ADAN

L'ASSOCIATION POUR LE DÉVELOPPEMENT DES ACTIFS NUMÉRIQUES

Your views on a digital euro

Answers to the European Central Bank

January 12, 2021

Adan

Overview

As explained by Fabio Panetta, Executive Board Member, the European Central Bank (ECB) wants "to make sure that our currency [euro] is fit for the future". This is why in recent months the ECB has been stepping up its reflections on the issue of a digital euro with a view to possible experimentation. Thus, after the creation with five other central banks of a group dedicated to the evaluation of potential cases for central bank digital currencies (CBDC) within the Bank for International Settlements (BIS), and the publication of its *Report on a digital euro*, the ECB has wished to assess the need for and feasibility of a digital euro by consulting potential users and industry on their needs and their perception of the implications of this project (including for monetary policy and financial stability). This consultation closed on 12 January and will help the ECB decide by mid 2021 if they will launch or not a digital euro experiment.

Adan is thankful to the ECB for allowing the expression of industry players thanks to this consultation. The Association's objectives are to help create the more favourable environment in the EU for the development of a crypto-asset industry competitive with other regions of the world.

In short:

- Adan supports the conduct of experiments by Central Banks with digital euro, whether the ECB or the French Central Bank; in early 2020 the Association welcomed the project initiated by Banque de France.
- Adan highlights the specificities of blockchain technologies and their advantages for the issuance and management of a digital euro, as well as for end users.
- Adan believes that the deployment of the digital euro on open blockchain networks would make it all the easier to comply with the requirements laid down by the ECB in their *Report on a digital euro*: accessibility, transparency, composability, interoperability, efficiency in terms of implementation and use costs, robustness, confidentiality, etc.
- Adan draws the ECB's attention to the absolute necessity to consider the full range of blockchain solutions, including those with the highest possible degree of openness, and not only proprietary technologies. When examining the issuance of a digital euro, the ECB does not advocate specific technologies, and notably leaves room for a digital euro issued on public blockchain networks. However, to observers of the EU Commission's proposed regulatory framework for crypto-assets (Markets in Crypto-Assets and Pilot Regime) and of other CBDC initiatives, this apparent technological neutrality lacks clarity[1]. The Adan also clarifies the commonly-used binary distinction between so-called "private" and "public" blockchain networks that fails to capture the possible nuance between these extremes.

The Association is available for any question or additional work related to the subjects covered by this consultation.

[1] Under the EC's proposal for a pilot regime, "DLT transferable securities" could only be issued, recorded, transferred and stored on the proprietary DLT deployed by market infrastructures. Moreover, the IMF's Working Paper WP/20/104 shows that when Central Banks consider using DLT instead of centralised databases to issue their CBDC, they only explore "private permissioned network[s]" that "appear to be better suited for".

Your views on a digital euro

Adan answers to the European central bank

Throughout this survey, Adan will refer to the requirements set by the ECB in their *Report on a digital euro* (Annex 1).

User perspective

How would you rank, in order of importance, the features that a digital euro should offer?

- I want to be able to use it throughout the euro area.
- I want my payments to remain a private matter.
- I want to be able to use it with my smartphone and at payment terminals.
- I want to be able to pay even when there is no internet or power connection.
- I want it to be easy to use.
- I want to use a digital euro without having to pay additional costs.
- I want it to take the form of a dedicated physical device.
- I want it to be a secure means of payment.
- I want my transactions to be completed instantaneously.

Do you have any further comments about the ranking that you have indicated above?

The current payment experience is mainly damaged by their costs and turnaround time especially regarding cross-border operations; as Mr François Villeroy de Galhau stated in December 2019 "*cross-border payments […] are still – undeniably – far too costly and slow*"[2]. That is why the digital euro must offer significant improvements in these fields, from its design to its use.

