the system-wide level (Adalid et al., 2022: 15–20; ECB, 2025e: 11–13).

Overall, the analyses considered do not indicate that the digital euro, in its envisaged transactional form, would necessarily threaten financial stability. This conclusion is conditional upon effective holding limits, the interest-free design, banks' access to liquidity and the gradual introduction of the digital euro itself. In this sense, the calibration of the digital euro so that it is a usable means of payment, rather than a significant store of value or a channel for uncontrolled deposit outflows, is seen as the real task ahead.

8 Privacy, security and accessibility of the digital euro

The uptake of the digital euro will depend not only on functionality and costs, but also on user confidence that their data are protected, that the system is resilient to disruptions and abuse, and that it is accessible to individuals with varying levels of technical capability. Privacy, security and accessibility are therefore interconnected design requirements. Achieving them requires a balance between data protection and the prevention of illicit activities, high security standards and ease of use, as well as digitalisation and inclusiveness.

In the literature of pan-European institutions, it is emphasized that, **in the case of the online digital euro, the user would not be anonymous vis-à-vis the bank** or other payment service provider. The intermediary would carry out identification and process the data necessary for the execution of payments, the application of limits, fraud prevention, and the fulfilment of obligations in the area of anti-money laundering and counter-terrorist financing. The intermediary must do so in accordance with AML/KYC procedures, as well as the General Data Protection Regulation (GDPR). The transaction would be processed within the **Digital Euro Service Platform (DESP)**, to which intermediaries would send, for settlement, data protected by pseudonymisation and encryption, so that the user's identity is separated from the payment data. In this way, **the Eurosystem is prevented from directly linking a transaction to a specific individual** (European Commission, 2023a: Arts. 34–36; ECB, 2025c: 18). This solution does not imply anonymity of online payments: intermediaries would still know the identity of their payment service users and would apply regulatory obligations. The aforementioned proposed Regulation, in Articles 34, 35 and 36, specifies the purposes and categories of data that may be processed by payment service providers, the ECB, national central banks and providers of ancillary services, with the application of technical and organisational measures that prevent the direct identification of users in the central infrastructure.

The offline mode would be significantly closer to the privacy of cash payments. The data necessary for the execution of the transaction would be processed locally and remain in the secure components of the payer's and payee's devices. Details of an individual payment would not be transmitted to intermediaries or the Eurosystem, while intermediaries would process data on the topping up and withdrawal of funds from the device on which digital euros are held for offline use, but not data on specific offline transactions. The higher degree of privacy

would, therefore, relate to the use of locally stored funds, rather than to the complete absence of user identification (European Commission, 2023a: Art. 37; ECB, 2025c: 18).

The European Data Protection Board and the European Data Protection Supervisor have positively assessed the embedding of the principles of data protection by design and by default, particularly in the offline mode. At the same time, they have called for a clearer determination of the legal basis for processing, the allocation of responsibilities and the types of data that each participant may process. **They have also proposed that the obligation of pseudonymisation of data available to the Eurosystem be explicitly included in the normative part of the Regulation**, and that the common fraud detection mechanism be more precisely regulated (EDPB-EDPS, 2023: 3–4). This proposal, like the other features presented in this paper, must be understood as preliminary and not as matters on which a definitive decision on the design of the digital euro has been taken.

As regards security, it implies protection against unauthorised access and fraud, but also the ability of the system to continue operating during technical failures, cyber-attacks and other disruptions (business continuity). The envisaged approach of the ECB and other relevant institutions is based on data minimisation and separation, multi-layered risk management, cryptographic protection, regular security testing and geographically separated processing capacities. In the event of a failure of part of the infrastructure, processing should be redirected to the available capacities, thereby preserving the continuity of core payment services (ECB, 2025c: 17–18).

Offline payments pose a particular security challenge, as the transaction is executed without real-time verification in the central system. The offline environment would need to enable cryptographic operations, secure key storage and the integrity of payment execution, so that in the event of an interruption the operation is either completed in full or not executed at all. The secure components of the phone, card or other device would need to be resistant to unauthorised physical modifications and other forms of attack (ECB, 2025d: 6; ECB, 2025c: 16–17).

