

# Digital Currency: Prerequisites, Benefits and Risks

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**Keywords:** Digital currency, central bank, money, digitalization.


**Abstract:** The article deals with a new vector of developing monetary circulation based on the issuance of digital currency by the Central Bank. Taking into account the digital changes in business, transactions, commodity and money exchange, the financial system is undergoing changes, there is a need to digitize cash to increase efficiency - the speed of operations and minimize the costs of cross-border transfers. The global trend at CBDC has both benefits and risks for the economy. Based on the analysis of development trends, the authors have defined the advantages and disadvantages of introducing digital currency into the use by all households.


## 1 INTRODUCTION

The globalization processes are rapidly penetrating into the life of modern society, rebuilding the usual business processes, and dictating new trends in doing business. Developing information technologies contribute to the formation of links between industry entities, unification, new market segments and the elimination of uncompetitive participants. Platforms based on Internet technologies have become a common vector for the work of companies from completely different fields of activity. Intelligent technologies enable to develop electronic banking services, which are in high demand. The most promising technologies are smart banking, Internet of Things (IoT), ubiquitous computing (UC), artificial intelligence (AI) and blockchain technology (distributed ledger) (Savelyeva N.K., Timkina T.A., 2021). Let us consider the functioning of commercial banks through the use of new technologies in their work. The banking sector is undergoing significant changes. The development of remote services, triggered by the Covid19 pandemic, is being shaped by the Internet. It is stated that since 2020 digitalization has determined the quality of life in developing countries to the same extent as economic growth. Digitalization ensures the fight against inflation (49.79%) (Savelyeva N.K., Sozinova A.A., Popkova, 2020). The growth of mobile Internet users is growing, and therefore the potential number of

clients for a commercial bank is increasing. The expansion of the client base confirms the relevance of using remote technologies in the banking sector.

The new term "the bank ecosystem" is considered by modern authors as a set of participants interacting with the organization and directly or indirectly participating in the "value chain" (universities, agents selling goods and services, communities), and customers (Bykanova NI, et al., 2020). In this context, it can be determined that the ecosystem is interconnected, independent organizations, united by common goals to meet the needs of the client. In this case, we are talking about expanding the list of powers and boundaries. The main feature of new technologies is the ability to form related links between completely different areas within the framework of one strategy. The activity on the part of the restructuring activities of commercial banks, the trend towards it-technologies made it possible not only to restructure the development strategy of commercial banks, but to draw the attention of the Bank of Russia and the Government of the Russian Federation to the regulation of the banking sector, taking into account new development prospects. But at the same time, the financial sphere of the state is also undergoing large-scale changes, as in October 2020 the Central Bank of the Russian Federation provided a report of public consultations on the topic "Digital Ruble" (Bank of Russia, 2020).

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Money is of great importance in the life of society. The development of electronic money is due to the possibility of exchanging money through mobile applications, Internet banking, mobile operators. According to official statistics, the use of the Internet in the context of payment for goods and services has increased by 16% compared to 2020. Any commodity-money transaction via the Internet is accompanied by remote payment, that is commercial banks act as a tool. Electronic money has already entered the life of modern society, the stage of their formation is shown in Fig. 1.

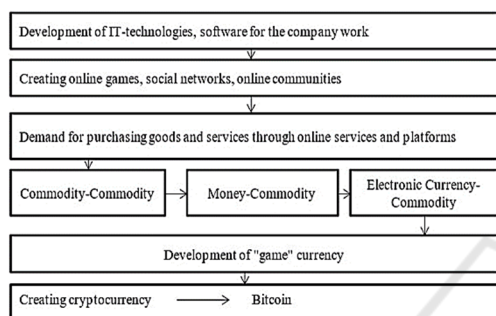


Figure 1: Development stages of electronic money.

