

ECB consultation on a digital euro from 12 October 2020

Berlin, 12. Januar 2021

Introductory remarks

The publication of the Report on a Digital Euro by the European Central Bank (ECB) in early October represented a significant step toward the introduction of a digital euro. The Deutsche Kreditwirtschaft (DK) [German Banking Industry Committee] is intensively debating the ECB Governing Council's decision to examine the various alternatives and their implications by summer 2021. We are therefore pleased to have the opportunity to provide our feedback as part of the consultation process.

The banks in Germany and Europe have a central role to play in the economy and make a vital contribution to the efficient distribution of available funds among competing investment opportunities. As a result, they are very important for sustained economic growth and high employment. Their strength is due in no small part to the tried-and-tested two-tier banking system comprising central banks on the one hand and commercial and savings banks on the other.

The introduction of a digital euro through the Eurosystem that is now being considered has the potential to change the geometry of the European banking system, depending on its design. The DK therefore welcomes the efforts of the ECB, the European Commission, and international organizations to find solutions to the technological challenges that will help to maintain the stability of the current financial system. Europe is competing in a global market and is in a position to set benchmarks and international standards once it has carefully weighed up all the opportunities and risks. However, we believe it is important to thoroughly analyze the potential risks associated with a digital euro.

A digital euro would require significant investment on the part of the Eurosystem, the banking industry, and virtually all sectors of the economy. For this reason alone, there needs to be consensus about ensuring maximum synergies with existing digital payment solutions and

Ansprechpartner:

Stefan Marotzke

für Die Deutsche Kreditwirtschaft
Deutscher Sparkassen- und
Giroverband e.V.
Tel.: +49 30 20225-5110

Cornelia Schulz / Steffen Steudel

Bundesverband der Deutschen
Volksbanken und Raiffeisenbanken e.V.
Tel.: +49 30 2021-1300

Thomas Schlüter

Bundesverband deutscher Banken e.V.
Tel.: +49 30 1663-1230

Anne Huning

Bundesverband Öffentlicher Banken
Deutschlands e.V.
Tel.: +49 30 8192-163

Carsten Dickhut

Verband deutscher Pfandbriefbanken e.V.
Tel.: +49 30 20915-320

Federführer:

Deutscher Sparkassen- und
Giroverband e. V.
Charlottenstrasse 47 | 10117 Berlin
Telefon: +49 30 20225 - 5110
E-Mail: presse@dsgv.de
www.die-dk.de
twitter.com/die_dk_de

the current financial system, especially bank deposits. Such consensus requires a high degree of legal harmonization within the euro area. This will also make conversions between bank deposits and central bank digital currency easier, as intended. All parties involved in implementing a digital euro project must concur that a digital euro cannot be allowed to jeopardize the stability of Europe's financial system.

Nevertheless, the rapid pace of digitalization – both in day-to-day life and in the economy – will change what is required of our monetary system, particularly with regard to payments processing. These changes affect not only the central banks (e.g. ensuring access to central bank money for consumers) but also commercial and savings banks, which will have to – as they have in the past – develop innovative payment solutions. As is the case with payments processing at present, the different parts of the monetary system at the central banks and at the commercial and savings banks will have to be seamlessly integrated with each other. Innovation is undoubtedly driven by the demands and expectations of companies and households regarding monetary matters in the 21st century.

The digital euro should therefore not be designed in such a way that it fundamentally changes the banking industry's role as an intermediary in the economy. And in particular, it must not jeopardize lending to companies. Moreover, it must certainly not be used as a vehicle for markedly expanding the latitude for monetary policy. This would be the case, for example, if negative interest rates on the digital euro were made possible that went beyond the cost of storing cash.

Nor must the introduction of a digital euro be allowed to increase the risk of bank runs in the event of a crisis as this could create significantly higher risks for financial stability with corresponding negative effects on the economy as a whole. The design of a digital euro must therefore exclude the possibility of sudden large-scale transfers of funds from bank deposits to the digital euro. A possible interest rate is less crucial than confidence in the issuer, particularly during a crisis.

According to the DK's analysis, the concept of a digital currency in a digital economy encompasses a whole range of possibilities. These need to be examined and evaluated with regard to how they affect each other and, depending on the implementation of a digital euro, their overall effect. Innovations need to abide by the maxim that a digital euro should be an enabler of, rather than an obstacle to, the digital transformation.