As availability cannot be reduced to the formal right to open an account or a digital wallet, **the digital euro service would need to be accessible regardless of age, physical abilities and level of digital literacy.** The accessibility strategy encompasses physical and cognitive accessibility, a simple interface and multiple means of accessing the service, including direct assistance. Access should not depend on owning a smartphone, and the proposed Regulation foresees institutional support for persons without a payment account, persons with disabilities, and users with insufficient digital skills (ECB, 2025c: 21–22; European Commission, 2023a: Art. 14).

Given the above, privacy, security and accessibility cannot be viewed in isolation. Broader data processing may facilitate fraud detection, but diminish privacy; more complex security procedures may increase protection, but make use more difficult; a fully digital approach may lower costs, but exclude part of the population. The potential advantage of the digital euro would, therefore, lie in the ability to combine a high degree of privacy, the resilience of the public payment infrastructure and institutionally ensured accessibility. Whether this advantage will be realised will, nevertheless, depend on the final legal framework and the technical implementation of the protective mechanisms.

9 Conclusion

The paper has presented the digital euro as an effort to adapt directly accessible central bank money and its payment infrastructure to an increasingly digitalised environment. Its purpose is not to replace cash or private bank money, but to supplement them with a digital form of public money that would be universally accepted across the entire euro area. In this sense, the project has monetary, infrastructural and market dimensions – and likely a geopolitical one as well, given the increasingly vocal emphasis on sovereignty.

The phases of the digital euro project carried out so far have shown that it is possible to shape an operational model based on dual-layer distribution: the Eurosystem would issue the monetary value and provide the core infrastructure, while banks and other private intermediaries would retain the relationship with users. The online and offline modes, common standards, service portability and mechanisms for linking to bank accounts should ensure usability, but the final word on design still rests with the ECB Governing Council.

The most sensitive issue of market design will remain the allocation of costs and incentives. Free basic services for natural persons and the fee cap are intended to encourage use and protect merchants, but intermediaries must, at the same time, have a sustainable model for distribution and the development of additional services. A common infrastructure could lower barriers to cross-border expansion of European solutions and reduce dependence on non-European networks, but high fixed costs and concentration of technical providers may favour large players.

Risks to banking intermediation and financial stability cannot be ruled out, but the project design incorporates mechanisms to mitigate them. The absence of interest on holdings, individual limits and automatic transfer mechanisms should prevent the digital euro from becoming a significant store of value or a channel for large deposit outflows. The analyses carried out so far indicate that the aggregate effects under the scenarios examined could be managed, but the final calibration must depend on conditions closer to a possible issuance date and on the position of individual banks.

The acceptability of the digital euro will also depend on whether the envisaged level of privacy, security and accessibility is achieved in practice. The distinction between the online model, in which intermediaries must know the identity of users, and the offline model with local data processing is of fundamental importance. At the same time, a high level of protection must not make the service complex nor exclude persons who do not have a smartphone, a bank account or developed digital skills.

For Serbia, the digital euro is important as a change in the European payment environment, but the specific local consequences cannot yet be reliably determined. Access by Serbian residents would depend on the future legal framework and special arrangements with third countries. Domestic payment service providers and the National Bank of Serbia should, nevertheless, monitor the development of technical standards, the possible impact on cross-border payments and the risk that simpler use of the euro in digital form may affect the currency structure of the financial system. Hence, a gradual approach – without prejudging future access to the system or the need for a domestic central bank digital currency – seems justified.

The final assessment of the digital euro will depend less on whether it is technically feasible, and more on whether the legal and economic model succeeds in reconciling useability, privacy, intermediary sustainability, competition and financial stability. Only after the adoption of the Regulation, piloting and observation of actual user behaviour will it be possible to assess whether the digital euro truly becomes a functional public pillar of European payments, or remains a project with limited use capacity.

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