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September 2023

## The digital euro

*Navigating the trade-offs of the digital euro legislative proposal*

### Executive summary

Mastercard welcomes the opportunity to share its views on the proposal for a *Regulation of the European Parliament and of the Council on the establishment of the digital euro* (the proposal). We believe that the proposal provides an important first step towards developing the basis of a public-private partnership to deliver public money for a new digital age.

We appreciate that the European Commission (the Commission) has undergone a thorough assessment of the different design options available, outlining many of these in its comprehensive impact assessment report.<sup>1</sup> However, as currently drafted, the proposal gives rise to problematic trade-offs that, without substantive amendment, will jeopardise the privacy, stability, level playing field and security objectives of the digital euro.

We are particularly concerned that the proposal to establish the digital euro has gone beyond its stated objective of providing individuals and businesses with a digital form of central bank money. Instead, the proposal seeks to create a duplicative, non-market led payment system that calls into question the European Union's (EU) established approach to an open market economy with free competition. If unresolved, the proposal risks undermining the goals of the digital euro and could result in unintended market fragmentation with implications for competition, stability, security, and innovation within the broader European financial system.

We highlight three key areas that give rise to these problematic tensions. They relate to:

#### **1. The European Central Bank's expanded remit and a level playing field**

The proposal will expand the European Central Bank's (ECB) remit far beyond simply issuing a digital version of cash and providing the necessary regulatory framework for that instrument. Instead, the proposal envisions an expansion of the ECB's operations to replicate a variety of infrastructure and services currently provided by payment service providers (PSPs) and intermediaries, without being subject to the same rules and market conditions.

#### **2. Regulated compensation, distribution, and competition**

The digital euro compensation model is based on imposed limits and the provision of free basic services, where fees charged for the digital euro can never exceed existing means of payment. However, the limits on fees do not consider the potentially significant new implementation costs that merchants and PSPs will incur to offer these free basic services.

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<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023SC0233>

If the proposal proceeds with mandatory acceptance and intermediaries and merchants have no choice but to opt-in, then they must not be constrained by regulated levels of compensation. Instead, they should be given the choice to determine the most appropriate and cost-effective way to recuperate the costs being imposed as well as deliver commercially viable solutions to their customers.

### **3. Privacy, holding limits and multiple accounts**

The overriding need to protect financial stability through the enforcement of holding limits means that the digital euro could, in effect, provide less privacy to users than what they are expecting and already have using existing means of digital payments. Attempting to uphold both financial stability and privacy could have unintended negative consequences for trust in the digital euro, privacy protections and deposit substitution.

**Legislators are urged to reconsider these provisions** as many will not be implementable in practice without considerable risks to the Eurosystem competent authorities, intermediaries, merchants and ultimately users of the digital euro.

## Other policy considerations

In addition, we wish to highlight other areas of the proposal that have policy implications for the Eurosystem that the Commission may wish to investigate further. These relate to:

### **4. Privacy, AML compliance and nascent privacy technologies**

There is evident tension throughout the proposal for the need to comply with relevant EU anti-money laundering and countering the financing of terrorism (AML/CFT) requirements while at the same time preserving the objective of privacy. The ability to uphold privacy but exclude "full anonymity" also rests on nascent techniques and technologies that are not yet available at scale.

### **5. Mandatory acceptance, cash usage and user choice**

We note the legal tender status of the digital euro aims to ensure the digital euro does not replace cash as a means of payment but to complement it. However, mandating digital euro acceptance may in practice further influence user behaviour towards digital payments and have the effect of driving out the use and acceptance of cash.

### **6. Strategic autonomy, security, and accountability**

The successful pursuit of strategic autonomy will require the EU authorities to safeguard its digital euro system from new and evolving external threats. Distribution of the digital euro within and outside the eurozone will therefore require unprecedented coordination and accountability between national security authorities, central banks, and intermediaries outside of the Eurozone that is not the case with physical cash.

### **7. Untested technologies, and the principle of "do no harm"**

New technologies that the digital euro may come to rely on to deliver some core objectives such as privacy, data storage and payments ledger infrastructure are nascent and untested at scale and would require additional legislative and regulatory frameworks for their use in the provision of public infrastructure.

While navigating these policy trade-offs is not without its challenges, we believe there are feasible solutions to address these challenges that will enable the digital euro to meet its objectives. We outline these in the remainder of this paper.

# Problematic trade-offs with the digital euro

**The objective of the digital euro is to adapt central bank money – i.e. cash – in response to technological development.** To do so, the proposal clearly states that the ECB (and the national central banks of the Member States) will issue the digital euro and provide the necessary regulatory framework for its effective use throughout the euro area. The proposal for the digital euro is established on the grounds that banknotes and coins alone – the only current forms of central bank money - are not able to support the EU's economy in the digital age.

**However, as currently envisioned, the proposal will expand the ECB's remit far beyond simply issuing a digital version of cash and providing the necessary regulatory framework for that instrument.** Instead, the proposal envisions an expansion of the ECB's operations to replicate a variety of infrastructure and services currently provided by PSPs and intermediaries without being subject to the same rules and market conditions. In direct contrast to physical cash, where distribution, handling, and security are services provided by the private sector, the digital euro envisions those same services (and more) being provided by the public sector. *Replacing* the role and functions played by market intermediaries is clearly contrary to the Commission's objective that the digital euro should not decide competitive outcomes.

**Moreover, despite promises that the digital euro will offer cash-like privacy, the digital euro will need access to personal and transaction data in order to enforce holding limits and ensure financial stability.** As such, it is questionable whether it will be feasible to deliver on the promise (stated in the fact sheet for this legislative proposal) that the ECB will not have access to consumer data. Indeed, it is likely that the level of privacy provided by many existing private sector payment systems will be the same or greater than that of the online digital euro. Purported privacy concessions for offline digital euro use also call into question their compliance with new EU AML rules and have the potential to establish a regulatory monopoly for the digital euro in the provision of offline payments that are subject to lower compliance obligations. All these issues give rise to serious conflicts of interest, trade-offs, concerns for level playing field and distortions in competitive outcomes.