And bearing in mind that digitalization itself is an open process of innovation, the features of money that are demanded in the 21st century will clearly become achievable over time thanks to various technological solutions. Settling on one particular technology too soon may prove counterproductive.

The DK agrees with the ECB that the introduction of a digital euro requires careful preparation. The risks to financial stability and potential restrictions on the supply of credit from commercial and savings banks have not yet been sufficiently investigated. Cash continues to be used in substantial volumes, and highly efficient digitalized payments processing is being continually refined. Going forward, it will be important to tokenize the currency in order to further digitalize economic processes. This will also be an opportunity that goes beyond the possibilities for integrating modern technologies (DLT) into an updated payments processing system that can be implemented in the short term. Smart contracts (payment is triggered automatically in the process) and micropayments (including sub-cent payments) offer a significant opportunity in this context.

Our replies to the questions below reflect and expand on these introductory remarks. They follow the general observation that a digital euro will need to be designed carefully to ensure that there are no unintended consequences. The DK wishes to explicitly emphasize its willingness to play an active role in the design of the digital euro.

5

What role do you see for banks, payment institutions and other commercial entities in providing a digital euro to end users?

The role of the banks in the introduction, distribution, and administration of the digital euro, and in its integration into existing digital payment services, should be the same as it is at present. Within the wider economy, the banking industry ensures an elastic supply of credit that adapts to the needs of companies and households in the economic cycle. It is important not to do anything that would remove the creation of bank deposits, as this is crucial to the economic success of the euro area. Moreover, the lending activity of commercial and savings banks is a crucial link in the transmission mechanism of monetary policy and helps to ensure price stability. Safeguards are therefore needed to make

sure that a digital euro does not significantly restrict the creation of money by commercial and savings banks.

We also believe that the integration of the digital euro into the current landscape of digital means of payment (online, smartphone and card based, application programming interface (API) based, etc.) is crucial to its acceptance. This will also help to ensure that the digital euro enhances the existing monetary order but does not destabilize it.

The way in which a digital euro is introduced is likely to be important not only for the future role of the commercial and savings banks but also for the digital currency's acceptance among the population. We believe that access for the users of a digital euro must be offered by the banks. Banks should continue to be responsible for know-your-customer (KYC), anti-money-laundering (AML), and onboarding processes and for crypto-/asset custody and should continue to serve as the sole hub for end users (similarly to their current role with respect to cash). The German Banking Industry Committee is happy to discuss how this would work in practice.

A concept in which end users have direct access to central bank balances (beyond digital cash) is much riskier in our view, particularly in the event of a crisis, because any transfer to central bank balances would reduce the bank deposits in circulation. In a crisis, the supply of money by our two-tier banking system helps to ensure stability. It is very important that this is not put at risk.

Another important role of the commercial and savings banks is to connect innovative blockchain technology – with all its advantages (e.g. smart contracts) – to current payment systems via interfaces and APIs. Banks would thus become an intermediary for the technologies in order to combine the advantages of highly efficient and already digitalized payment systems with the advantages of blockchain technology or to develop their own blockchain products for business.

6

A digital euro may allow banks and other entities to offer additional services, on top of simple payments, which could benefit citizens and businesses.

What services, functionalities or use cases do you think are feasible and should be considered when developing a digital euro?

There are two main factors that the ECB must take into consideration in the development of a digital euro. Firstly, the framework must be centered on the needs of customers and the competitiveness of the payments processing system needs to be strengthened. This could be done in cooperation with the banking industry. Secondly, the financial stability, the sovereignty of the euro and the autonomy of the European economy must remain intact.

All of this can be achieved by providing end users with convenient access to this digital form of cash through an intermediary subject to supervision, thereby creating confidence in this form of money among the general public. A workable back-end infrastructure that replicates the current forms of money – cash/central bank balances and bank deposits – will pave the way for numerous innovative applications that can be integrated into online banking functionality.

In this context, the ECB should remember that a digital euro in the form of central bank money should exist alongside a digital euro issued privately by European banks under the Markets in Crypto-Assets (MICA) Regulation. This would be issued in order to respond to certain bespoke and constantly changing requirements from the economy/the Industrial Internet of Things (e.g. smart contracts, programmability). Clarification is needed about the extent to which a digital euro issued by banks is covered by the crypto-assets described in the MICA Regulation, so that the intermediaries subject to supervision can efficiently integrate various types of digital money into digital payment solutions (e.g. digital wallets).