Considering the issuance of the digital euro, open blockchain networks would induce considerable time and cost savings (ECB's R7a requirement) and have a significant competitive advantage compared with less open technologies (R3 requirements). "Public" blockchain networks have become proven technologies. An entire ecosystem of tried and tested technological building blocks (e.g., standards, applications, infrastructure, developer tools) are readily available for anyone to use. Such components may also be combined to create advanced use cases. On the contrary, implementing closed networks requires deploying the supporting infrastructure from scratch (e.g., nodes, block producers) and recruiting validators.

Execution of the cash leg of transactions on a blockchain network thanks to a digital euro could also enhance cost- and time-efficiency to the benefit of users by streamlining and reducing processes handled by current payment infrastructures (operational costs) and multiple intermediaries

2 https://www.banque-france.fr/sites/default/files/medias/documents/2019.12.04_conference_acpr_en_v5.pdf

(intermediation costs) as well as some compliance costs thanks to the possible automatisation through smart contracts and possible secure mutualisation among participants.

At the time when data privacy and confidence in institutions processing assets is still increasingly fundamental for citizens, the digital euro must be built on a perfectly resilient technology. The resilience of a blockchain network correlates directly with the number of participants (nodes) in a said network (meeting R5 and R14 requirements). There is a positive relationship between the number and diversity of participants (decentralisation) on a blockchain network and its resilience to cyber-threats and breaches. With no single point of failure, incentive systems reward participants for the safety and value they bring to the network. And with a large number of observers auditing networks' performance and code, decentralised blockchain networks have proven to be highly resilient and nimble in the face of attacks. Moreover, they enable the creation of advanced permissions and rulesets necessary for large-scale applications such as CBDCs (complying with the P2 core principle).

As long as the digital euro is additional to cash, offline use is not the major issue to be solved.

Do you envisage any challenges associated with a digital euro that would prevent you or others from using it? If so, what are they?

To prompt its adoption and usage while bringing added value for consumers, the coming digital euro must be widely and easily accessible and usable in particular regarding innovative applications and services. That is why crypto-assets, stablecoins and the digital euro must be built using the same technologies to allow full interoperability between the current financial and monetary systems and the nascent decentralised economy. This is even clearly highlighted in requirements P3, P4, R1, R6, R12 and R13 set by the ECB. Therefore, as private sector initiatives run primarily (and increasingly so) on "public" blockchain networks, interoperability, value creation and global mass adoption will be heavily enhanced if the digital euro is deployed on such networks.

Moreover, the digital euro must be dynamic, easily adaptable to innovations and enhance synergies and interoperability in order to help users benefit from them. "Public" blockchain networks are open source projects, developed by a large and expert community which continually strives to improve protocols and their functionalities, develop innovative use cases and resolve issues. Code repositories and their version histories are freely available and usable on dedicated developer platforms such as GitHub. This provides excellent efficiency in permanently addressing the needs of end-users and project holders – prompting the creation of standards and ensuring a steady stream of ideas and innovation. That is why open networks are specifically adapted to comply with R1 R3, R9 and R10 requirements.

What user features should be considered to ensure a digital euro is accessible for people of all ages, including those who do not have a bank account or have disabilities?

The digital euro must favour "financial" inclusion. Depending on their configuration, blockchain networks can be open for anyone to participate or limit their participants. In the context of euros, which must be usable by billions of individuals, open networks appear much more convenient and user-friendly. They are likely to improve accessibility to the digital euro for both current and prospective holders as required by P3 core principle, R1, R6, R9 and R12 requirements. In the long-term context of

financial markets, substantial liquidity and market depth will be easily achievable on open networks while private ones will be limited by governance and rivalry considerations.

The digital euro must also ensure people's wish for privacy. To this end, blockchain networks offer an interesting mix of features that make them suitable for both institutionally-backed and community-supported applications. Accounts are pseudonymous, which allows each user to maintain a certain level of privacy, while at the same time, all the transactions are publicly recorded, allowing for reliable auditability. In addition, cryptographic primitives allow, when required and even for the most open systems, to support higher levels of privacy, and notably, making some transactions entirely private (R2 and R10 requirements).