## 1. ECB's expanded remit and level playing field

**To promote innovation and competition in the European payments market, an intermediated or "two-tier" distribution model is best for incentivising intermediaries to invest in and distribute the digital euro.** The issuance of the digital euro to the public is intended to offer an additional choice to consumers. To do so, a two-tier model is based on the central bank issuing the currency and relying on market intermediaries to determine the modalities of distribution. These intermediaries then compete to attract customers through better and more efficient products and services and develop these based on market dynamics and commercial considerations. Such an approach is in keeping with the Union's established approach to open and free markets.

**However, the proposal expands the ECB's remit significantly, such that it will begin to replicate services provided by PSPs and intermediaries.** Under the current model proposed for the digital euro, the ECB will be the issuer of the currency, the operator of the scheme and infrastructure, the central user data repository, a provider of front-end services for digital euro users, and will limit the fees that can be charged for digital euro payment services. The ECB will also remain a supervisor of systemically important payment systems (SIPS) and, through the Single

Supervisory Mechanism (SSM), the supervisor of credit institutions who are also PSPs. This would give rise to concerning conflicts of interest, particularly given the regulations will expressly determine competitive outcomes through regulated compensation models.

**The ECB will also cause competitive distortions with existing means of payment by offering the digital euro infrastructure free of charge to PSPs.** The fact that the provision of the basic digital euro payment services will be based on an infrastructure maintained by the ECB, and that the ECB will not charge PSPs for the costs it bears to support their provision of digital euro services to users enables a lower cost structure than payment accounts in non-digital euros, putting existing means of payment at an unfair competitive disadvantage. While it may be tempting to justify this on the basis that the digital euro infrastructure will play an essential public role in much the same way that the ECB currently plays as the provider of physical cash, this comparison is clearly erroneous. While the ECB is responsible for printing physical cash, it is the private sector that facilitates consumer access to cash, provides merchants with tools to ensure the validity cash, and maintains secure logistics networks for the safe distribution of cash. As envisioned, the ECB would replace of all these services for the digital euro, clearly illustrating the degree to which the proposal represents an expansion of the ECBs remit and a distortion to the competitive dynamics facing private sector players already providing these services within private payment networks.

**The proposal also gives the ECB exclusivity in offering offline digital euro payment capabilities that are subject to less stringent regulatory treatment, particularly with respect to the prevention of financial crime.** The proposal sets out that digital euro users should have the choice to use the digital euro either online or offline, or both, subject to holding limits. In addition, Article 37 provides for an adjusted AML/CFT framework for offline digital euro transactions. To ensure consumer choice, promote competition, innovation and a level playing field, it follows that the same conditions should be made available to private sector efforts to enable comparable offline payment capabilities. In other words, if an adjusted AML/CFT framework applies to offline digital euro accounts, the same must be applied private sector alternatives. We would welcome further clarity on how such amendments would need to be reflected in such legislation as the Payment Services Directive and the Anti-money Laundering Directive.

**Sustainable payment ecosystems are dependent on a careful balance between those stakeholders who bear the costs of enabling payments and those who benefit from payment services.** The same competitive conditions should be applied to digital euro and comparable payment services. Otherwise, there is a risk that the digital euro will have the unintended consequence of reducing the diversity and resilience in the European payment landscape. We believe that a digital euro should be financially self-sustaining, i.e. operate at arms-length from the regulator and without any public subsidies on investment or operational costs, in order to avoid a situation where the Union's established approach towards open markets is brought into question.

**Requiring users to employ new payment rails would also create artificial barriers between the digital euro and commercial bank money.** This would generate confusion and ultimately go against the ambition of an integrated payment market to ensure the singleness of money. Focusing on one single and parallel form of payment would also overcomplicate access and distribution. We believe that the digital euro will be more competitive, innovative, resilient, and better equipped to meet both various policy objectives, as well as the evolving demands of the consumer, where the project works to actively encourage the participation of all payments market stakeholders in Europe.

**We would therefore urge legislators to ensure the singleness of money through the adoption of an open acceptance framework that would enable existing acceptance technologies and networks to facilitate payment in digital euro.** We reiterate that adopting an "open acceptance" framework is entirely compatible with mandatory acceptance, where using existing acceptance

technologies and networks to facilitate payments using the digital euro can maximise the day-one ubiquity of the system and minimise complexity of adoption for users and merchants alike. This would also reduce the risk that the digital euro infrastructure would replicate existing services that could cause further payment fragmentation.

**Mandating digital euro acceptance by the same entity that issues and operates the payment instrument gives the central bank a determining force in the retail payments market without any associated regulatory or oversight scrutiny.** For example, the ECB is empowered under the proposal to appoint Providers of Support Services (PSSs) to all PSPs distributing the digital euro to facilitate the smooth functioning of digital euro payment transactions. Given the importance of such functions to the operations of the digital euro, further transparency is called for under the proposal to specify what these services are and the requirements that the ECB is subject to in order to appoint such providers.

**Despite the importance and scale of the digital euro, the proposal does not make any references to the new digital euro payment system as systemically important, even though its importance will be far greater than the existing SIPS.** Retail central bank digital currency (CBDC) systems will face new and elevated level of threats and risks that must be subjected to high standards of risk management and operational resilience. For this reason, it would be entirely prudent and reasonable to designate the oversight authorities that will monitor resilience of the digital euro as systemically important and the scope of their powers.