Digital documentary business

The independent use of distributed ledger technology (DLT) with international interbank payments processing may be of particular interest in international documentary business because the advantages of DLT – large amounts, concurrent performance (= smart contracts), high level of security, and low transaction numbers – offer added value over current systems. Settlement in euros would be an additional advantage that would also strengthen the role of the euro as a reserve currency. However, this would require the international compatibility of technologies and a link with digital token-based bank deposits.

Use of smart contracts

Irrespective of a digital euro, the support for, or provision of, ready-to-use smart contracts for a wide range of blockchains is an option for

further services. In the event that the digital euro is later expanded to become more than a substitute for cash, these smart contracts would strengthen Europe's competitive position. In this context, it is important to distinguish between programmable money and programmable payments. Different market solutions will be needed, depending on how they are used. Programmable payments can trigger the banking industry's API solutions, use payments processing infrastructure such as instant payments and, in the future, be increasingly structured around a token-based currency/process. This will enable a smooth, stable, and efficient transition to a more cost-effective digital future in Europe.

Depending on how they need to be used, services such as blockchain as a service, smart contracts as a service, payments in Internet of Things (IoT) networks, and new cross-border solutions can be implemented.

7

What requirements (licensing or other) should intermediaries fulfil in order to provide digital euro services to households and businesses? Please base your answer on the current regulatory regime in the European Union.

Provision by and requirements for intermediaries

Intermediaries should provide the digital euro to private individuals and companies. All intermediaries must satisfy the same high requirements – particularly the CRR, PSD2, and EMD2 – that currently are only imposed on banks. Consumers need to have confidence that when they convert traditional euros into digital euros, the money is credited to them correctly. Adequate supervision of intermediaries is required in order to ensure this. This is only possible if the following requirements are met:

- Intermediaries should have a full banking license. This would be a way of ensuring that the digital euro is subject to government supervision and the criteria in the German Banking Act (KWG) are met (including the requirement that intermediaries are "trustworthy").
- The intermediaries that are authorized to make a digital euro available must be subject to supervision based on uniform regulation by the applicable central bank.

Other factors are the design of the intermediaries' services and the potential resulting risks. The risks must be covered in accordance with the rules currently in force.

Intermediaries should be treated as 'obliged entities' as defined by anti-money-laundering provisions. The legal mechanisms would thus apply (identification and suspicious activity reporting obligations as well as risk management) in order to address money laundering risks in this area.

Legal certainty

Legal certainty and appropriate regulatory standards are essential to ensure public confidence in a digital euro and its acceptance by all market actors.

If a digital euro is to be used in legal transactions, a suitable legal and regulatory framework would also need to be put in place. In the case of conventional payments (cf. PSD2), it would be particularly important to define which rules apply to account management and the execution of transactions (e.g. order placement, execution deadlines, duties of care, and liability).

Rules would also be needed regarding the extent to which individuals and companies are obliged to accept the digital euro as a means of payment.

Consideration of existing (IT) regulation

Proportionate reference should also be made to existing IT regulations. Compliance with IT-related regulatory requirements is needed, including the EBA Guidelines on ICT and Security Risk Management and, going forward, the legislative initiatives on cyber-resilience (Digital Operational Resilience Act) and on DLT (Proposal for a Regulation on a Pilot Regime for DLT).

These regulatory effects apply in equal measure to the designers and operators of DLT networks (open or closed) where these enable payments processing with the digital euro. This also includes clarifying the extent to which the access-to-account interfaces in PSD2 also apply to blockchain systems of all market actors (including fintechs) as soon as they offer payments processing and/or online wallets (synonym for an account). A fair and level playing field is needed.

Token-based deposit money enabled by uniform standards

To enable token-based commercial bank money (with some of it held as a reserve at the central bank), uniform standards are also needed for the tokens representing the digital euro. The DK believes that responsibility for defining these standards lies with the ECB because this ensures European compatibility and security and these factors are crucial to acceptance of, and confidence in, the currency. The specification can be based directly on the necessary specifications for the digital euro (token-based central bank digital currency), which means the same technical basis can be used. The DK is happy to help with the development of the specifications.

Furthermore, the ECB must establish uniform rules on issuance, monitoring, and the minimum reserve for the issuance of token-based commercial bank money.

If the ECB is to be the supervisory authority for token-based commercial bank money, the details of the regulatory framework/practices of the ECB will have to be defined.