There are two approaches we can take to make a digital euro work, one that requires intermediaries to process the payment and one that doesn't.

- If we design a digital euro that has no need for the central bank or an intermediary to be involved in the processing of every single payment, this means that using a digital euro would feel closer to cash payments, but in digital form – you would be able to use the digital euro even when not connected to the internet, and your privacy and personal data would be better protected.
- The other approach is to design a digital euro with intermediaries recording the transaction. This would work online and allow broader potential for additional services to be provided to citizens and businesses, creating innovation opportunities and possible synergies with existing services. For example, it could make it easier to integrate a digital euro into currently available electronic banking services and applications.

From your perspective, which of the following do you find most appealing? (select one):

✓ Please choose...
a digital euro focused on privacy and the protection of personal data, which can be used offline;
a digital euro with broader potential for additional services, allowing innovative features and other benefits for citizens and
a combination of both.

A combination of both.

Do you have any further comments regarding your answer to the question above?

- Regarding option 1:
  - Smart contracts deployed on blockchain networks enable the automatic and trusted execution of operations when (and only when) all conditions are met. Open networks allow independent parties access to the ledger, who may verify the execution of operations. They may also verify and audit the smart contract code, which is key to ensuring correctness and robustness of the code. More eyes on the underlying application (smart contact) code is a substantial confidence enhancer for all, including end-users, as required according to the ECB's P5 core principle.
  - As stated above, there is a positive relationship between the number and diversity of participants (decentralisation) on a blockchain network and its resilience to cyber-threats and breaches.
  - As explained above, privacy of users can be protected on open blockchain networks while ensuring traceability of operations.

- As long as the digital euro is additional to cash, offline use is not the major issue to be solved.

- Regarding option 2:
  - Automation through smart contracts would help manage manual operations and record-keeping traditionally held by various parties in current financial and banking systems, and guarantee continuous and right reconciliations among them.
  - Stating that "a digital euro with intermediaries" would "allow broader potential for additional services to be provided to citizens and businesses, creating innovation opportunities and possible synergies with existing services" seems partially wrong. Today, the growing Decentralised Finance (DeFi) ecosystem that develops innovative peer-to-peer financial services proves precisely the opposite. That is why as aforementioned, the digital euro must be connected to this existing established ecosystem of innovations that are nearly exclusively built on open blockchain networks.

Financial, payment and technology professionals' perspective

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

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?

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.

The provision of the digital euro services should be open to a large panel of participants, not only existing banking institutions but also nascent companies from the "crypto" industry that would meet a dedicated set of conditions adapted to their specificities and current stage of development.

That is why, contrary to the current draft of the pilot regime for DLT transferable securities that favours the access of financial institutions to markets in security tokens, and those of the MiCA proposal that restricts the issuance of stablecoins to credit and payment institutions, the provision of digital euro services should not be limited the incumbent. This actually conflicts with the EU Digital Finance strategy's professed aim of being innovation- and competition-friendly.

Conditions set to new actors to provide such services should not only rely on existing regulatory statuses but also on new opportunities that blockchain technologies unlock to comply with the key principles of financial regulations. Crypto newcomers have comparative advantage regarding innovative

use cases over traditional actors, e.g their understanding of blockchain and crypto-assets, the provision of crypto activities, their greater potential to explore decentralisation and innovative use cases, their speed to innovate, etc. that must be taken into account to create the appropriate set of rules providing all required guarantees while fostering their potential for innovation and facilitation of users' adoption and experience of the digital euro.

Finally, limiting authorised participants to regulated traditional actors gives rise to legitimate doubts that they will develop really innovative services as they can rely on their existing infrastructures today and won't be encouraged to innovate if they do not fear any competition from some novel entrants.

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?

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)?

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?