**In keeping with the principle of level playing field, the digital euro settlement infrastructure should therefore be designated as a systemically important payment system under Regulation (EU) No 795/2014.** Designation of the digital euro settlement infrastructure as a SIPS would make its operator subject to requirements that (among other things), ensure the legal frameworks in which they operate provide a high degree of certainty for their activities; have documented objectives prioritising their system's safety and efficiency; have effective and documented governance arrangements; and ensure clearly defined roles and responsibilities for their administrative or supervisory boards. The proposal could therefore be amended (e.g., by adding such a provision to Article 30) to expressly require that the ECB designate the digital euro settlement infrastructure as a SIPS and that there is due process to ensure that the operator(s) of the infrastructure is/are clearly identified.



## Mastercard's recommendations

### **1. The expansion of the ECB's remit should be reassessed in light of their obligation to respect the principle of an open market economy with free competition**

We would call on legislators to consider how the expansion of the ECB's remit for the provision of the digital euro respects the principle enshrined in Article 127(1) TFEU of an open market economy with free competition and ensures a level playing field. We would also call on legislators to scrutinise the appropriateness of expanding the ECB's role from issuer of the currency and provider of the regulatory framework, to one that replicates the roles and responsibilities that PSPs and intermediaries play in today's two-tier system.

To ensure transparency and accountability, the proposal should set out a clear separation and independence between the ECB's role as digital euro issuer, clearing and settlement provider, and the ECB as supervisor of financial market infrastructures (FMIs) and credit institutions. This could be a statutory separation, in line with the operational and governance separation between the monetary policy and supervision functions of the ECB. It could also follow the model of an institutional separation where the roles and functions associated with the digital euro are undertaken in a new arms-length entity that can be overseen to ensure independence and accountability.

### **2. Digital euro should be designated as a systemically important payment system and subject to all applicable standards and oversight**

The provision of the digital euro will assume unprecedented importance in the retail payments system and accordingly should be recognised as such in the legislation. There should also be clear accountability measures imposed on the ECB as operator of this SIPS.

### **3. The digital euro should be implemented in phases and by use case, prioritising the development of novel functionalities that the digital euro could offer to users, such as offline payments**

To reassure the public's trust in the digital euro as a form of digital "cash", the proposal should seek to reduce the level of complexity and burden by rolling out the digital euro in phases and by use case. Given that users are most likely to associate the digital euro with cash-like functionalities, we would suggest that the proposal prioritises offline devices. Offline devices can offer both privacy and be subject to holding limits if the devices are linked to nominated accounts for funding/defunding purposes.

### **4. Private provision of offline payment capabilities using commercial bank money should be made available to users under the same legislative conditions as the digital euro**

To ensure consumer choice, promote competition, innovation and a level playing field, it follows that the same adjusted AML/CFT framework for offline digital euro payment transactions should be made available to offline payment capabilities provided by private sector entities. These conditions should be made equally available between the digital euro and other stores of value with offline capabilities and reflected in primary legislation such as the Payment Services Directive and the Anti-money Laundering Directive. Alternatively, transactions involving offline digital euro accounts should be subject to AML/CFT requirements that are no less lenient than those involving transactions in comparable privately issued stores of value.

## 2. Regulated compensation, distribution, and competition

**The Commission's impact assessment duly recognised that a level playing field between digital euro and private sector payment services is important to ensure competition and maximise the overall value of payment services for the EU's economy.** The most direct way to achieve this, while also avoiding the need for significant investments in duplicative infrastructure, would be to prioritise the development of novel functionalities that provide value propositions consumers perceive as distinct from existing private payment services – such as cash-like offline payments. This is particularly relevant given that consumer adoption of the digital euro will depend on whether consumers and businesses believe that its functionalities are superior to the digital solutions already available. We therefore encourage legislators to develop a clear use case that places user needs at the centre of solution development. We believe that if users in Europe value privacy and would like cash like convenience, the proposal should focus on those user preferences, rather than duplicating existing commercial solutions.

**If legislators choose to pursue the development of a digital euro that does not minimise duplication of existing commercial solutions, then the compensation model should aim to, as stressed by the Commission, preserve a level playing field and not crowd out existing means of payment.** We reiterate that a level playing field between the digital euro and existing payment instruments, and between European and non-European intermediaries will incentivise all participants to be vested in the digital euro's long-term viability and success. We also believe that providing intermediaries and merchants more agency and choice in their roles around distributing and offering digital euro services will also ensure buy-in.

**In contrast to these principles, the digital euro compensation model is based on regulatory caps and the provision of free basic services, where fees charged for the digital euro can never exceed existing means of payment.** This assumes that the digital euro will cost no more than other comparable means of payment from initiation. However, the fee caps do not consider the potentially significant new implementation costs that merchants and PSPs will incur to offer these free basic services. Specifically, the Commission's impact assessment incorrectly assumes that implementation costs such as adapting front-end systems (apps, online banking, automated teller machines (ATMs)), back-end systems (including both the payer and payee (acquiring) side and integration with settlement and account management systems), adapting AML/Know-Your-Customer (KYC), anti-fraud, accounting and other business processes are "one-off". To the contrary, these operational changes would be ongoing multi-year programmes to ensure they are designed, tested, and integrated with existing systems with ongoing upgrades and security maintenance.

**We also query whether the proposed compensation model factors the possible need for industry to adopt new technologies (such as privacy-enhancing technologies or PETs, and distributed ledger technology or DLT), which potentially require very complex operational transformations.** Again, these transformations would not simply be "one-off", but would involve the industry needing to hire new teams of expertise with detailed knowledge of the technology over the lifecycle of their development that would need robust testing, leading to potentially high operational costs and excessive complexity for some PSPs.

**Despite the potential significance of these costs, this was not included in the Commission's impact assessment.** Instead, the Commission had concluded that it would be reasonable to assume that the costs of the digital euro would not be higher than the fees/costs of existing means of payment that the digital euro would replace, such as cash and debit cards. However, these existing means of payment are not subject to the implementation costs associated with new front end, back end and process integration that would be needed for digital euro acceptance. Imposing limits on the lowest of either "the relevant costs" or "charges for

comparable means of payment" will always mean that the comparable means of payment will act as the ceiling because the relevant costs will far exceed the existing comparable means of payments. We would also urge legislators to clarify the expectations for industry to adopt newer frontier forms of technology such as DLT and PETs, and to factor these costs into the compensation modelling if indeed their use is expected.