Provision of infrastructure for the logistics of the digital euro

In the same way that banks provide cash desks and the underlying cash infrastructure, the role of the banks should be to ensure the return flow of the digital euro. To do this, however, there would have to be some means of funding the investment. Payments with a digital euro would thus be free of charge for consumers, while the provision of logistics and acceptance services for business users would be a role carried out by banks and cash-in-transit companies similar to their cash logistics role.

8

Which solutions are best suited to avoiding counterfeiting and technical mistakes, including by possible intermediaries, to ensure that the amount of digital euro held by users in their digital wallets matches the amount that has been issued by the central bank?

In the account-based variant, the concept for real-time checks/reconciliation seems to be the most feasible way of avoiding technical mistakes (e.g. double spending), although giving the ECB administrator-like access to the systems operated by intermediaries should be avoided.

At a minimum, the scalability and interoperability of this concept must be as good as that offered by current payments systems. In this context,

it would make sense to take a close look at blockchain protocols. The design of the consensus algorithms must also be taken into account sufficiently. In our view, the Eurosystem needs a long-term strategy and, in the event that a digital euro is introduced, a short-term bridging technology to resolve this problem. As well as scalability, issues such as proof of authority, data protection, AML, and on the flip side, anti-fraud measures, must be taken into consideration. The same applies to the level of security of the underlying token cryptography and the risk of cyberattacks. From an IT security perspective too, any prospective digital euro would have to be stable and reliable in order to ensure the stability of the Eurosystem.

In the offline variant, the underlying technologies for cryptography and 'certified wallets' must be selected carefully in order to ensure that a digital euro cannot be copied and thus double-spending will be excluded. This essentially corresponds to the security features and checks used for acceptance in the circulation of cash at present.

The DK is offering to help with the process of evaluation and introduction.

The uniform market launch of a digital euro across Europe, plus token-based commercial bank money, is only possible if European standards are defined for tokenization, digital wallets, and the provision by the ECB of licensed hardware and software for intermediaries and end users free of charge. This includes adequate access to the hardware components that are available in the market in order to satisfy the requirements that the digital euro needs to meet regarding payment and use by consumers. Only once such access provides a basis in law for an equal and level playing field can the digital euro be successful as a way of enabling retail access to central bank money.

If the ECB is considering the use of DLT/blockchain technology for the digital euro, this should be done using a technology-neutral approach as far as possible and the technology should be made available to banks operating in a regulated environment.

9

What technical solutions (back-end infrastructure and/or at device level) could best facilitate cash-like features (e.g. privacy, offline use and usability for vulnerable groups)?

General remark

A digital euro in itself will not be capable of perfectly replicating all of the desirable features of physical cash. At the same time, some of the disadvantages of physical cash will of course be reduced or avoided altogether (e.g. forgeries, physical decay, financial and environmental impact of logistics cycles). Desirable features come with trade-offs, both with each other and with the avoidance of disadvantages. The conflicting primary objectives should be weighed up against the complexity of the systems and processes, i.e. against the necessary investment costs for the central bank, the banks, and business in general. It is therefore extremely important that the design of a digital euro and its legal framework enables technical and economic synergies with other digital means of payment (see also question 14).

Data protection

As with any digital transaction, data trails are unavoidable and are in fact necessary for the functioning and integrity of the system. However, tried-and-tested features of existing digital payment solutions can be adopted in order to protect the privacy of payers and payees. The key to privacy between users is the use of pseudonyms and (probably dynamic) customer IDs and transaction mechanisms that do not disclose the user's real name.

Offline use

The advantages of offline use have to be weighed up against various other aspects that need to be resolved, such as the risk of fraudulent or inadvertent double-spending. This can be mitigated by two general approaches that are not mutually incompatible. The first deals with the payer's technical environment (e.g. mobile device). The application must be sufficiently robust to avoid technical manipulation. One of the ways to achieve this is with secure element technologies that are already used in mobile payment solutions. In addition, tokens for a digital euro that are transferred offline could be given an offline expiry date. Once this is reached, online validation with the centralized/decentralized ledger must take place before the token can be used in another offline transaction. The idea behind the second approach is that only the payer's device can be offline, whereas the payee's device must be connected to the internet to ensure real-time validation.

