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CBDC – ESSENCE, ADVANTAGES, DISADVANTAGES, AND FEASIBILITY OF IMPLEMENTATION

Digital and cyber money are gradually becoming commonplace. Most people have heard something about these types of currencies at least once. More and more often, governments of different countries mention Central Bank Digital Currency (CBDC) or start testing them. That's why it is important to clarify the essence of such money, its differences from traditional money, advantages and threats, and the areas where it is appropriate and safest to use such money in the modern situation.

Creation of all sorts of digital money or currencies was influenced by different things from the need of fast and safe international transactions to financial inclusion and reduction of costs for managing the whole financial and bank sphere. It is not just a modern trend. Also, those processes became a huge push during COVID-19 when more people were starting to use digital payments and some of them were also afraid of using traditional money. And the huge popularity of such cyber currencies like Bitcoin influenced central banks (CB) of different countries to create similar type of currency, which will be controlled and could be a substitute for private cyber currencies or even replace them. That's why in the most of countries this problem was and is researched, in a lot of countries were also developed some sorts of experimental currencies. Especially rush development was seen during the last years. So, if in May 2022 CBDC was launched in 10, pilot in 15, developed in 25, researched in 45 countries, but in the same time inactive in 10, canceled in 2 and with some other issues in 2 countries, so, in total in 109 countries of the world, in March 2024 their number was 3, 35, 31, 45 17, 2, 2 respectively, it means in general in 135 countries. The number of countries in which CBDCs in 22 Month become a pilot has more than doubled, but also the number of countries in which the implementation of the CBDCs was suspended almost doubled [1]. This statistic shows a huge interest to CBDC, but also that not everything is going smoothly on the way of its launching.

CBDC are close to cyber-money, but at the same time have some important differences. CBDC are the digital versions of CB issued money that can be listed on the blockchain. There are three main types of CBDC: retail CBDC – used by consumers and businesses and they could be divided into two types according to how the user accesses them and where they are used: token-based with the access through private or public keys, which allows users to make transactions more or less anonymously; account-based with the digital identification for getting access to the users account; wholesale CBDC – are used by banks, financial organizations and payment processors for interbank transfers, they are similar to holding reserves in a CB; hybrid CBDC – combines the features of both types for the global use of CBDC. In general, it is a complete penetration into all spheres of business and life [2].

Both CBDC and cyber currencies are based on blockchain, but there are huge differences between them, that need to be mentioned. First, when cyber currencies are

using public blockchain or even networks, which are decentralized, then CBDC a private one, which is a closed, secured, directly controlled centralized database. It means for the user among other things, that at the time when cyber currencies are more or less ensuring anonymity to users, so they can decide on how much and what kind of data they wish to make public as unquestionably autonomous with a peer-to-peer paradigm, CBDC allows to track all information and to screen if it is needed, also they will automatically send vast amounts of details to tax and supervisory offices [2].

CBDCs have their own advantages, that determine the official desire or interest of countries to implement them. Among them are: accessibility; scalability; increase of the transaction efficiency; reducing of costs for managing financial system; potential of stimulation of economic growth; simplification of tax collection; integration with other emerging technologies; enhance of financial inclusion and access to banking services; potential for monetary policy implementation and also simplification; increase of financial inclusion; increase of the efficiency of cross-border transactions; reduction of illegal financial activity; support of the fintech sector [1; 2; 4].

From the first sight implementation of CBDCs brings a lot of positive changes to all areas of economic activity. But the number of countries, who canceled or stopped this process shows, that there are also some serious disadvantages. And the point is not the lack of development of these countries. An example of this is the UK, where the existence of the Bitcoin in 2011-2019 had a negative effect. Also, in other developed countries the implementation of CBDC has its own difficulties. For example, in the US alone, 5% of adults didn't have a bank account in 2020, an additional 13% of adults who had bank accounts, instead used costly alternative services like money orders, payday loans, and check-cashing services [3], what makes the wide implementation of CBDC complicated. Of course those are not the only disadvantages of CBDCs. Here's a closer look at some of the other most important and dangerous ones:

- wrong design choice of the model of CBDC could force the worsen of the data protection of users, what means, that transactional data could be illegally used for credit evaluation and cross-selling initiatives;

- without substitute in situation of instability, war, or disasters it will be impossible to use CBDCs. Blackouts, especially longtime, and all sorts of digital or informational wars, which are among the most efficient nowadays, can destroy financial system;