**We also note that the proposal includes design considerations and functionality within the regulation, such as the waterfall/reverse waterfall function as a "technical feature".** We seek further clarity from legislators on whether the inclusion of this technical feature is meant to imply that it would be part of the "basic free services" associated with the provision of the digital euro. We agree with the proposal that consumers should be given a choice as to whether they wish to have an automatic sweeping or reverse sweeping functionality embedded in their digital euro account. However, we do not agree that this functionality is a "basic" free service that should be exempt from associated service fees.

**Instead, this should be left to the purview of PSPs and intermediaries to determine as part of broader value-added services that can be packaged for users to adopt if they so choose.** The premise of digital euro innovation and scalability is built on the ability of intermediaries to offer consumers new digital services to enhance the convenience and utility of their digital euro accounts. If the cost to PSPs for the provision of the digital euro is greater than a comparable digital means of payment, then the cap will result in the PSPs making losses on the provision of digital euro services. Consequently, the PSPs will not be incentivised to provide high-quality digital euro services, and this may affect the success of the digital euro.

**Consideration must also be given to the competitive implications for those PSPs who choose to distribute the digital euro (and thereby incur the costs of implementation), and those that do not.** Currently, the proposal allows PSPs that are not credit institutions a degree of optionality as to whether they wish to distribute the digital euro. This decision will no doubt rest on whether PSPs are sufficiently incentivised by the ability to develop value-added services. If only some PSPs choose to distribute the digital euro, thereby incurring the related backend and frontend costs of implementation, this may have the effect of a type of cross-subsidy to those PSPs who do not incur these costs of distribution.

**Relatedly, further consideration is needed regarding who is responsible for underwriting the offline contractual liabilities needed to provide instant offline settlement.** Detailed consideration would be needed if PSPs would be required to underwrite all or some of the payments made offline, potentially in conjunction with a wide network of merchants. If this is the case, further consideration is needed on the fees and incentive structures imposed on PSPs as underwriting offline arrangements would not be factored into limits on fees.

**If the digital euro truly intends to promote choice and competition in a two-tier model, the modalities of distribution and acceptance should be left to intermediaries and merchants and be based on market and commercial considerations rather than regulatory solutions.** Therefore, if the proposal proceeds with mandatory acceptance and intermediaries and merchants have no choice but to opt-in, then they must not be constrained by regulated levels of compensation or, the payment rails through which they distribute and accept the digital euro. Instead, they should be given the choice to determine the most appropriate and cost-effective way to recuperate the costs being imposed as well as deliver commercially viable solutions to their customers. The ECB should focus instead on ensuring a well-functioning market which will drive improvements in efficiency, innovation, and service quality to the benefit of consumers.





## Mastercard's recommendations

### 5. Fees and charges for the digital euro should primarily be based on cost recovery and margin.

The commercial model for a digital euro must be sustainable and avoid public subsidies to ensure a level playing field with all electronic means of payments. It should also be compliant with all applicable legislation, including anti-trust laws. For these reasons, all costs, including implementation costs, recurring service costs, processing costs, and other technology or infrastructure requirements, such as costs for implementing and operating the scheme and switch, should at a minimum be recuperated. Further, merchant service charges should be set by the market, cover all costs and apply an appropriate margin. Mastercard considers that the inter-PSP fee should not exceed the lowest of the following two amounts:

- a. costs incurred by payment services providers for the provision of digital euro payments, including a reasonable margin of profit; and
- b. similar categories of "inter" fees or charges requested for other electronic means of payment, including card payments.

### 6. Promote open acceptance and interoperability with existing payment mechanisms

The proposal should elevate the objective of promoting the singleness of money through the adoption of an open acceptance framework, using existing acceptance technologies and networks to facilitate payments by digital euro payments and minimise the complexity of adoption for users and merchants alike. The proposal could therefore expressly state that, where available, payment service providers may use existing infrastructure for the acceptance and processing of transactions in digital euro, including that used by comparable digital means of payment, in all situations where this is expected to minimise costs to merchants and other digital euro users. Merchants should be required to display all payment options that are available. This could be addressed in relation to Payment Services Directive or future EU legislation developed in this area.

## 3. Privacy, holding limits and multiple accounts

**Privacy has been identified as a key concern and accordingly considered the most important feature by both citizens and professionals.** The Commission's objectives for the digital euro are therefore to provide strong privacy and data protection safeguards for its users, which has been widely recognised as a paramount condition for the digital euro's successful implementation and uptake (Recital 70). Accordingly, the proposal is said to have been developed in a way to minimise the processing of personal data by PSPs and by the ECB to what is "necessary" to ensure the proper functioning of the digital euro (Recital 71).

**However, we have identified problematic contradictions between the provisions outlined on privacy and data protection (Articles 34 to 36) and the proposal to limit the use of the digital euro as a store of value (Article 16).** As currently presented, these provisions seek to preserve privacy through an intermediated distribution model while at the same time still requiring personal data and disclosures to enforce holding limits and preserve financial stability. The result is that neither objective can be obtained without compromising these important pillars with potential unintended consequences for deposit substitution, privacy protections, and trust in the digital euro.

**Privacy would be compromised under the current proposal because in order to enforce holding limits across multiple digital euro accounts with different PSPs, the ECB and PSPs need access**

**to personal and transaction data.** The Commission has acknowledged that the processing of personal data for the purpose of enforcing holding limits across multiple digital euro accounts with different PSPs would be necessary to protect financial stability and the banking sector's intermediation capacity, notably to prevent excessive shifts of commercial bank money into digital euro. It is for this reason that the proposal calls for the establishment of a "single access point" that would reside with the ECB.