User-friendliness for vulnerable groups

Generally speaking, digital solutions can increase financial inclusion. But they also create new barriers, e.g. for people with impaired vision or motor skills. The design of a digital euro should build on banks' good

experiences with other payment and banking apps. The risk of a digital divide still exists, however. Consumers who cannot, or do not want, to interact with digital devices may be excluded from a wide range of business transactions. Banks can be part of the solution by providing easily accessible payments processing components. However, eliminating the digital divide completely is a task for society as a whole and will not be possible without sufficient intervention on the part of governments.

10

What should be done to ensure an appropriate degree of privacy and protection of personal data in the use of a digital euro, taking into account anti-money laundering requirements, and combating the financing of terrorism and tax evasion?

In the cash-like, offline-enabled version of the digital euro, established processes and rules for cash can be transferred to the world of the digital euro. When an offline token is transferred to an account, there could be policies, limits, supervision, etc. as there are today. The same would apply to conversion into token-based commercial bank money. To this end, the current rules for cash could be applied (user identification above certain amounts for deposits and withdrawals, restrictions on taking cash abroad).

The possibility of restricting the possession of digital euros could be achieved using dedicated digital wallets in which they are held. In our view, the registration of consumers or devices before use of a digital euro would be a significant obstacle to the introduction and acceptance of a digital euro. Online use of the digital euro requires additional legal changes to be made so that the digital transfer of the digital euro cash variant is permissible in certain circumstances.

In the case of transactions involving small amounts, the approach taken to protect privacy/data needs to be selective. The identity of the transaction participants should be registered only above a threshold applied for anti-money laundering purposes. The aforementioned objectives of offline use and protection of privacy are competing objectives, examples of which can also be found in other areas such as the objectives of resilience to money laundering and crisis resilience even in a disaster. To help ensure acceptance, this must be examined and evaluated separately – depending on the design of the digital euro –

and taking account of the technical options. The same applies to the issue of KYC.

11

The central bank could use several instruments to manage the quantity of digital euro in circulation (such as quantity limits or tiered remuneration), ensuring that the transmission of monetary policy would not be affected by shifts of large amounts of commercial bank money to holdings of digital euro.

What is your assessment of these and other alternatives from an economic perspective?

(Tiered remuneration is when a central bank sets a certain remuneration on holding balances of digital euro up to a predefined amount and a lower remuneration for digital euro holding balances above that amount.)

Using interest rates to manage the supply of money is a tried-and-tested monetary policy instrument. It would therefore seem an obvious course of action to use interest rates to manage the digital euro too. However, there are unknown pitfalls in the existing monetary environment that mainly relate to the as yet unknown form of the digital euro and which could manifest themselves in a variety of ways as a result of interaction with the banks' deposit-taking business. It is therefore not yet possible to provide an all-embracing reply to this question. Potential illustrative scenarios are discussed below. As the issue of managing the digital euro will be extremely important to the business models of commercial and savings banks, the German Banking Industry Committee is also offering to help resolve this issue.

The ECB is proposing a tiered interest-rate model (tiered remuneration) in order to limit the digital euro to the role of a means of payment and make it unattractive as an investment. Above a to be defined threshold, a lower interest rate could be applied for the digital euro in order to reduce its appeal relative to bank deposits. This will prevent retail customers from converting significant amounts of deposits in their bank accounts into a digital euro. As a consequence banks would have to utilize central bank money in an equivalent amount. Banks might run out of the central bank money that they need to disburse new loans to the real economy. Even if the ECB were to make up for the banks' funding shortfall with loans, the banks may not have enough of the collateral that they would need for these loans. As a result, the role of banks as intermediaries between savers and borrowers would be at risk

(‘structural disintermediation’). This particularly applies during financial crises in which such shifts could take on the form of a digital bank run. Instruments such as amount-based restrictions are likely to be more effective than penalty interest rates in unusual stress phases such as this.

Tiered interest rates create further challenges above and beyond that of direct quantity management. If they take the form of flexible interest rates, the ECB might be able to impose interest rates on the market that are much further into negative territory than at present. This might then lead to even more intense monetary policy, with all the associated challenges such as the creation of dangerous bubbles in the financial and real estate markets and a lack of acceptance among the general population. Whichever decision the ECB takes about the instruments used to manage the quantity of digital euros in circulation will therefore also play a part in deciding whether the digital euro will be a largely neutral instrument with regard to monetary policy or whether it is to be an instrument that would result in substantial changes to monetary policy control mechanisms.

