**Presidency Issues Note for the Informal ECOFIN
Working lunch for Ministers**

The applicability of blockchain technologies outside the realm of cryptocurrency transactions and its contribution to Digital Europe

Introduction: blockchain vs. virtual currencies

It is a common misconception that cryptocurrencies are perfectly equated with blockchain and other distributed ledger technologies - "DLTs" technology. It is true that Bitcoin is the first product created on the basis of this technology, and that other cryptocurrencies are the most common manifestation of the use of this technology in practice. However, the potential use of blockchain technology and other distributed ledger technologies far exceeds the so-called crypto industry.

Central bank digital currencies, digital identity, smart contracts, e-elections, tokenization of funds, monitoring the origin of products and other are just a few examples where blockchain technology will have the key role.

Decentralized and automated financial institutions

A decade ago, it would be hard to imagine a bank without its own brick and mortar branches that would offer all its services through mobile applications. Today the so-called neobanks are a part of reality. In the coming years, it is likely that there will be technology that will enable fully decentralized payment institutions to operate, that their entire infrastructure will be in the cloud, and that their financial products will be tailor-made to individual customers by artificial intelligence. Nowadays, banks and other centralized institutions ensure transaction integrity. In the future, this role of institutions may be fully replaced by blockchain technology. Self-executing blockchain contracts will be able to automate all processes.

Decentralized, autonomous financial systems are already here. Uniswap, ChainLink and Dai are just a few examples. But these ecosystems are mostly unregulated. Of course, the question arises whether the European regulation will allow such ecosystems without legal subjectivity and without currently required organizational structure to obtain a banking license or different kinds of fintech licenses, such are the licenses under Payment Services Directive ("PSD2"). Will a sole program code, without any legal subjectivity behind it, be able to obtain a banking license? If the answer is yes, blockchain technology and other DLT will play a key role here.

Central Bank Digital Currencies (CBDCs)

Currently, more than eighty different countries are working on a government digital currency project. This also applies to the European Union. In July 2021, the European Central Bank decided to launch a digital Euro project. The research phase will begin in October and

will last for two years. In China, a pilot project for the use of the digital Yuan began as early as April 2020. In Bahamas, central bank issued their CBDC called sand dollar in October 2020. The possible introduction of the digital Euro (and other digital currencies of central banks) is likely to be the most concrete step towards a cashless society and innovations in FinTech sector.

CBDCs cannot be equated with cryptocurrencies as we know them today. The main difference is that the CBDCs will be centralized as they will be issued by the central banks. It is not yet clear at this time on the basis of which technology these digital currencies will be issued.

Blockchain technology itself was basically designed to transfer value in digital form. Bitcoin has proven that technology works and serves its purpose, and, at the same time, is safe for users. It is a more than a decade old technology that successfully solves the problem of the so-called double spending, and which, to date, has successfully withstood all attacks on its program code. And there have certainly been many of these attacks.

Certainly, public ("*permissionless*") blockchain platforms, due to various risks such as so called 51 % attack, are most probably not suitable as a basis for CBDCs. From a risk management perspective, private (*"permissioned")* blockchain-based technology solutions are more appropriate. South Korea, Hong Kong and Australia are already developing their CBDC pilot projects on various public and private blockchain platforms.

Digital identity

The digital transformation of processes in society is moving in the direction of increasing online interactions between different stakeholders. Digital services are rapidly replacing analog services to a greater extent or even completely. In order to increase the efficiency of and trust in these services, and above all, to ensure greater integrity of digital services, it will be necessary to ensure an appropriate digital identity. The infrastructure for an identity that is a few decades old needs to be rebuilt and adapted to present and future digital reality.

The aim of the new identity infrastructure is to establish a digital identity that is decentralized and therefore not owned by a specific entity, freely available to the holder, interoperable between different digital platforms and that will provide the highest possible level of security. We are talking about the so-called self-sovereign identity ("SSI"). DLT as a technology which is essentially based on decentralization and security will certainly play an important role in the further development of digital identity.

Today, the world's largest technology companies are already working on the concept of SSI and its standardization. The development of this concept is also supported by the EU institutions through various programs. As part of the European Blockchain Service Infrastructure ("EBSI") initiative, which is also initiated by the European Commission, a project is under way to develop the European Self-Sovereign Identity Framework ("ESSIF").

Asset tokenization

Asset tokenization is the process of transferring rights attached to a specific asset to a digital token. Thus, assets that can be in materialized (real estate, movable property) or dematerialized (intellectual property rights, financial instruments) form can be transferred to a digital system operating on a DLT platform. Furthermore, transactions of such tokens are secure and transparent.

Tokenization can make some illiquid assets, such as real estate, very liquid. Tokenization creates a kind of digital shares that give the holder certain entitlements arising from the underlying asset. For assets that are already more liquid, tokenization is an additional source of liquidity.

Quite a few successful European startups are already working on the tokenization of funds. Another great example of tokenization came from the European Investment Bank ("EIB"). EIB decided to tokenize the bond in April this year. For the first time in its history, it issued a digital bond on the Ethereum public blockchain platform. In this case, blockchain technology was used to register investors and for settlement.

Conclusion

With more and more examples of the use of blockchain technology in practice, it proves that it could play an important role in some key pillars of the future digital economy, including the future digital infrastructure of the monetary system, the financial industry, and digital identity.

Questions for discussion:

1. Is there enough trust in and understanding of the blockchain and other DLTs technology so that it can be one of the key technologies for Europe's future digital infrastructure, as foreseen in the Digital Agenda for Europe, as introduced by the European Commission?

2. How to effectively integrate DLT into existing systemic regulations at EU level, such as eIDAS, MiFID II and GDPR, taking into account the principle of technology neutrality?

3. Could the establishment of a regulatory sandbox, jointly developed by EU institutions such as the ECB, ESMA, EBA further accelerate innovation in the development of infrastructure solutions using blockchain and other technology?

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