**The ECB's single access point would in effect be a central repository of users' identity data and transaction data that would enable PSPs to verify if a user already possesses digital euro holdings with other PSPs (Article 25).** While not explicitly stated in the proposal, the central repository would require PSPs to disclose this personal and transaction data to the ECB when users set up their digital euro accounts. The single access point is necessary because the proposal places the onus of responsibility on PSPs to enforce user holding limits. As each PSP only has visibility over the user's individual digital euro account held with them, they must rely on the ECB to provide a network view of user holdings across all PSPs and digital euro accounts – both online and offline.

**There are implications for user trust and privacy if PSPs are required to verify with the ECB the user's aggregate holdings of digital euro across multiple digital euro payment accounts.** It is implied in the proposal that PSPs would be placed in the position of declining a customer's request to open a digital euro account if the ECB's repository were to show that the customer had exceeded its holding limit. A user may then begin to question whether their personal details were in fact secured, or if their usage has been centrally monitored.

**It is also paradoxical that while privacy is considered the most important feature of the digital euro by citizens, the proposal also requires individuals to disclose to PSPs if they hold multiple digital euro accounts.** If maintaining privacy is the core concern of citizens, it is questionable why a user should be expected to disclose their multiple digital euro accounts to PSPs if it is their right to hold them. For example, when seeking to open a bank account or be issued a payment card, users are not asked if they hold other bank accounts with other credit institutions or to disclose their transaction history as a condition of account opening.

**Further contradictions are evident where the proposal also states that there would be a clear segregation of data between the supervised intermediaries and the ECB, intended to "delink" the ECB from users of a digital euro.** If in practice PSPs must report personal identifiers and transaction data to the ECB's single access point, it is not clear how a central repository that resides with the ECB and where the ECB acts as "controller" of this data can be segregated between the ECB and intermediaries. Further clarity on these points would be welcomed, as this segregation implies that the data would be held by a separate entity other than the ECB. Ultimately, the proposal should make clear that the ECB is still responsible for the management, safekeeping, and security of this single access point data, even if the identifiers are anonymised or held in a separate entity.

**From a financial stability perspective, in the critical early stages of implementation the ECB would need to have access to this central repository to effectively monitor digital euro in circulation and deposit outflows across users' multiple digital euro accounts.** We believe that simply monitoring aggregate settlement volumes on the ECB's ledger does not give the ECB adequate insights into where outflows may be taking place, whether certain segments of the credit market are being disproportionately affected (e.g. smaller versus larger credit institutions) and the number and type of wallets that individuals are opening across PSPs in the eurozone. Without this granular visibility, the ECB will not be able to assess trends that could point towards disintermediation and consequential impacts to the real economy.

**Data on digital euro in circulation would also be needed to provide the ECB with the rationale to support any changes in holding limits.** However, the current proposal foresees the ECB only

tracking aggregate settlement volumes of the digital euro, without any process set out for enabling the ECB to set or change holding limits and the parameters within which such decisions can be made. Careful consideration of the processes for changing holding limits is particularly important in light of recent evidence of how the digitization of financial services enables faster transmission and contagion of financial uncertainty and instability. In such circumstances, it is likely that ECB would find itself under significant popular pressure to adjust holding limits in order to provide a "safe harbour" for retail deposits, even though such an action would amplify instability within the financial sector. Confidence in the digital euro and market stability would therefore be greatly enhanced if stakeholders clearly understand the processes by which changes might be made, and the information and data that these decisions must be based on.

**The proposal also requires intermediaries established or operating in the third country to implement the limits set by the ECB with no means or jurisdiction for the ECB to enforce these provisions in those third countries.** It is also not clear how non-eurozone central banks and intermediaries will be able to track or monitor usage unless they have access to the ECB's central repository. Questions also arise as to how intermediaries in third countries will be able to monitor and track/limit usage if those users have multiple accounts in other non-eurozone countries and whether distribution of the digital euro inside and outside the eurozone will include offline devices. Finally, there are outstanding questions as to how third country intermediaries will be able to fund/defund euro holdings, enforce limits on these and what identifiers will be needed for AML/CFT checks and onboarding.

**Article 37 also provides for an adjusted AML/CFT framework for offline digital euro payment transactions that will have a higher level of privacy than online payments.** Furthermore, for offline digital euro payments, the ECB, NCBs and PSPs will not gain access to personal transaction data. PSPs will only access funding and defunding data related to the identity of the user and the amount funded and defunded, similar to when users deposit or withdraw cash. At the same time, the proposal excludes "full anonymity" and is said to be consistent with the objectives of the AML package adopted by the Commission in July 2021. There is significant ambiguity in the proposal that claims on the one hand to give users a high level of privacy using offline devices, while on the other hand complying with European AML/CFT requirements.

**From an AML risk compliance perspective, this may become problematic as the proposal does not take into consideration that users could conceivably open multiple offline accounts with different PSPs, inside and outside the eurozone.** PSPs would only be aware of the amounts that are being funded or defunded from their linked offline accounts. Those users could then use the offline digital euro to fund ("deposit") other accounts in small amounts, leaving little obvious trail. PSPs do not even need to report the funding and defunding data to the ECB for monitoring of digital euro in circulation. There is also the issue of real time monitoring of double spend if users can have both online and offline wallets with no ability for PSPs to track offline transactions. PSPs will also have no visibility of suspected AML if they do not have transaction data and have no network view of multiple offline usage.