The alternative of treating the digital euro like cash – i.e. without interest – reveals the real underlying question, namely the roles and responsibilities of the central bank and the commercial and savings banks in the future monetary system. The question discussed does not address the issue of the effects that the various remuneration options would have on business models. It is therefore by no means only a matter of controlling the money supply but rather a highly complex challenge in relation to the interaction between the central bank and the commercial banks. The DK is willing to discuss this issue with the ECB in greater detail.

In our view, interest rate management will not be effective in the event of a crisis. Mechanisms have to be introduced that are comparable to those currently used for the provision of cash, i.e. intervention options in the form of an order to stop withdrawals/disbursements and an immediate freeze on increases in the available stock of the digital euro.

12

What is the best way to ensure that tiered remuneration does not negatively affect the usability of a digital euro, including the possibility of using it offline?

In general, any form of remuneration for a digital euro runs the risk of strengthening 'value differences' between a digital euro, cash in its current form, and bank deposits, remuneration for which indirectly depends on the ECB's variable benchmark rates.

Technical limits on the amounts in offline-enabled digital wallets would keep the control effect and the risks of transfer at a manageable level.

One way of not restricting the acceptance of a digital euro and thus its status as legal tender would be to introduce a mandatory transfer in the sense of a payment into the account of, for example, the merchant (traditional bank deposits or online wallet with appropriate remuneration).

There should be a particular focus on companies. As their bank deposits are generally not fully covered by the deposit guarantee, they are likely to be very interested in the digital euro for this reason alone. If there were no restrictions on the quantity of digital euros, especially for companies, there would likely be a significant outflow from bank deposits.

Limiting digital euros would not be a problem for payment solutions using smart contracts (pay-per-use payments, machine-to-machine payments), which aim to optimize processes and supply chains in the industry. This is because these technologies can be easily integrated with current payments processing systems (adapters or APIs) and they combine the advantages of both technologies. Moreover, the issuance of token-based commercial bank money on the basis of these technologies may be an alternative option to balance the macroeconomic needs (money creation function of the financial sector and efficiency requirements of business) and the need for stability in the financial system.

13

If a digital euro were subject to holding balance limits, what would be the best way to allow incoming payments above that limit to be shifted automatically into the user's private money account (for example, a commercial bank account) without affecting the ease of making and receiving payments?

We envisage a general architecture with three elements: (i) the identity of the owner (consumer or company) of a digital euro, (ii) the owner's

account or wallet for the digital euro (represented by a unique identifier), and (iii) the logical connection to a payment account within the European Economic Area.

When the account or wallet for the digital euro reaches the maximum amount: Either the Eurosystem or a special service provider that is assigned to operate the digital euro account or wallet is authorized (and obliged) to automatically convert digital euros and credit them to the bank account (e.g. via SEPA transfer or instant payment credit transfer).

EU legislation already ensures that consumers within the European Economic Area have access to payment accounts (basic payment account, see Directive 2014/92/EU). A close link to a payment account is therefore adequate from a consumer protection perspective. It can also help with the design of consumer-friendly banking products that strengthen the role of both the digital euro and existing digital payment solutions.

14

What would be the best way to integrate a digital euro into existing banking and payment solutions/products (e.g. online and mobile banking, merchant systems)? What potential challenges need to be considered in the design of the technology and standards for the digital euro?

The introduction of a digital euro would require significant investment in IT systems and processes on the part of the central bank, the banking and payments processing industries, merchants, public authorities, and probably the entire economy. To reduce this expense, the design of a digital euro and its legal framework would need to be closely aligned with the regulatory requirements for other digital means of payment. If it is not possible to leverage technical and economic synergies, the potential benefits of a digital euro will not outweigh the additional complexity and redundancy.

In addition to technical and economic synergies, such a guiding principle would support the goal of interoperability with established payment solutions and systems. A digital euro could be integrated into customers' online and mobile banking. This should make it easier for consumers to adapt to the digital euro. Integrating the digital wallets with existing systems would be a good way of making them easier to use.

A digital euro should be rolled out in stages (e.g. starting at regional level) to ensure the legal tender function both for consumers and for companies. Such a rollout would enable customers to benefit from the features, convenience, and usability of a digital euro and enable the tailored expansion of transaction numbers/quantities, systems, and infrastructure. During such a market testing phase, experience can also be gathered on how a digital euro affects the use of monetary policy as a means of managing the economy.