The stages of developing electronic money have a beginning, because the starting point can be called the appearance of exchange currency in computer games. Initially this process involved bartering goods for goods. Then money became conventional units of exchange, a fee for certain options, privileges, later the possibility of exchanging game money for cash. In 2020, according to RBC, the volume of the gaming streaming market in the Russian Federation and the CIS countries exceeded 20 billion rubles. According to analysts, this direction is increasing and the computer games industry will grow on average by 20% per year. The transfer of cash into game currency is carried out through electronic money (Fig. 2).

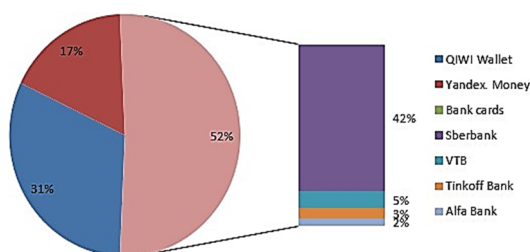


Figure 2: Transferring funds into game currency.

The basis of transfer is electronic services. According to the data of the diagram, they are based on money transfers from mobile banking. These operations can be called as the start of electronic

money used between citizens, the opportunity to make money on buying and selling, on-time sale or purchase. Gaming money, like cryptocurrency today, has trends to increase or decrease. These principles absolutely accurately characterize the basic principles of cryptocurrency. By 05/25/2021 Bitcoin has taken the leading place in the rating (Fig. 3)

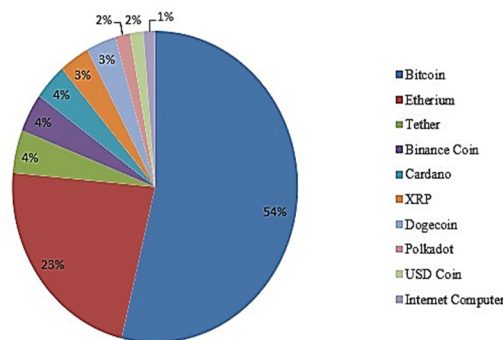


Figure 3: Share of leading cryptocurrencies by market capitalization, \$.

According to Fig. 3, we can absolutely say that the cryptocurrency is firmly entrenched in the market, the leader is Bitcoin. Turnover on May 24, 2021 was \$ 68,394,666,153, with a market cap of \$ 716,460,385,872. The popularity of digital currency is increasing, the growth in demand gives rise to market expansion.

## 2 MATERIALS AND METHODS

The duality of the introduction of digital currency for mass use can be traced in many reports of Western banks and institutions. The analysis of the IMF claims "... the launch of CBDC is a multidimensional event that goes beyond the usual framework of project management in the field of information technology of the central bank. ... The new currency could lead to major disruptions affecting monetary policy transmission, financial stability, financial sector intermediation, exchange rate channel and payment system operation ..." (Kiff et al., 2020). Scientific work on digital currency forms the concept "... CBDC is a new form of money issued by the central bank in digital form and intended to be used as legal tender ..." (Tommaso Mancini et al., 2018). In this case, it is possible to single out the cause of activity in relation to digital currency, namely, the convenience of a digital means of payment to satisfy consumer preferences, this fact is confirmed by the European Central Bank (Fabio Panetta, 2021). Currently,

disputes between representatives of Western states regarding the introduction of digital money under the authority of the state are increasing.

Domestic scientists and government representatives form basic principles for forming CBDC. In 2020 a report on the role of the digital ruble, its features and capabilities was published on the Bank of Russia website, which confirmed the concern of the authorities and the duality of meanings for the country's economy. E.L. Sidorenko sees the digital currency of central banks as a new means of transporting money, a kind of alternative to non-cash payments. At the same time, commercial banks retain all the advantages of non-cash funds: both a transfer mechanism through the registers of a commercial bank, and the ability to track payments (Sidorenko E. L., 2021). Dobrinskaya D.E., Martynenko T.S. consider digitalization processes as a phenomenon of social inequality, since Russia has a problem of digital accessibility and the inability of some segments of the population to consume technology (Dobrinskaya D.E., Martynenko T.S., 2019).