## Mastercard's recommendations

### 7. Require users' digital euro accounts to be linked to only one nominated PSP

To reduce financial and data risks, operational complexity, and deposit substitution, we would strongly urge legislators to amend the proposal to require users to link all their digital euro accounts to only one nominated PSP. That PSP would enable funding up to the holding limit to the digital euro payment account. This will enable PSPs and the ECB to enforce usage of those holding limits without needing to necessarily report and share this data with a central repository while still conducting onboarding and AML checks. Users would not need to share their personal details with multiple PSPs, reducing their data footprint. Linking users' multiple digital euro accounts to only one PSP would also give the ECB greater confidence that the aggregate volumes on its ledger are within user limits and can better monitor deposit outflows from each credit institution.

### 8. Prioritise the distribution and use of the digital euro to within the eurozone

We believe it is prudent for the proposal to introduce the digital euro within the eurozone first to enable all parties in the system to fully test, roll out and implement the required system changes and processes. Once the digital euro is secured within the euro zone, further consideration could then be given to widening the distribution to outside the euro zone. This should be considered in accordance with Article 40, and only *after* the ECB's first report at least 3 years after the issuance of the digital euro.

## Other policy considerations

**The proposal raises a number of other policy implications for the Eurosystem that may require further consideration and assessment.** These relate to the reliance on nascent technologies and techniques to meet privacy obligations while at the same time excluding "full anonymity". Mandatory acceptance could also have possible unintended effects by further driving out the use and acceptance of cash. This would undoubtedly negatively impact financial inclusion and choice available to all consumers. The distribution of the digital euro within and outside the eurozone will also call for unprecedented levels of security, coordination and accountability between national authorities that is not the case when it comes to issuance of physical cash. Finally, new technologies that the digital euro may come to rely on to deliver some core objectives such as privacy, data storage and payments ledger infrastructure are still nascent and untested at scale and would require robust legal, governance and operational frameworks for their use in the provision of public infrastructure.

### 4. Privacy, AML compliance and new privacy technologies

**There is evident tension throughout the proposal between the need to comply with relevant EU AML/CFT requirements and the need to meet the privacy goals of the digital euro.** For example, Articles 34, 35, and 36 expressly state that the ECB, national central banks (NCBs), PSPs and PSSs should be preventing the identification of digital euro users, but at the same time should rely on users' Digital Identity Wallets to verify prospective and existing identities. There are also evident differences in the privacy frameworks that are applicable to both online and offline digital euro accounts, while at the same time relying heavily on the adoption of still very nascent

privacy enhancing technologies that have not yet demonstrated their ability to satisfy AML requirements at scale.

**The ability to enforce the privacy objectives of the digital euro rests on the ability of the ECB and PSPs to implement “appropriate technical and organisational measures including state-of-the-art security and privacy-preserving measures”.** With the advancement of cryptography techniques, there is great excitement and interest in new methods to achieve privacy and confidentiality by leveraging one or more forms of emerging technology, such as zero knowledge proofs (ZKPs), Shamir Secret Sharing (SSS), and Multi Party Computation (MPC). We applaud the Commission for anticipating important advancements in these areas and share the view that privacy enhancing technologies (PETs) could enable a new frontier of privacy and security in payments.

**However, it is important to remember that many of these techniques are in their technological infancy, need robust operational frameworks and arrangements and would require significant testing and development to validate their security and scalability.** While we appreciate that the proposal does maintain technology neutrality in the proposal to deliver on its privacy objectives, we note that the specific use of PETs is envisaged in the Commission’s impact assessment. Importantly, cryptography techniques alone cannot prevent failures such as hacking, unwanted data dissemination and leakage, censorship, corruption of information, privacy subversion or other issues that can affect financial and communication systems. Rather, a robust and holistic protocol that ensures the properties of the security model will need to be built, something that we believe the proposal must consider to secure the digital euro infrastructure.<sup>2</sup>

**We also note that other central banks have flagged significant uncertainties regarding the use of PETs for the provision of central bank digital money.** For example, the Bank of Canada found that cryptographic techniques and operational arrangements to achieve higher levels of “cash like” privacy are not only nascent but are yet to be fully tested for compliance with AML/CFT and KYC regulations. Further work would also be needed to address hidden vulnerabilities, lack of scalability, latency limitations and operational complexity. Implementation of these techniques and arrangements will also require very detailed expertise and knowledge of the technology, which may not be feasible for all PSPs.<sup>3</sup>

**Lastly, we would note that references to technology solutions such as decentralised data storage and DLT are also untested at scale, and require complex governance, legal and regulatory considerations that are not considered under the current proposal.** Despite the assumptions made in the proposal for the likely use of DLT in a future state, the lack of clarity on which technology solution will ultimately be used for the digital euro in the near term creates enormous uncertainty and challenges with the designation of roles and responsibilities for personal data processing. If these solutions do become more widely accessible and available, they will also need appropriate legislative frameworks overseeing their use for the provision of public infrastructure. Additionally, it remains unclear as to how digital euro payment accounts managed by PSPs will interoperate with Member States’ issued European Digital Identity Wallets, how offline and online digital euro transactions will effectively settle, and finally if these two types of transactions will originate from the same digital euro payment account.

**Therefore, while we believe that new technologies hold great promise, we would recommend that the legislative proposal remains technology neutral** and instead focuses on an agreed understanding of how all parties in the ecosystem can meet minimum standards to uphold privacy. This should be entrusted with the relevant privacy authorities and industry to agree these

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<sup>2</sup> <https://www.weforum.org/reports/digital-currency-governance-consortium-white-paper-series/privacy-and-confidentiality/>

<sup>3</sup> <https://www.bankofcanada.ca/2020/06/staff-analytical-note-2020-9/>

standards. In a future state, we believe that as the technology matures, these will in any case play an important role in meeting these standards and hence fulfil the objectives of the proposal.

**We would call on the European Banking Authority (EBA) and the new Anti-Money Laundering Authority (AMLA) to jointly develop not only guidelines specifying the relationships between AML/CFT requirements and access to basic digital euro payment services, but also how they relate to offline payments.** Further clarity would be welcome on how the adjusted AML/CFT framework for offline digital euro payments complies with the Commission's AML package, and whether such adjusted regulatory treatment for offline digital euro use is also applicable to other privately offered stores of value that have offline functionalities. It also reinforces the need to ensure that the new AMLA is established and operational before the launch and rollout of the digital euro.