We welcome the envisaged principle that the rules of PSD2 would apply to certain aspects of customer access; these may need to be checked or adapted in respect of certain details of the use of the digital euro (e.g. SCA limits). From a more technical perspective, the principles and rules of Commission Delegated Regulation (EU) 2018/389 must be applied.

Aside from technical issues and in view of further-reaching aspects of payment law, the ECB and European lawmakers need to examine how further harmonization can be achieved.

The best way would be to use API systems for new technologies in order to combine the advantages of the new technologies with the existing highly-efficient payment systems.

Any solution for a digital euro needs to be at least as efficient and user-friendly as the current cash system and must promote digital inclusion.

A digital, token-based and offline-usable euro that complements traditional cash has the advantage of being as anonymous, at least as secure, and as easy to use in peer-to-peer transactions as cash. The task for the payments processing and banking industry will therefore be to make sure that it can easily and securely supply the digital euro via customer touchpoints so that it can be 'loaded' to customers' devices, digital wallets, and PCs.

15

What features should the digital euro have to facilitate cross-currency payments?

Replies to questions 15 and 16

Using the euro outside the euro area would throw up a number of challenges. On the one hand, it is desirable that the euro remains

internationally competitive in a world of central bank digital currencies and that every opportunity is taken to strengthen the importance of the euro in foreign exchange markets. As other countries are also likely to introduce a central bank digital currency, thereby making these currencies more internationally competitive, it certainly makes sense for the ECB to use the digital euro for cross-border payments too.

International use of central bank digital currencies needs to be in accordance with a common standard agreed by the central banks. Furthermore, the challenges of facilitating cross-currency payments with a digital euro are similar to those with traditional currencies: the fragmented global regulatory environment for the settlement of payments, i.e. AML monitoring rules, limits for cross-border credit transfers, etc.

The use of a digital euro abroad should be restricted for reasons of financial stability; such restriction would be possible if certified, limited digital wallets were used. Unrestricted use of central bank digital currencies could significantly increase the volatility of international flows of capital and the currency market. This would particularly be the case if citizens of other countries were to use the digital euro as a substitute for their own national currency. However, there is a dilemma here too, because a digital euro could be a powerful instrument with which to substantially reduce transaction costs both in international payments processing and in the international movement of goods and services. This could be resolved with token-based commercial bank money.

The euro (whether digital or not) is the same currency as the physical or account-based euro. It is important that conversion processes are based on current euro prices.

Technical interoperability that is internationally standardized should satisfy the current regulatory requirements and security standards (technology-neutral approach).

16

Should the use of the digital euro outside the euro area be limited and, if so, how?

See reply to question 15.

17

Which software and hardware solutions (e.g. mobile phones, computers, smartcards, wearables) could be adapted for a digital euro?

If there are to be real benefits, all hardware solutions should support the digital euro in the form of digital wallets, simple processes, and certification (e.g. limit on the maximum amount, security level, IT standards), depending on the details of the technology used. To satisfy the requirement of being able to use the digital euro during a crisis, every solution must be usable if there is no electricity, internet, etc. for a lengthy period (offline capability). If the digital euro is to be stored in a 'hot wallet', the software solutions need to be the same as those currently used for online and mobile banking. Hardware solutions could be 'cold wallets' or electronic vaults that have cash-like functions (data protection, etc.).

In our view, access to commonly used and widely available hardware (e.g. smartphones with an NFC chip, secure element, voice control, and control buttons) must be facilitated so that payments are easy and convenient. An NFC chip alone is not sufficient in this context.

Moreover, the hardware needs to be affordable and widely available in the EU, making it accessible to everyone and enabling digital inclusion.

18

What role can you or your organisation play in facilitating the appropriate design and uptake of a digital euro as an effective means of payment?

The DK has many years of experience in all financial matters, especially payments processing, financial market stability, and the supply of credit and funds to business. Moreover, Germany is one of the first countries to have a blockchain strategy and the DK has for some years been examining technological approaches and possibilities that could unlock their potential.

As the design of the digital euro will have particularly pronounced effects on all these areas, we are happy to contribute our extensive expertise.

The deliberations on a digital euro should also be linked with the efforts to create a European champion through the European Payments Initiative (EPI).

In the event of the introduction of a digital euro at a later date, the banks will have access to all EU residents and will thus be able to assist customers with any questions about the digital euro through the usual channels, offer tailored products to the different customer groups, and help customers with the transition and introduction of the digital euro.