As stated above:

- Blockchain networks offer an interesting mix of features that make them suitable for both institutionally-backed and community-supported applications. Accounts are pseudonymous, which allows each user to maintain a certain level of privacy, while at the same time, all the transactions are publicly recorded, allowing for reliable auditability (see Transparency). In addition, cryptographic primitives allow, when required and even for the most open systems, to support higher levels of privacy, and notably, making some transactions entirely private (R2 and R10 requirements).
- Smart contracts deployed on blockchain networks enable the automatic and trusted execution of operations when (and only when) all conditions are met. Such conditions can be regulatory requirements like AML-CFT.

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.)
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?

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?

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?

When examining the issuance of a digital euro, the ECB does not advocate specific technologies, and notably leaves room for a digital euro issued on public blockchain networks. However, to observers of the EU Commission's proposed regulatory framework for crypto-assets (Markets in Crypto-Assets and Pilot Regime) and of other CBDC initiatives, this apparent technological neutrality lacks clarity.

Indeed under the EC's proposal for a pilot regime, "DLT transferable securities" could only be issued, recorded, transferred and stored on the proprietary DLT deployed by market infrastructures. Moreover, the IMF's Working Paper WP/20/104 shows that when Central Banks consider using DLT instead of centralised databases to issue their CBDC, they only explore "private permissioned network[s]" that "appear to be better suited for".

The commonly-used binary distinction between so-called "private" and "public" blockchain networks fails to capture the possible nuance between these extremes. Instead, one should look at blockchain networks as being more or less open, a function of how said blockchains configuration.

When interacting with a blockchain network, there are three broad roles one can assume: transaction validator, such as mining or approving blocks by participating in consensus; application developer, such as developing and deploying smart contracts, and; application user, such as sending and receiving transactions, and interacting with applications. These roles may overlap as one may assume different functions (e.g., block validation activities require sending and receiving transactions). While typically, blockchains networks either allow full open access to all three of these roles (so-called "public" blockchain networks) or restrict access to authorised entities (so-called "private" blockchain networks), there exist practical and theoretical examples where the public/private classification is not so clear. Much like the Internet, built on open protocols and standards (e.g., TCP/IP, HTTP, SMTP), and open networks operated by private enterprise, open blockchain networks can support production applications with universal access.

The deployment and issuance of a digital euro on blockchain networks, including those with the highest possible degree of openness, should not be excluded. Such an initiative presents an opportunity for Europe to solidify its position as an innovative leader on the global crypto-finance stage. Indeed, open blockchain networks are perfectly compatible with the underlying requirements set by the ECB in their Report on a digital euro (Annex 1).

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

As aforementioned above, interoperability of the digital euro within the entire financial and monetary system is crucial. That is why the more open, resilient and accessible the underlying technology is, the more likely it will be widely adopted in the current digitalisation process of payment means.

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

No.

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

All of the above. Choosing an open-source approach means developers and private enterprises would be free to build compatible applications as long as they adhere to the standards set by the protocol.

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?

Adan is an industry body that brings together and represents digital asset and blockchain professionals in France and Europe. Our members cover a wide range of activities, including market makers, custody providers, payment service providers, investment management, analysis tools, events and marketing, and security. Adan is dedicated to all the companies that are interested in crypto-assets and are targeting the French market.

We believe that digital assets represent a transformational shift in finance and economics. Crypto-asset technologies challenge centuries-old foundations of economics and monetary theory and offer the potential to create a new social contract built on the principles of inclusion and openness.

Our mission is to be a pragmatic voice for the French and European digital asset industry, contributing to its growth and development through constructive dialogue and education.

Adan benefits from the expertise of their members and has experience in the global payment use cases:

- Adan gathers many over 50 crypto companies which are exploring financial and payment use cases using blockchain technologies.
- Adan is already participating in the French Central Bank's experimentation partnering with one major bank and several companies from the crypto industry.
- Adan's work is supported in the context of the European Crypto Initiative (EUCI).

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About Adan

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