## Mastercard's recommendations

### 9. Detailed guidance is needed on how the digital (euro both online and offline) meets AML/CFT requirements

We would call on the EBA and the new EU AMLA to jointly develop guidelines specifying the relationships between AML/CFT requirements and access to basic digital euro payment services, as well as how they relate to offline payments. This includes how any adjusted measures would also apply to other privately issued stores of value that have offline functionalities. More importantly, this would imply that digital euro adoption and launch must, as a timing matter, be no sooner than the full establishment of the proposed EU AMLA.

## 5. Mandatory acceptance, access to cash and choice

**We note the legal tender status of the digital euro aims to ensure the digital euro does not replace cash as a means of payment but to complement it.** However, as recognised by the Commission, it has been the growth in electronic means of payment that has led to a general decline in cash payments and the reduction of ATM networks in a number of Member States. The Bank for International Settlements (BIS) also found that the drivers for this growth in electronic payments over the last two decades relate to two core factors – technology and user behaviour. In particular, technology has been one of the fundamental catalysts for payments innovation, in particular e-commerce and smart phones. At the same time, innovations in retail payments are strongly driven by end users' needs for payment instruments that are more secure, efficient, and convenient.<sup>4</sup>

**Paradoxically, mandating digital euro acceptance could further influence user behaviour towards digital payments and have the effect of driving out the use and acceptance of cash.** Despite the proposal for a regulation on the legal tender of euro coins and banknotes, Article 5 of that proposal nevertheless recognises that there will be conditions under which merchants would, in good faith, refuse to accept cash. These circumstances include the legitimate grounds that merchants do not have enough change available because the predominant method of payment is digital. However, the wider the use of the digital euro, the broader the changes in payment

<sup>4</sup> <https://www.bis.org/cpmi/publ/d102.htm>

behaviour, the less cash will be seen as a viable means of payment and be kept on premises by merchants.

**There are fixed costs of distributing and accepting cash and, as cash usage falls, these fixed costs are recovered from fewer transactions and the average cost of distributing and accepting cash increases.** Mandating digital euro acceptance will force merchants to invest more in their digital infrastructure, providing them with an incentive to influence payment behaviour, reducing the inclination for consumers to use cash for payments, thereby reducing the amount of cash that merchants will keep on premise. This will further disincentivise cash distribution and acceptance and undoubtedly will have implications for those who are unbanked, financially marginalised, or otherwise not digitally confident.

**Above all, users should still feel they have choices available to them. Merchants should therefore be required to display to customers the range of payment options that are available to them, including existing debit and credit options.** This is to ensure the objectives of choice and market-based competition are met and is in keeping with current practices. Digital euro payments should also rely as much as possible on existing payment infrastructure and devices, especially when it is cheaper and less complex for merchants and PSPs to do so. The existing payment infrastructure has proven efficient and trustworthy and relying on this infrastructure would make adoption easier for merchants and consumers. In addition, this would avoid duplication of infrastructures and additional costs for merchants and intermediaries. Finally, relying on the existing infrastructure would have benefits in terms of interoperability.



### Mastercard's recommendations

**10. To ensure continued access to cash, the threshold for mandatory merchant acceptance should be changed to large enterprises only, with opt-in available for small to medium enterprises (SMEs).**

Mandating SMEs to accept digital euro payments, which make up the backbone of the European economy, will in its network effect continue to drive out cash and eventually make it impractical and costly for SMEs to hold and process cash. SMEs should be given a choice to opt-in, which will also serve to reassure customers that cash payments will still be available at smaller retailers.<sup>5</sup>

## 6. Strategic autonomy, security, and accountability

**A key objective for the digital euro is to enhance the strategic autonomy of the EU.** According to the Commission, the digital euro would create a payment system which is fully under the control of the EU authorities and therefore more resilient to external disruption. The potential international use of the digital euro nevertheless should also neither endanger the monetary and financial autonomy of non-euro area countries, nor cause harm to the Eurosystem balance sheet and its monetary autonomy.

**Nevertheless, the successful pursuit of strategic autonomy through the deployment of the digital euro will require the EU authorities to equally safeguard its digital euro system from external threats at an unprecedented scale and speed.** In our view, a digital euro could be an important initiative to ensure the use of the euro remains unchallenged domestically and grows

<sup>5</sup> <https://ec.europa.eu/eurostat/web/structural-business-statistics/information-on-data/small-and-medium-sized-enterprises#:~:text=SMEs%20are%20defined%20as%20employing,more%20than%20EUR%2043%20million.>



internationally. But unlike the wholesale payment systems most central banks are familiar with, retail payment systems have many more endpoints and with the exponential growth in digital endpoints, all players struggle to defend themselves against sophisticated threats from an endless number of directions.

**As noted in a recent BIS report, cyber-attacks on critical infrastructure are among the top five risks that could have the greatest impact on a global scale. Importantly, the BIS notes that CBDC systems would be considered a critical national infrastructure,** much like real-time gross settlement (RTGS) systems are today. It further notes that a breach of a CBDC system due to cyber-attacks or technical failures could erode confidence and trust in the CBDC system, the central bank, and potentially the financial system, in addition to generating a range of reputational, operational and potentially legal impacts.<sup>6</sup> For this reason, central banks and other actors in a CBDC ecosystem will need to face up to the increasingly complex cyber threat landscape, comprised of unpredictable threat actors, new threats, a large attack surface, supply chain risks and an environment where the potential upside for a threat actor could be high.<sup>7</sup>

**The Commission recognises that the Eurosystem may face increased cyber and operational risks as issuer of a digital euro.** Payments with digital euro will face similar cyber, information technology (IT) and other operational risks as existing payment systems. However, the Commission also notes that even though the ECB has extensive experience with protecting its existing payment systems, the continuous and instant nature of the settlement service provided by the Eurosystem, combined with the wide audience of served subjects, and additional threats by adversaries not necessarily in search for a direct financial gain implies unprecedented challenges.