- could lead to monopolization of the financial market, when CBs, by reducing the cost of infrastructure maintenance, provide more profitable services than commercial banks, or dumping to actually reduce the volume of transactions conducted through such banks. The next step will be the actual liquidation of commercial banks and financial institutions, and after that reduction of taxes structures. Another potential scenario is either the termination of a significant share of existing financial instruments or establishment of extremely unfavorable conditions for those in need of a financial loan. Given that the money of individuals and legal entities will be held in CB accounts, the CB may eliminate the deposit option, which will lead to a decrease in the income of some financial market actors. The termination of commercial banks and financial institutions will lead to an increase in unemployment, as well as the actual reformatting of the employment structure, what will have a long-term deeply destructive impact;

- instead of stabilizing and reducing crime and money laundering, a complete transition to CBDCs may lead to an increase in instability due to the lack of efficiency of a completely new infrastructure, the implementation of which will be expensive, as well as problems with the consistency of systems of different countries and problems with conversion in cross-border transactions, as well as the emergence of new “holes” in these mechanisms, but also an increase in crime. Experience shows that crime, especially in the cybersphere, adapts to new conditions and uses their shortcomings as its advantages much faster than regulatory authorities develop expensive mechanisms to combat them. That is, an uncontrolled increase in crime is potentially possible;

- the loss of anonymity and independence. When all information about financial activity, and therefore preferences, goods and services purchased, the place and time of each transaction is tracked, it creates a huge cloud of information about each person. People lose their anonymity. The CB effectively gains unlimited control over the data of individuals and legal entities, and all government agencies along with it. In addition, such information is something that corporations are hunting for. That means, that it potentially becomes not only a subject of trade, but also an object of massive hacker attacks. In addition, even if we do not mention the fact that psychologically people spend more when they use electronic money, i.e., the complete transition to CBDCs will lead to an increase in spending by the population, the state will be able to program what users can or can't buy, where they spend money, even how much and when. And such developments have already been carried out, for example in China in the form of a system of social loans. It means, that such actions become a trap for most social groups by regulatory authorities or government [4].

Of course, these are not all the advantages and disadvantages, but only some of them. Nevertheless, CBDCs will gradually become a part of our everyday life, so the main task nowadays is to find the safest and most effective balance in their use (for example, in interbank transactions, including international, intergovernmental transfers) and to ensure that there is an alternative, including in the physical (cash) dimension, whose existence will be guaranteed and its functioning and use will not be artificially depressed.

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THE POTENTIAL OF CENTRAL BANK DIGITAL CURRENCY IN UKRAINE

The emergence of Central Bank Digital Currency (CBDC) was driven by the reply of central banks to the rapid growth in demand for private money and cryptocurrencies, which arose as a response to the post-2008 economic crisis and distrust of traditional banking systems. The protection of such a currency by the sovereignty and economy of the state is the basis of its reliability. CBDC does not replace cashless payments, but complements them.

The devastating war has damaged the Ukrainian financial sector, requiring innovative solutions for post-war recovery. In this context, CBDC can be a perfect solution. Over the past two years, Ukraine has shown an impressive example of digitization and integration of citizens into state services, a significant increase in "Diya" users is a direct confirmation of this. The number of IT specialists in Ukraine is constantly growing too. The next logical turn in the evolution of digitalization is the introduction of a Central bank digital currency.

The e-hryvnia is an electronic form of the currency of Ukraine issued by the National Bank of Ukraine (NBU). According to the regulator, the key purpose of the e-hryvnia is to effectively perform all functions of money and supplement cash and noncash forms of hryvnia [1].

The main advantage of CBDC is its ability to optimize the payment system. Digital transactions using electronic hryvnia can significantly reduce processing times and transaction costs. This efficiency becomes even more important in a post-war scenario, when rebuilding infrastructure and reviving economic activity are paramount. In addition, CBDC can promote greater financial inclusion by reaching populations that do not use or do not have bank cards but still rely on cash. This is especially true in Ukraine, where a large part of the population may be displaced or may not have access to traditional banking services due to the consequences of war.

The NBU conducted the first e-hryvnia experiment in 2018, becoming one of the first central banks in the world to test the use of digital money. Analysts from PwC highly praised the NBU's achievements in this area, placing the e-hryvnia in 4th place