Having studied reports of central banks of foreign states, the opinions of scientists and national documents, we can conclude that the research topic is relevant, since today there is no clear understanding of conversion consequences of the national currency for all states.

### 3 RESULTS AND DISCUSSION

Digital currency is a continuation of the era of plastic cards, electronic money, cryptocurrency and bitcoins. With the growing demand for electronic money, the supply is rising. In this case we are talking about private commercial institutions. Digital currencies can be centrally managed, when one firm controls the processes, for example, Facebook created the Libra digital currency. The principles of decentralized governance have cryptocurrencies based on distributed ledgers, transaction records. In this case, the more people who want to create a digital currency, regardless of the form of organization, the more difficult it becomes to exercise control by the state, to assess their reliability and liquidity for the Central Bank, because at the moment there is no single methodology for assessing data. Thus, the question arises about the centralized electronic currency (hereinafter CBDC), which is controlled and issued, like tangible money, by the main bank of the country (Fig. 4).

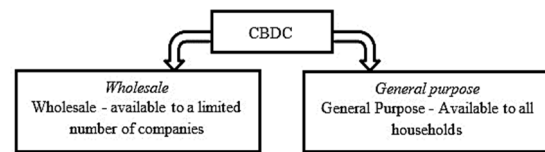


Figure 4: Types of centralized digital currency.

In general, the digital currency of the Central Bank can be defined as an electronic obligation of the central bank, expressed in the national currency and acting as a medium of exchange and storage of value. At the same time, CBDC should be considered as a new form of central bank money, different from traditional central bank money and presented either in the form of cash or in the form of money in reserve and bank accounts with the central bank (Kochergin D., Yangirova AI, 2019) ... Central Bank digital currency is an electronic form of central bank money that could be used more widely by households and businesses to make payments and store valuables (Bank of England, 2020). The concept of digital currency is considered by the Institute of Banking Policy, so the reporting document states that "... CBDC is a digital payment instrument denominated in the national unit of account, which is a direct obligation of the central bank ..." (Bank policy institute, 2020).

In order to determine the nature of changes with the introduction of CBDC, let us turn to the main properties of money, namely, in this case, technology. If we talk about digital currency, then its functioning is supposed to be based on tokens, and not on accounts as when dealing with cash. In this case, the key difference between tokens and accounts is their verification: the person receiving the token verifies the authenticity of the token, while the intermediary verifies the identity of the account holder (Green (2008) and Kahn and Roberts (2009)). However, the definition of tokens varies considerably across academic fields, and other reports differentiate between value or account-based CBDC forms (e.g. Sveriges Riksbank (2018) and Norges Bank (2018)) (Barontini Ch., Holden H., 2019). The uncertainty of the scale and level of penetration of a possible monetary instrument gives rise to speculations about possible benefits and risks for the economy.

If we take into account the general availability of the population to digital currency, based on the speed of transfer, the absolute advantage of the innovation is the elimination of additional transfer intermediaries, both within the territorial boundaries of the country and in cross-border transactions. But if the risk lies in the increased load on the Central Bank of the country, it is responsible for the execution of

the transaction, thereby increasing the load, and, consequently, the need to expand the structure of the bank itself.

Based on the fact that CBDC is issued and controlled by the country's main bank, it is possible to track the legality of suspicious transactions of individuals, concealment of income, targeted use of budget money for government purchases of goods and services, and the tax burden of enterprises and organizations. To implement such measures, we need large databases, ensuring cybersecurity and protection against data leakage, which in turn requires large investments.

Digital money minimizes the risk of counterfeiting, as is impossible with cash. But at the same time there is a risk of theft of funds at the slightest system failure.

The funds of the population are kept in the Central Bank, that is, in this case, we are talking about minimizing the risk of bankruptcy, loss of a license, default, non-return of money to a minimum in comparison with commercial banks. At the same time, more flexible prices for deposits of commercial banks can significantly reduce the desire to keep money in a "safe place" in order to increase the amount of the deposit.