**Distribution of the digital euro within and outside the eurozone will also require unprecedented coordination and accountability between national security authorities, central banks, and intermediaries** to ensure the safety and resilience of not only the digital euro system but also all other payments systems with which it interoperates. This type of coordination is not the case when it comes to issuance of physical cash. However, despite its importance - the roles, responsibilities and accountabilities for the security and resilience of the digital euro ecosystem have not been set out under the current proposal.

**The BIS advocates for a clear line of sight for the roles and responsibilities of the CBDC ecosystem.** Central banks would be best placed to take the lead defining the end-to-end security and resilience objectives, requirements, and standards for CBDC systems in collaboration with actors in the ecosystem, as well as assessing risks and defining risk tolerance and levels of acceptance. The digital euro proposal for example would need to consider requirements that participants would need to implement, demonstrate, and validate in order to be allowed to operate within an CBDC ecosystem. This could also include the security requirements for digital wallets, which could include offline payment functionality, are defined.

**However, distribution outside the eurozone raises complex risks and legal questions around accountability and enforcement.** As the BIS notes, the security and resilience of a CBDC system depends on its weakest link. In that regard, central banks need to ensure not only that the CBDC system has implemented all the necessary measures, but also that all participants (eg financial institutions and PSPs) are meeting security requirements, both initially and on ongoing basis.

**Clearly defined accountability measures that apply within the eurozone would rely entirely on third parties to enforce.** Unfortunately, even if agreements between eurozone and non-eurozone authorities were in place, these might not prove sufficient as highly skilled modern cybercriminals exploit both organisational silos and national borders to undermine the safety and security of critical systems. The result is a world where no organisation pursuing a strategy of cybersecurity

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<sup>6</sup> <https://www.bis.org/publ/othp70.htm>

<sup>7</sup> Ibid



"self-reliance," regardless of their sophistication, can be confident that their systems are secure. The safest organisations will be those that "travel together"—sharing critical insights in real time from a network that is global in scope. To fully secure a retail CBDC from both foreign and domestic threats therefore, central banks will need to deploy ecosystem-level monitoring tools that are global in scope; relying on partners to provide critical signals data from beyond their own borders.



## Mastercard's recommendations

### 11. The end-to-end security and resilience requirements of the digital euro system should be defined

The ECB, together with the NCBs, should be required to define the end-to-end security and resilience objectives, requirements, and standards for CBDC systems in collaboration with actors in the ecosystem, as well as assessing risks and defining risk tolerance and levels of acceptance. There must be a clear understanding by all parties on their roles for ensuring the security of the network. This should be led by the relevant security-focused authorities at Union and national level and set out in a delegated act, such as regulatory technical standards. A provision could be added to the proposal requiring, for example, the publication of these regulatory technical standards and the process for implementing these technical standards.

## 7. Untested technologies, and the principle of "do no harm"

**We have noted that the proposal refers to new technologies that the digital euro may come to rely on to deliver some core objectives such as privacy, data storage and payments ledger infrastructure.** However, as we have already highlighted, these technologies are nascent and untested at scale and would require not only robust governance and operational frameworks for their use but also, legislative, and regulatory frameworks for their use in the provision of public infrastructure.

**Many CBDC pilots underway are currently testing the reliability, readiness, security, and scalability of new technologies that have not been previously used or have limited use in a central bank.** Of particular interest to many central banks is the use of DLT for their CBDC systems. While DLT has enabled some interesting use cases in wholesale CBDCs, it has yet to be used and tested widely for retail CBDCs. We agree with the BIS's *Polaris* report that in cases where DLT might be used, such platforms may require new customised security architecture and additional hardening relative to traditional systems.<sup>8</sup> This would also require parties in a CBDC ecosystem to develop, attract and retain new talent required to design, implement, and operate secure and resilient CBDC systems. Such talent may not be available in sufficient numbers for the industry-wide implementation and operation of a DLT-based CBDC.

**Despite these risks, the proposal refers to their eventual use but is silent on the need for additional scrutiny and oversight of these new technologies.** Specifying technology at the start of an extensive project will limit flexibility and may not reflect latest thinking at the time of design. As argued by the BIS, design flaws, supply chain vulnerabilities and weaknesses in the underlying operating infrastructure could be leveraged by threat actors to compromise systems

<sup>8</sup> <https://www.bis.org/about/bisih/topics/cbdc/polaris.htm>

for a range of reasons including economic disruption, financial gain, to sow distrust and fear or to damage the reputation of a central bank.<sup>9</sup>

**It is critical that such design choices are rigorously tested before decisions are made on their use.** Including these references into regulation is therefore not only premature but also increases complexity, risks, and places an unnecessary burden on all parties in the ecosystem, including millions of merchants, to build new capabilities to meet regulatory requirements. We would therefore stress that the legislative proposal should be technology neutral and instead focus on the principles that all parties in the ecosystem must adhere to.



## Mastercard's recommendations

### **12. References to new technologies should be removed or be subject to new regulatory frameworks**

The adoption of new technologies to deliver the objectives and functionalities of the digital euro must be held to high standards of rigorous testing for scale and security. The use of the technologies should therefore be subject to their own regulatory frameworks and be subject to further impact study assessments. Those assessments should factor in the potential costs to all parties in the digital euro system and be incorporated into the compensation model so that all costs are taken into account. This should be led by the ECB and set out in a delegated act, such as regulatory technical standards. A provision could similarly be added to the proposal requiring for example the publication of these regulatory technical standards and the process for implementing these technical standards.

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<sup>9</sup> Ibid