Of course, under the condition of CBDC, the central bank is not an observer with the function of a control body, but is a market participant. The emergence of a new player can increase the level of competition in the banking market and lead to more favorable conditions for the buyer. The risk in this case is obvious, because with the price competition for the client, profit and lending activity decrease, and most importantly, the withdrawal of deposits for transfer to CBDC can lead to the liquidation of the bank, so there are the following data and the termination of activities for 2021.

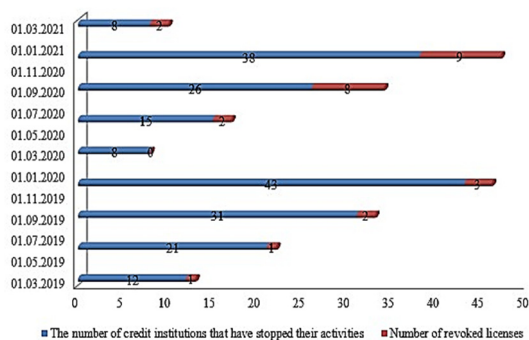


Figure 5: Number of credit institutions that have stopped independent activities.

In this case, we are talking about the loss of competitiveness, which in turn results in an outflow of customers, with the subsequent loss of profit and reliability of the bank. The introduction of digital currency implies functioning on the basis of software products on the Internet. Taking into account the fact that in Russia there is an obvious problem of ensuring accessibility for residents of remote regions, there is a risk that not all citizens will be able to use services.

Any new system requires a long time to test or eliminate all inaccuracies. This process is accompanied by a long time to process transactions, which can create additional difficulties and determine the unattractiveness of this type of service for the client.

The CBDC system will reduce the risks of DvP and Pvp transactions, namely, in the first case, simultaneous delivery and payment, and in the second case, a quick transfer of one currency to another. It will avoid additional client actions for currency exchange to reduce costs.

Thus, the introduction of digital currency is accompanied by equal risks - the duality of criteria. Of course, CBDC is capable of solving a number of global problems, reducing corruption, hiding income, preventing illegal transactions, etc.

## 4 CONCLUSIONS

The processes of globalization are currently a vector of change, the rapid trend for remote services is due to the consequences of the Covid19 pandemic. Shock events carried out by the Government and business to maintain their existing positions, rapidly and on a large scale allowed the entire economy to move to a new digital level. Such terms as digitalization and internetization, "remote" economy characterize remote services. There is the growing demand for electronic platforms for purchasing and selling goods, services, credit products, in a word, to meet all kinds of needs of the population, regardless of territorial boundaries. Digital technologies, expansion of areas of activity, commercial organizations attract additional products, expanding the range of services provided. An example of this merger is the bank's ecosystem, a clear example of a remote software-based product that allows to increase the usual list, attracting new customers, expanding markets, minimizing costs due to scale, etc.

Banks in this case act as an intermediary in transactions, but taking into account various participants, difficulties in cross-border transfers, there is a need for a single form of exchange with ease

of transfer. For these reasons bitcoin, cryptocurrencies and other forms of electronic money arise. Demand is growing, the number of companies creating their own cryptocurrencies is increasing, the question arises from the point of view of government control.

The creation of digital currency by central banks is an unconditional response to the growth of commercial cryptocurrency, the ability to control the processes of exchange and consumption. But the move has enormous implications for the economy, both in terms of scale and risks. The question is open today, because not one state can accurately determine the consequences of this phenomenon. The theoretical substantiation of existing risks provides the basis for the formation of operating principles, operating conditions, powers, but from the point of view of practice, it is absolutely unknown to predict how the digital currency will behave after being put into use by all households. CBDC is a logical continuation of globalization trends, it has a number of indisputable advantages, will allow modernizing monetary policy, expanding the central bank's jurisdiction, and reducing corruption. These goals are duplicated in all plans for the country's economic development.

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